**NOTE**: Please remember that following ‘answers’ are NOT ‘model answers’. They are NOT synopsis too if we go by definition of the term. What we are providing is content that both meets demand of the question and at the same time gives you extra points in the form of background information.
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Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Examine the role of small towns in the regional development process. (250 words)

**Research Gate**

**Why this question:**
Question aims to evaluate the role of small towns in the regional development process.

**Key demand of the question:**
One has to explain that the regional development process is crucial for development of underdeveloped regions. This can be aided by the presence of small towns.

**Directive:**
Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

**Structure of the answer:**

**Introduction:**
Define what constitute small towns.

**Body:**
Discuss the functions that the small towns play with regards to the regional development process; They act as the link between larger urban centres in the urban hierarchy with the villages in the region. They provide socio-economic opportunities to the emerging middle class working age population; act as centres for counter-migration etc. Then explain the limitations they face, discuss policies aimed to address these limitations.

**Conclusion:**
Conclude with way forward.

**Introduction:**
Small and intermediate size towns play a significant role in the socio-economic transformation of regional spaces through diffusion of innovations. It, however, has been hypothesized here that in this diffusion process the villages having better infrastructural facilities and services, play central role

**Body:**
‘small town’ is some place where urbanity has not yet reached in its full vigour. It may also sound relatively smaller in size by area and also by population residing within it. But the concept is not fully clear simply by its demographic status or by its areal occupancy.

**Importance of role of small towns in regional development process:**

- By acting as centres of demand/markets for agricultural produce from the rural region, either for local consumers or as links to national and export markets. Access to markets is a prerequisite to increase rural agricultural incomes, and the proximity of local small and intermediate centres to production areas is assumed to be a key factor.
- By acting as centres for the production and distribution of goods and services to their rural region. Such concentration is assumed to reduce costs and improve access to a variety of services, both public and private and for both rural households and enterprises. Hence, services include agricultural extension, health and education (and access to other government services), as well as banking, post, services of professionals such as lawyers and accountants, lower-order services such as bars and restaurants, and wholesale and retail sales of manufactured goods from within and outside the region.
• By becoming centres for the growth and consolidation of rural non-farm activities and employment, through the development of small and medium-sized enterprises or through the relocation of branches of large private or parastatal enterprises.

• By attracting rural migrants from the surrounding region through demand for non-farm labour, and thereby decreasing pressure on larger urban centres.

• By managing natural resources in ways that respond to the needs of growing rural and urban populations with special attention to protecting resources in the face of local and global environmental change.

• Small-towns occupy an important position in the urban-rural continuum of India.

• Small towns possess a unique binomial status of acting as a bridge between villages and cities.

• They provide to villages ‘a sort of resort’ activity during their off-period from agricultural operations.

• In the developing world, small towns are neither traditional in their structure, nor do they represent modern settlement milieu. But they are empowered functionally by both the city and the country.

• Small towns have a unique way of life governed by their size, site, demography, social ecology and economy.

• Unlike villages, small towns are bigger, have better links with their surrounding countryside but are having weaker community affairs and social set-up.

• Small towns are instruments of stabilizing the balance of the urban process by their being reagents in symbiotic relationship between the lowest and uppermost settlement system.

However, there are challenges related to small towns:

• Unfortunately, despite the significant contribution of these small towns, they remain invisible in the policy discourse.

• The fact that they continue to be administered as rural villages also means that they are not on the priority of state and central governments as far as urban infrastructure is concerned.

• In any case, it is well known that an overwhelming amount of our total expenditure in urban infrastructure is cornered by large projects of urban transportation and infrastructure in metropolitan areas.

• But they also receive lower priority in provision of electricity, communication and financial services such as banking and credit.

• The invisibility of small towns in the political discourse is partly a result of the size of these towns but also the approach of the government.

• Rural areas continue to remain important politically because of the sheer size of rural areas as vote banks but also the nature of vulnerability that rural populations face.

• The absence of an administrative structure suited to urban governance eludes them since they are counted as rural in the administrative scheme of the government.

• The ‘neither here, nor there’ status of these census towns and small towns raises important questions of sustainability of these as drivers of growth.

Measures needed:

• The solution is not just changing our understanding of urbanization based on statistical measures but an economic classification.

• But more important is to recognize the importance of changing economic geography which is centred on these small towns and census towns.
This will require not just planning ahead in terms of public provisioning of essential services and infrastructure to these areas but also making sure they continue to remain important for future growth.

Conclusion:

Thus, small towns are not just important for employment creation for the new entrants to the labour force but also a majority of those who will move out of agriculture in the future.

Case study:

A recent study by Urmila Chatterjee, Rinku Murgai and Martin Rama from the World Bank suggests that small towns have contributed significantly more in generating non-farm employment as compared to large cities. Another study by John Gibson, Gaurav Datt, Rinku Murgai and Martin Ravallion also highlights the importance of small towns in rural poverty alleviation compared to large cities.

In what way small entrepreneurs can prove to be a key to India’s urban future, job creation, and growth revival of the economy? Analyse. (250 words)

Financial Express

Why this question:
The article highlights the growth dynamics of the formal and informal sectors and in that it explains the vital role that small entrepreneurs can play in reviving the growth story of the Indian economy.

Key demand of the question:
Discuss in detail the possible contributions that small entrepreneurs can make to the economy.

Directive:
Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:
First discuss who small entrepreneurs are.

Body:
Discuss first the existing Trends in urbanization and formalization of the Indian economy. Comment on the importance of recognising the role of informal sector as an important driver of growth and job creation. Quote relevant example if any. Discuss what aspects foster the coming of small entrepreneurs and in what way they can largely contribute to the economy. Explain challenges if any involved.

Conclusion:
Conclude that our mindset lets large enterprises have a disproportionate influence in policy making, with no place for the informal sector at the table. But India’s urban future, job creation, and growth revival may be with the small entrepreneurs.

Introduction:
India’s informal manufacturing sector is large, no matter which definition we use, enterprise or employment. A vast majority of India’s workforce is informally employed – those who work outside of formal establishments, in un-incorporated private enterprises and mostly without any social security benefit.

Body:
Potential of India’s MSME sector:
• **Contribution to GDP:** The share of MSMEs in the country’s gross value added is estimated to be about 32%.

• **Leveraging Exports:** It also contributes about **40% to total exports and 45% to manufacturing output.**

• **Employment Opportunities:** It employs 60 million people, creates 1.3 million jobs every year and produces more than 8000 quality products for the Indian and international markets.

• **Diversity:** There are approximately 30 million MSME Units in India and is quite diverse in terms of its size, level of technology employed, range of products and services provided and target markets.

• **Fostering Inclusive Growth:** MSME is constructing inclusive growth in numerous ways through promoting non-agricultural livelihood at least cost, unbiased regional development, large female participation, and providing a protection against deflation.

**The challenges and concerns associated with the growth of Informal sector:**

• **Access to Credit:**
  - According to Economic Survey (2017-18), MSME sector faces a major problem in terms of getting adequate credit for expansion of business activities.
  - The Survey had pointed out that the MSME received only 17.4 per cent of the total credit outstanding.
  - Most banks are reluctant to lend to MSMEs because from the perspective of bankers, inexperience of these enterprises, poor financials, lack of collaterals and infrastructure.

• **Poor Infrastructure:**
  - With poor infrastructure, MSMEs’ production capacity is very low while production cost is very high.

• **Access to modern Technology:**
  - The lack of technological know-how and financial constraints limits the access to modern technology and consequently the technological adoption remains low.

• **Access to markets:**
  - MSMEs have poor access to markets. Their advertisement and sales promotion are comparatively weaker than that of the multinational companies and other big companies.
  - The ineffective advertisement and poor marketing channels makes it difficult for them to compete with large companies.

• **Legal hurdles:**
  - Getting statutory clearances related to power, environment, labour are major hurdles.
  - Laws related to the all aspects of manufacturing and service concern are very complex and compliance with these laws are difficult.

• **Government policies:**
While the goal of Goods and Service Tax reform is commendable, its hasty implementation has adversely impacted small entrepreneurs in the informal sector. It has broken the link between formal and informal sectors.

Large enterprises that outsource a lot of tasks to small enterprises are now less inclined to outsource it to the informal sector that barely come under the GST net.

There is rising concern that demonetisation has also adversely impacted the informal sector more than the formal sector. Hundreds of millions of small enterprises that operate in the informal sector, and which are cash dependent, have suffered losses and lost their jobs.

Insolvency and bankruptcy reforms are important and needed for more efficient resource allocation. But it is not of a great consequence to the informal sector. There is mounting evidence that economic shocks that worsen infrastructure affect informal sectors by reducing their access to markets and basic services.

- **Lack of skilled manpower:**
  - The training and development programs in respect of MSME’S development has been. Thus, there has been a constant crunch of skilled manpower in MSMEs

Other issues:

- Low ICT usage.
- Low market penetration.
- Quality assurance/certification.
- IPR related issues.
- Quality assurance/certification.
- Standardization of products and proper marketing channels to penetrate new markets.

Measures needed:

- Government of India and banks should design plans and measures to widen easy, hassle-free access to credit.
- The RBI should bring stringent norms for Non-Performing Assets (NPA) and it will help curbing loan defaulters and motivate potential good debts. Further, according to critics, the Credit Guarantee Scheme for MSME (CGTMSE) run by SIDBI is a growing contingent liability and needs to be examined with urgency.
- Government should provide enhanced development and upgradation of existing rail & road network and other infrastructure facilities in less developed and rural areas to boost growth and development of MSMEs.
- There should proper research and development in respect of innovative method of production and service rendering. Further, the government should promote and subsidise the technical know-how to Micro and small enterprises.
- Government should encourage procurement programme, credit and performance ratings and extensive marketing support to revive the growth of sick units.
- Skill development and imparting training to MSME workers is a crucial step to increase the productivity of the sector. The government should emphasise predominantly on skill development and training programs.

Way forward:
India’s favorable structural trends and young demographics will revive growth, with urbanisation and informal sector playing a key role in job creation.

The finance minister could explicitly recognise the role of informal sector as an important driver of growth and job creation in the next Budget.

While the agenda on smart cities has caught the attention of policy makers, it needs to be made more inclusionary by integrating the informal sector into city planning, budgeting and financing. Technological revolution has made the informal sector as partners in development.

Smartphones have become the key tool for women entrepreneurs, putting instant information about safety alerts, traffic, tourism, health services, and community news into millions of hands. India’s urban future is in the informal sector.

Investments in the infrastructure sector in different ways can transmit into numerous effects leading to better growth of the Indian economy and inclusive employment generation. Discuss.

Financial Express

Why this question:
The article highlights the significance of investments in the infrastructure sector of the country and in what way it in turn boosts the economy in several different ways.

Key demand of the question:
Discuss from the article relevantly, points that justify significance of investments in infrastructure. Relate in what way it augments the employment generation capacity in the economy.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Discuss what all constitutes infrastructure and how it drives other sectors of the economy.

Body:
Explain that Infrastructure is a crucial driver of economic growth. Infrastructure development not only creates employment but also has the capacity to increase consumption and can give a boost to the economy.

Discuss some gaps that are prevalently being witnessed in the infra sector.

Suggest means and ways to handle such issues.

Discuss the efforts taken by the government in this direction.

Conclusion:
Conclude with importance of investments and their relevance to the overall growth of the economy.

Introduction

Infrastructure enables trade, powers businesses, connects workers to their jobs, creates opportunities for struggling communities and protects the nation from an increasingly unpredictable natural environment. From private investment in telecommunication systems, broadband networks, freight railroads, energy projects and pipelines, to publicly spending on transportation, water, buildings and parks, infrastructure is the backbone of a healthy economy.

Body

- Infrastructure investment leading to better growth and employment

The target of $5 Trillion economy can be reached with robust infrastructure in India.
Employment Generation: It supports workers, providing millions of jobs each year in construction and maintenance. A Brookings Institution analysis Bureau of Labor Statistics data reveals that 14 million people have jobs in fields directly related to infrastructure.

- Infrastructure development helps in poverty reduction due to its high employment elasticity leading to huge job creation capabilities.

Transport: It has the trickle-down effect as better transportation infrastructure can lead to access to education, health, market and other basic necessities.

- Eg: Transport is a burning component of post-harvest crop management. Especially for perishables.
- India’s most populous state Uttar Pradesh has only one PHC for 28 villages on average. Having goods transport in these cases is vital for healthcare.
- Government’s Gram Sadak Yojana and Aajeevika Express can prove to be a game changer for rural economies.

Increasing the manufacturing growth as there is better connectivity, easier movement of goods and services, facilitating private investments.

It reduces the regional and inter-state disparities and leads to a balanced economic growth by regional equality.

Ease of Doing Business will be improved especially if products can be transported faster with minimum delay. Eg: Express freight, Inland waterways and hinterland to port connectivity for exports.

Infrastructure sector has huge spill-over effects on other sectors of economy. It has money-multiplier effect too.

Better quantity and quality of infrastructure can directly raise the productivity of human and physical capital and in turn growth of nation.

Climate change and disaster resilience: There is a clear need for ensuring that all new and existing infrastructure systems are climate and disaster resilient.

Government Efforts:

- With Initiatives such as ‘Housing for All’ and ‘Smart Cities,’ the government is working on reducing the bottlenecks that impede growth in the infrastructure sector.
- Under UDAY scheme the government has taken steps to improve operational and financial parameters of discoms.
- The National Highways Authority of India (NHAI) launched Masala Bonds in May 2017, for raising capital for funding the infrastructure projects in India.
- National Infrastructure Investment Fund (NIIF) with an initial corpus of Rs 40,000 crore.
- The modernization of Indian Railways has been one of the top priorities of the central government
- The Bharatmala Pariyojana is unique and unprecedented in terms of its size and design, as is the idea of developing ports as engines of growth under Sagarmala.

In lieu of above benefits, Government recently announced the National Infrastructure Pipeline (NIP) investing nearly Rs. 102 lakh crore in the next five years.

Conclusion

Infrastructure is a key driver of the overall development of Indian economy. It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as
Infrastructure has a “multiplier effect” on economic growth across sectors. The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth. An efficient infrastructure can provide avenues for employment through trickle-down effect. India’s growth story should no longer be impeded by a lack of infrastructure, and the fruits of this growth should reach everyone in the remotest part of the country.

Private banks were the slowest to pass on the benefits of falling interest rates to their customers last year compared to their state-run and foreign rivals. Discuss in detail the underlying causes of for private banks not passing on the benefits of interest rate cuts to its customers compared to other banks. (250 words)

*Live Mint*

**Why this question:**
Discuss the issues of private banks not transmitting benefits of interest rates to the customers.

**Key demand of the question:**
Explain the issue in detail and highlight the impact of the problem while suggesting solutions to the issue.

**Directive:**
*Discuss* – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

*Introduction:*
First discuss who small entrepreneurs are.

*Body:*
Discuss that the process of setting interest rates by banks is at the core of transmission and the central bank has for several years been trying to make it more transparent. This has led to the change from benchmark prime lending rate (BPLR) to base rate to MCLR and finally to external benchmark-based lending rates.

Explain what does the RBI data show?
The median one-year marginal cost of funds-based lending rate (MCLR) for private banks fell a meagre 12 basis points (bps) to 9.18% between January and December 2019, compared to RBI’s cumulative 135 bps cut in its key policy rate to 5.15%. Most bank loans are typically priced over the one-year MCLR, making it the most tracked rate.

In the same state-run banks have lowered their one-year median MCLR by 45 bps and foreign banks have cut their lending rates by 75 bps.

Foreign banks have the lowest median one-year MCLR rate at 7.9% as of December. Their public counterparts are at 8.3%. For all scheduled commercial banks taken together, the one-year median rate stands at 8.3%.

Suggest solutions to address the issue.

*Conclusion:*
Conclude with what needs to be done.

*Introduction:*
Private banks were the slowest to pass on the benefits of falling interest rates to their customers in 2019 compared to their state-run and foreign rivals, Reserve Bank of India (RBI) data showed. The median one-year marginal cost of funds-based lending rate (MCLR) for private banks fell a meagre 12 basis points (bps) to 9.18% between January and December 2019, compared to RBI’s cumulative 135 bps cut in its key policy rate to 5.15%.

*Body:*
Rate cuts in State run banks vis-à-vis private banks:

- Undoubtedly, there has been a reduction in lending rates for both private and public sector banks if you look at the data on weighted average lending rate published by RBI
- State-run banks have lowered their one-year median MCLR by 45 bps and foreign banks have cut their lending rates by 75 bps.
- Foreign banks have the lowest median one-year MCLR rate at 7.9% as of December.
- Their public counterparts are at 8.3%. For all scheduled commercial banks taken together, the one-year median rate stands at 8.3%.
- However, the trend in the median lending rates of private banks as a category is somewhat different from the trend in weighted average lending rates because the reduction in the cost of funds for larger and stronger private banks has been higher.
- Therefore, the lending rate reduction for them has been higher as compared to some of the smaller private banks

Reasons for private banks not passing on the benefits of interest rate cuts to its customers compared to other banks:

- The reason private banks are less eager to cut interest rates lies in their cost of funds.
- They pay the highest interest to their depositors.
- Private lenders are followed by public sector and foreign banks, respectively.
- While private banks paid depositors 6.91% interest in November 2019 (latest data), public sector banks paid 6.65% and foreign banks 5.38%, according to RBI data on weighted average deposit rates.

Way forward:

- Enabling effective monetary transmission would not only increase the credibility of the Central Bank but also help in strengthening the financial structure.
- Impounding of bank money by RBI is too high with 4% cash reserve ratio carrying no return whatsoever.
- To make transmission work, the least the RBI can do is to reduce CRR.
- Timely transmission of policy rates could be considerably improved if the banking sector’s non-performing assets (NPAs) are resolved more quickly and efficiently.
- If the government wants to reduce lending rates, it could focus on bringing down its own fiscal deficit and public sector borrowing.
At the current low levels of per capita income, the savers are far more risk-averse in India and unwilling to invest in higher-risk instruments other than bank deposits.

For a repo-linked regime to work, the whole banking system in India would have to shift to that.

In other words, along with banks’ lending rates, their deposit rates too must go up and down with the repo.

**Besides Ujwal DISCOM Assurance Yojana (UDAY) fading to engineer a reversal in DISCOM finances, government needs to revise incentive structures. Critically analyse the statement. (250 words)**

*Indian Express*  
**Why this question:**  
Almost five years after the launch of the Ujwal DISCOM Assurance Yojana (UDAY), there are indications that the power sector is once again in trouble. The article traces the performance of the scheme so far and brings out detailed deliberation of DISCOM finances.

**Key demand of the question:**  
Discuss the issues of power sector in India in general and specifically with respect to the financial concerns of state DISCOMs. Highlight the need for efforts by the government in different perspectives.

**Directive:**  
**Critically analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

**Structure of the answer:**  
**Introduction:**
Briefly highlight the issue.

**Body:**
In the recent past, several initiatives have been taken to address the challenges in the power sector. These include structural changes in the regulatory framework as proposed by the Electricity (Amendment) Bill, 2014, and more recently, the UDAY scheme to address financial issues being faced by companies distributing electricity.

Discuss what challenges are posed by the DISCOMs, why have the restructuring policies failed in the past.

Suggest what government should do to address these constraints.

**Conclusion:**
Conclude that a multi-pronged approach is the need of the hour.

**Introduction:**
Ujwal DISCOM Assurance Yojana (UDAY) is a financial restructuring and efficiency enhancing program, aims to reduce the debt burden of the state owned electricity distribution companies (DISCOMs) started in 2015. Though the main component of UDAY is debt management, other measures like raising operational efficiency are also proposed to permanently settle the debt scenario of DISCOMs. Almost five years after the launch of the Ujwal DISCOM Assurance Yojana (UDAY), there are indications that the power sector is once again in trouble.

**Body:**
The UDAY scheme, which involved state governments taking over the debt of discoms, had three critical components: A reduction in the aggregate technical and commercial (AT&C) losses, timely revision of tariffs, and elimination of the gap between average per unit of cost and revenue realised.
Success of UDAY scheme:

- It took off well, with a large number of states joining the scheme. Several states took over the debt of their utilities, improving their liquidity situation. Anecdotal evidence also suggests an improvement in the power supply situation.
- Government’s UDAY scheme has helped debt-laden discoms of 24 states to reduce losses to Rs 369 billion in 2016-17 from Rs 515.9 billion in the previous financial year.
- The participating states have achieved an improvement of one per cent in Aggregate Technical & Commercial (AT&C or distribution) losses and Rs 0.17 a Unit in the gap between Average Cost of Supply and Average Revenue realised in 2016-17.
- AT&C losses have declined in some states, but not to the extent envisaged. Under UDAY, discoms were to bring down AT&C losses to 15 per cent by FY19.

Limitations of UDAY scheme:

- Not only have losses of state-owned distribution companies (discoms) risen, but their dues for power purchases have also surged.
- At the end of November 2019, dues owed by discoms to power producers, both independent and state-run entities, stood at Rs 80,930 crore.
- Of these, Rs 71,673 crore extends beyond the allowed grace period of 60 days. Rajasthan leads the states with the most dues, followed by Tamil Nadu and Uttar Pradesh.
- While some states have raised power tariffs, the hikes have not been sufficient as political considerations prevailed over commercial decisions.
- As a result, the gap between the average cost per unit of power and the revenue realised has not declined in the manner envisaged, forcing discoms to reduce their power purchases and delay payments to power producers.
- This in turn has impared the ability of power generating companies to service their debt, causing stress to the banking sector.
- There is no guarantee that there will not be future losses as there is no retribution if the State electricity boards choose not to reform. In fact, this has been kept out of the purview of the scheme.
- By also mandating that State governments have to progressively take over the losses of their SEBs, the Centre has put the onus on the States to deal with the problem.

Measures needed:

- Discom business needs to be fundamentally restructured.
- Governance needs to be improved with greater resilience to political influence.
- Robust mechanisms need to be put in place to ensure tariff rationalisation and follow-through on subsequent increases.
- Market-friendly electricity reforms need to be introduced and enforced. This includes expanding the role of short-term markets, as well as strict enforcement of PPAs to assure investors and developers of the legal sanctity of contracts signed with discoms.
- Streamlining the open access process, with the fair application of additional surcharges will boost the demand for renewable energy from the commercial and industrial sectors.
- Discoms will have to be pushed harder to invest in technical solutions and infrastructure upgrade such as feeder separation, installing smart meters and undertaking detailed data collection and analysis.
- Strict Actions to curb Electricity theft and other actions those lead to Losses to DISCOMs.
• Integrating UDAY scheme with Make in India and Startup India to ensure overall Development.
• Integrating UDAY with KUSUM to increase amount of electricity to DISCOMS.

Conclusion:
The Centre should also look at altering the incentive structures of states in order to ensure compliance. Stiff penalties need to be imposed for not meeting the targets laid out in the new scheme.

Several doubts expressed over recent official statistics in the country, examine if the present national accounting and analytical framework misses out on many key dimensions of a complex economy. Suggest solutions.(250 words)

The Hindu

Why this question:
The article highlights the fact that Reliable and trustworthy data models could improve our chances of improving our economy, amidst several doubts expressed over recent official statistics in the country.

Key demand of the question:
Discuss in detail the recent issues that have been continuously pointed out at the inefficiencies and loopholes in the statistical data. And suggest what needs to be done.

Directive:
Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:
Introduction:
First discuss what the issue is around the statistical data of the country.

Body:
Highlight first the facts where doubts were expressed over statistical data like the – Base year for GDP estimation, Employment-unemployment data being withheld etc.
Then move onto discuss the importance of statistical data in general.
Explain what are the major concerns over data
Suggest way forward as to what can be done to resolve the issue.

Conclusion:
Conclude that newer solutions should be explored and the country needs to Build more reliance and trust on public data.

Introduction:
The new series of Gross Domestic Product (GDP) figures with 2011-12 as base, released in 2015, has not gone well with analysts; the withholding of employment-unemployment data for some time and consumer expenditure data, which is not released, added to this unease. Bringing the National Sample Survey Office (NSSO) under the fold of National Statistics Office, altering its long-standing arrangement under the Governing Council and then National Statistical Commission, triggered suspicion.

Body:
Doubts raised:

- There are fears that the merger is an attempt to make the NSC toothless and officially defunct.
- The present series encountered serious problems for the price adjustment, specifically for the services sector contributing about 60% of GDP, in the absence of appropriate price indices for most service sectors.
- Defunct enterprises in MCA-21: The report based on a field survey of services firms showed that 16.4% of companies in the MCA-21 database were either non-traceable or closed, and another 21.4% were ‘out of coverage’ or misclassified.
- Insufficiency in ASI data: ASI underestimates manufacturing growth in the GDP by up to one percentage point as about half the manufacturing companies registered under the Companies Act were not in the ASI list.
- Pricing series issue with the service sector: The present series encountered serious problems for the price adjustment, specifically for the services sector contributing about 60% of GDP.
- Absence of price index: There is an absence of appropriate price indices for most service sectors.
- Unchanged approach: price and production indices are constructed using a fixed base Laspeyres Index, yield rate for paddy is estimated by crop cutting experiments, and the organization of field surveys for collection of data on employment-unemployment, consumer expenditure, industrial output, assets, and liabilities continue.
- Productivity and remunerative price of output are major concerns for agriculture.
- The growing inequality and concentration of wealth: Monopoly power, inefficient input-output mix, dumping, obsolete technology, and production mix
- Ignoring structural issues: The macroeconomic framework assumes symmetric income distribution as it focuses on a trend-cycle decomposition of GDP for growth and a trickledown effect for percolation of income

Measures needed:

- We need a new framework for analysis for such a complex system and evolutionary process.
• There is a question of growing market power, automation, robotisation and other labour-
replacing technologies affecting profitability, structural change and general welfare.
• We need to find alternative avenues for the unemployed and jobs lost.
• We also need to know in greater detail about market microstructure and optimality therein, the
role of technology and advanced research, changing demand on human skills, and enterprise
and organising ability, which are all complex.
• The consensus macroeconomic framework of analysis assumes symmetric income distribution,
and does not get into the depth of structural issues, as it focuses on a trend-cycle decomposition
of GDP for growth and stability in market parlance and a trickledown effect for percolation of
income.
• In order to inject efficiency and stability, we need to have detailed data on how: markets clear,
prices are formed, risks build up, institutions function and, in turn, influence the lifestyle of
various sections of the people.
• The alternative to be realistic for the real world must rest on two pillars: the micro-behaviour of
individuals, and the structure of their mutual interactions.
• In the changed situation of availability of micro data, we need to build a system to integrate the
micro with the macro, maintaining distributional characteristics.

Way forward:
• As official statistics is a public good, giving information about the state of the economy and
success of governance, it needs to be independent to be impartial.
• Data is the new oil in the modern networked economy in pursuit of socio-economic
development.
• The economics now is deeply rooted in data, measuring and impacting competitiveness, risks,
opportunities and social welfare in an integrated manner, going much beyond macroeconomics.
• We have a commitment to produce these statistics transparently, following internationally
accepted standards, tailor-made to suit local conditions, for multi-disciplinary analytics.
• As these statistics reflect on the performance of the government, it is necessary that its
independence is maintained scrupulously.
• To pursue the goal of a $5-trillion economy by 2024-25, harnessing demographic dividend, we
must tap underused resources for demand creating investment, which require data to pursue
policy right from a district and evaluate performance for efficiency including governance.

Improving air quality in the cities requires a transformative planning approach guided
by the singular objective of reducing the use of polluting vehicles. In the light of the
statement above discuss and analyse the significance of India switching to new emission
standards in the coming days. (250 words)

Reference: You Tube

Why this question:
The question is in the backdrop of the fact that BS 6 will be the new emission standard that all
vehicles in the country will have to adhere to from April 1, 2020. Thus the question.

Key demand of the question:
Discuss the context of the question in detail and explain in what way such transformative planning
approach is the need of the hour to overcome the challenge of Pollution in the country.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the
details of the issues concerned by examining each one of them. You have to give reasons for both for
and against arguments.
**Analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

**Structure of the answer:**

**Introduction:**
Briefly highlight the shift from BS IV to BS VI.

**Body:**
Discuss the current conditions of pollution in the Indian cities.
Explain why is it important to upgrade these norms?
Upgrading to stricter fuel standards helps tackle air pollution.
Global automakers are betting big on India as vehicle penetration is still low here, when compared to developed countries.
At the same time, cities such as Delhi are already being listed among those with the poorest air quality in the world. The national capital’s recent odd-even car experiment and judicial activism against the registration of big diesel cars shows that governments can no longer afford to relax on this front.
Discuss what steps are to be taken to address the challenges.

**Conclusion:**
Conclude that outcome of such policies should be welcomed for the positive impact it will have on air quality and public health and more of such approaches should be taken up in future.

**Introduction:**
According to the findings, India is home to seven of the 10 most polluted cities in the world, going by air-quality numbers recorded last year. Gurugram and Ghaziabad are the most polluted, while Delhi is the worst off among capital cities. ICMR estimates reveal that one in every eight deaths in India is attributable to air pollution, which now contributes to more disease burden than smoking.

**Body:**

**BS 6:**

*BS 6 is the new emission standard that all vehicles in the country will have to adhere to from April 1, 2020. The sale of BS-4 vehicles will also cease from this day.* The Supreme Court had ruled on October 24 2019 that no BS-4 vehicle would be sold with effect from April 1, 2020. Bharat Stage Emission Standards are emission regulations implemented by the government to keep a check on emissions from motor vehicles.

- To start with, the ‘BS’ in BS VI stands for ‘Bharat Stage’ which signifies the emission regulation standards set by Indian regulatory bodies.
- The ‘VI’ is a roman numeric representation for six (6). The higher the number gets, the stricter the Bharat Stage emission norms get which eventually means it becomes trickier (and costlier) for automakers to meet them.
- These emission standards were set by the central government to keep a check on the pollutant levels emitted by vehicles that use combustion engines. To bring them into force, the Central Pollution Control Board sets timelines and standards which have to be followed by automakers.
- Also, the BS norms are based on European emission norms which, for example, are referred to in a similar manner like ‘Euro 4’ and ‘Euro 6’. These norms are followed largely by all automakers across the globe and act as a good reference point as to how much does a vehicle pollute.
To wrap it up and put it simply, Bharat Stage emission norms are largely similar to the European emission norms followed globally.

**Difference between BS-IV and the new BS-VI:**

- The major difference in standards between the existing BS-IV and the new BS-VI auto fuel norms is the presence of sulphur.
- The newly introduced fuel is estimated to reduce the amount of sulphur released by 80%, from 50 parts per million to 10 ppm
- As per the analysts, the emission of NOx (nitrogen oxides) from diesel cars is also expected to reduce by nearly 70% and 25% from cars with petrol engines.

**Importance of upgrade these norms:**

- Upgrading to stricter fuel standards helps tackle air pollution.
- Global automakers are betting big on India as vehicle penetration is still low here, when compared to developed countries.
- At the same time, cities such as Delhi are already being listed among those with the poorest air quality in the world. The national capital’s recent odd-even car experiment and judicial activism against the registration of big diesel cars shows that governments can no longer afford to relax on this front.
- With other developing countries such as China having already upgraded to the equivalent of Euro V emission norms a while ago, India has been lagging behind. The experience of countries such as China and Malaysia shows that poor air quality can be bad for business. Therefore, these reforms can put India ahead in the race for investments too.

**Will the vehicles with BS-VI tech become expensive?**

- The everyday customer who is yet to buy themselves a vehicle or is planning to get one could soon have to shell out more for their purchase.
- On top of that, the fuel costs also need to be taken into account. But above all of this, there is a bigger target to be achieved. India has some of the most polluted cities in the world and automobiles are often considered as one of the biggest factors responsible for it.
- The need of the hour is to control the pollution levels by all means possible and since globally, countries are implying Euro 6 levels of emission regulations, India needs to step up its game and hence the BS IV to BS VI emission norm implication.

**What needs to be done?**

- Although the BS-4 car can run on BS-6 Fuel, but what will happen if we defer our purchase
- Emission: Cleaner fuel as the sulphur levels will be lower and lower PF (Particulate Filter). Thus, the emissions will be relatively much lower than what emit by cars.
- Also, our BS-6 Car will get latest Technology and updates including changes in Catalytic, Diesel Particulate Filter, and Fuel Injection for better compliance to Emission. Care for Environment – you should defer your purchase call
- Engine Performance: The Sulphur levels will be lower, thus acids as formed will be lower and also the engine oil live will improve.
- Even the fuel would be much cleaner and thus care for better efficiency from our car in terms of improved Engine Oil Life, Engine Performance, Engine NVH Levels you will get all these benefits with BS-6 Fuel
Fuel Efficiency: Been the fuel in BS-6 regime would be much cleaner – the overall fuel efficiency can also jump in when used a BS-6 compliant car using BS-6 Fuel grade.

Safety Features: ABS, Airbags would be standard all across model Variants as sold from 2020. Even crash test regulations would be improved.

It involves Selective Catalytic Reduction (SCR), which is an advanced active emissions control technology.

SCR converts nitrogen oxides to nitrogen, water, tiny amounts of CO2 by pumping in automotive grade liquid urea, which is known as Diesel Exhaust Fluid (DEF).

It achieves NOx reductions up to 90%. Tailpipe Particulate Matter filter is used.

This reduces the Particulate Matter coming out of the vehicle to the required level.

Conclusion:

This outcome should be welcomed for the positive impact it will have on air quality and public health. At every stage, the technology is increasingly more complex. To attain the specified super low emissions, all reactions have to be precise, and controlled by microprocessors. Improving air quality in the cities requires a transformative planning approach guided by the singular objective of reducing the use of polluting vehicles.

Inclusive growth and issues arising from it

“Digital literacy is integral for financial inclusion.” Comment in the background of India’s efforts to expand access to organized financial systems through digital payments (250 words)

_The Hindu_

_Why this question:_
The article emphasizes on the fact that Access to Internet must be recognized as a fundamental right to free speech, basic freedoms and the right to life. Thus the context of the question.

_Key demand of the question:_
Deliberate in detail as to how Digital literacy is integral for financial inclusion. Also highlight the country’s efforts in augmenting the digitization process of the economy.

_Directive:_
Comment—here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

_Structure of the answer:_

_Introduction:_
Explain what you understand by digital literacy.

_Body:_
Focus the spurt in digital infrastructure. 
Explain how digital literacy is crucial for financial inclusion.
Discuss the importance of financial inclusion for the inclusive growth of the society. The recent growth in digital banking infrastructure could foster a cultural shift in the intensity of use of electronic modes of payments and settlement. Its adoption even in the hinterlands with the active use of business correspondents is encouraging. Discuss concerns and challenges involved if any.

_Conclusion:_
Conclude with policies and measures taken by the government in this direction.
Digital literacy refers to the wide range of skills, which are necessary to emerge successful and adapt to the digital world. Since the print mediums are facing stagnation, the ability to grasp information found online becomes important. People and students who lack digital literacy skills may soon find themselves tough to gain access to information which is available online.

Recently, the Kerala High Court, in Faheema Shirin v. the State of Kerala case, declared the right to Internet access as a fundamental right forming a part of the right to privacy and the right to education under Article 21 of the Constitution. The court held that, in an information society, unequal access to the Internet creates and reproduces socio-economic exclusions.

Body:

India’s efforts to expand access to organized financial systems through digital payments:

- As a larger part of the RBI’s policy to promote digital inclusion, making online remittances through National Electronic Funds Transfer (NEFT) and Real Time Gross Settlement System (RTGS) facilities in savings bank accounts free from January 2020 is indeed significant.
- Forty-five wallet players, 50 UPI-based payments service providers and 142 banks on the UPI platform are actively coordinating with each other to deliver services to customers.
- Small finance banks (SFBs) and payments banks have also been set up to improve outreach and to pursue FI, for the benefit of people at the bottom of the pyramid — migrant labour, village workforce, low-income households, small businesses and other unorganised sector entities.
- Merchant discount rates — the charges that merchants have to pay to banks on transactions done on debit/credit cards — were waived in the Union Budget presentation for 2019-20.
- Companies with a turnover of ₹50 crore or more are mandated to provide free facility of payment through Rupay debit cards and UPI QR codes to customers from January 2020, and a tax of 2 per cent will be levied on entities drawing cash of over ₹1 crore in one year.
- The number of point of sales terminals increased from 12,11,890 in September 2015 to 45,89,727 by September 2019, while the number of debit cards increased from 604 million to close to 835 million during the same period.

Reasons for the above success:

- Non-bank peer-to-peer lenders and the introduction of a new type of prepaid payment instruments will go a long way in deepening FI through further digital penetration.
- Enhancing access to financial touch points and reducing the cost of access have been the twin drivers of digital inclusion.
- Moving beyond just setting up full-fledged bank branches, banks have started expanding the base of alternate electronic delivery channels at a much faster pace, after mobile connectivity and network, and Internet services were made accessible and affordable to people at the bottom of the pyramid.

Limitations/challenges present:

- The formidable challenge is the increased inoperative bank accounts that limit the merits of FI.
- The World Bank estimates indicate that 47 per cent of such accounts are inoperative and 23 per cent of PMJDY accounts remain dormant. The gap in imparting financial and digital literacy is evident.
- Tackling inoperative accounts and deepening FI efforts to realise its actual potentiality to contribute to economic the wellbeing of the society remains a formidable challenge.
- **Inadequate institutional efforts** to disseminate financial awareness at the grassroots level are keeping even financially connected masses (those having bank accounts and debit cards) away from the formal financial system.

- While many stakeholders have been doing sporadic work, they are not coordinated enough to optimise its effectiveness.

- The missing link in FI is now obviously the **lack of financial and digital knowledge of massive user base**.

**Way forward:**

- In order to make FI work to ensure that the benefits of inclusion reaches the intended target group of the society, seminal changes need to be introduced in the spread of financial and digital literacy and credit counselling.

- Adequately equipping and empowering institutions engaged in disseminating comprehensive literacy programmes will be essential to unleash the potentiality of the huge financial and digital infrastructure built and designed to sub serve FI.

- It is the right time to accelerate literacy campaigns, particularly when digital culture is spreading fast with introduction of the GST, FASTags and other online utilities of daily use.

- Right synchronisation of comprehensive literacy efforts with the evolving payment and settlement ecosystem should be able to take India close to the end-state objectives of FI by 2030, by when the sustainable goals of UN are to be achieved.

**Conclusion:**

We are living in an ‘information society’. Unequal access to the Internet creates and reproduces socioeconomic exclusions. It is important to recognise the right to Internet access and digital literacy to alleviate this situation, and allow citizens increased access to information, services, and the creation of better livelihood opportunities.

**Considering the fact that Internet broadband and mobile Internet services have become an integral part of the life of the people, Do you agree that it is time to recognize that the right to access the Internet which is indeed a fundamental right within our constitutional guarantees? Analyse. (250 words)**

*The Hindu*

*Why this question:*
The article debates upon the need to recognize right to internet as the fundamental right.

*Key demand of the question:*
Discuss the importance of Internet and access to it as equivalent to right to life and right to equality thus qualifying it as an integral fundamental right.

*Directive:*
**Analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

**Structure of the answer:**

*Introduction:*
Internet broadband and mobile Internet services are a lifeline to people in India from all walks of life.

*Body:*
Discuss the significance of Internet in today’s world — People working in the technology-based gig economy — like the thousands of delivery workers for Swiggy, Dunzo and Amazon and the cab drivers of Uber and Ola — depend on the Internet for their livelihoods. It is a mode of access to...
education for students who do courses and take exams online. Access to the Internet is important to facilitate the promotion and enjoyment of the right to education. Present a discussion of how right to access to the Internet can be rooted in Article 19 of the Universal Declaration of Human Rights. Highlight the need to back internet access as right to life. Discuss concerns if any and suggest way ahead.

Conclusion:
Conclude by reasserting significance of right to internet as a fundamental right.

Introduction:
Internet broadband and mobile Internet services are a lifeline to people in India from all walks of life. While the Internet is certainly a main source of information and communication and access to social media, it is so much more than that. In Sep 2019, the Kerala High Court, in Faheema Shirin v. the State of Kerala case, declared the right to Internet access as a fundamental right forming a part of the right to privacy and the right to education under Article 21 of the Constitution. Despite this, according to the Software Freedom Law Centre data, there have been more than a 100 Internet shutdowns in different parts of India in 2019 alone.

Body:

Need for right for Internet:

Internet has become quite useful in our daily public life as well. It is quite hard to ignore the need, importance and the value of internet in our daily life. Though there are countless uses of Internet in society, we have listed out here a few benefits of Internet for society.

- **Online Banking:** In the world we live today, the role of Internet has tremendously grown. In the field of online banking, the advantages of internet are of pivotal importance. Earlier, there used to be manual banking work. It was quite difficult to handle banking and transaction online. Now, with the help of Internet it has been made quite easier to send and receive payments anywhere in the world. It has brought many positive economic impacts on our society.

- **Online Trade & E commerce:** E-commerce is gaining popularity across the world. It is only because of Internet that doing business has become quite easier. Online trade has changed the fortunes of millions of people across the world. It has revolutionized the social life.

- **Faster Connectivity:** Due to Internet, the connectivity has become much faster. The distances have disappeared. The world has become global. It is quite easy to connect with each other. The virtual world has made it possible for us to get in touch easily with each other. The world has become a global village where the knowledge, ideas, information and everything flows quite easily from one place to another. It has the great benefits for society.

- **Creation of More Jobs & More Income Opportunities:** In Old times, the economy used to be limited and isolated. But with the advent of Internet the industries and world economies have come closer to each other. Thanks to Internet, millions of new jobs are being created. The economic advantages of internet for society have been witnessed. Millions of People are changing their lives with the help of Internet. This is one of the greatest benefit of Internet for society.

- **Spread of Education and Awareness:** Internet has completely changed the system of education. Earlier there used to be the traditional and limited education system. Education has spread quickly via online learning. The online education system via internet has dramatically reduced
the cost of education. It has become easily accessible and affordable. With the help of online videos platforms, teaching models and multiple audio, video and visual study material, the education and awareness has been spreading very fast. It is again one of the greatest social benefit of Internet for our lives.

- **The Role of Artificial Intelligence:** Artificial Intelligence and machine learning has completely changed the scope and future of computer education. Artificial intelligence is proving quite beneficial for society. It is useful in every walk of life including in education, health, economy, trade, industry and in medial field. This great social benefit is again due to internet.

- **Role of Internet and Informational Technology in Medical and Health Field:** Thanks to modern technology of today we have the cures of these diseases easily available. The medical field has greatly progressed because of Internet connectivity and information technology.

- Internationally, the right to access to the Internet can be rooted in **Article 19 of the Universal Declaration of Human Rights** which states that “everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.”

However, there are associated concerns too of making internet a fundamental right:

- **Privacy Issues:** Privacy is the right of every individual. Unfortunately, in online world it has become quite hard rather impossible to safeguard one’s privacy. Our smart phones and various other internet services that we use, track down our movements.

- **Internet is merely a technology, nothing less but certainly nothing more.** For instance, technology indeed mattered for the Arab protests, but this did not make the Arab Spring a technological revolution. Social networks did not cause these movements, but they kept them alive and connected.

- The things that we call human rights must be among the things humans need in order to lead healthy, meaningful lives, like freedom from torture or freedom of conscience. The Internet is valuable as a means to an end, but not as an end in itself.

- Most modern human rights recognized come with some sort of enforcement mechanism, be it hard law (e.g. courts or compliance committees) or soft law (e.g. monitoring). Yet claims for the recognition of new fundamental rights should always be carefully examined. If they are rashly accepted, it could lead to a practice of fragmentation and constant increase of human rights.

- One can argue that the ‘visibility’ argument in favour of more human rights recognition does not take into account the flexibility of existing rights. Technological advances often change the way in which we exercise our rights and freedoms, and thus broaden the practical scope of these rights.

**Conclusion:**

The usefulness of the Internet cannot be overstated and the government should do everything possible to bridge the digital divide among its constituents. But declaring access to the Internet as a citizen’s right is not a defensible proposition.

**Discuss in detail reasons for India to embrace Inclusive Growth.(250 words)**

*Indian economy by Dutta and Sundaram*

**Why this question:**
The question is straightforward and is from the static portions of GS paper III.

**Key demand of the question:**
Discuss in detail the causes for which Indian setup necessitates inclusive growth.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**
*Introduction:*
Define what you understand by Inclusive growth.

*Body:*
Discuss briefly the basic elements of Inclusive growth.
Move on to discuss the reasons for India to embrace inclusive growth.
The recognition of the significance of inclusive growth in developing Asia has been generated by a rising concern that the benefits of remarkable economic growth have not been equitably shared.
Inclusive growth is required for sustainable development and impartial distribution of wealth.
Discuss the challenges involved.

*Conclusion:*
Conclude with ways and means to achieve inclusive growth.

*Introduction:*
The concept of inclusive growth focuses on equitable growth for all sections of society. This involves ensuring that fruits of growth and development reach the poor and marginalized sections as well. Inclusiveness is a multi-dimensional concept. Inequalities that include, social exclusion, discrimination, restrictions on migration, constraints on human development, lack of access to finance and insurance, corruption – are sources of inequality and limit the prospect for economic advancement among certain segments of the population, thereby perpetuating poverty.

*Body:*

**Reasons for India to embrace Inclusive Growth:**

- India is the 7th major country by area and 2nd by population. It is the 12th largest economy at market exchange rate. Yet, development is not visible in India and it’s the neighbourhood nation, i.e., China is progressing at speedy rate.

- The agenda for inclusive growth was envisaged in the Eleventh Plan document which intended to achieve not only faster growth but a growth process which ensures broad-based improvement in the quality of life of the people, especially the poor, SCs/STs, other backward castes (OBCs), minorities and women and which seeks to provide equality of opportunity to all.

- The exclusion in terms of low agriculture growth, low quality employment growth, low human development, rural-urban divides, gender and social qualities, and regional disparities etc. are the problems for the nation.

- Decreasing of poverty and other disparities and raising of economic growth are major objectives of the nation through inclusive growth.

- Political leadership in the country plays a vital role in the overall development of the country. But, the study has found that politicians in India have a very low level of scientific literacy.

- Studies assessed that the cost of corruption in India amounts to over 10% of GDP. Corruption is one of the ills that prevent inclusive growth.
• Though child labour has been banned by the law in India and there are stringent provisions to deter this inhuman practice. Still, many children in India are unaware of education as their lives are spoiled to labour work.

• Literacy levels have to rise to provide the skilled workforce required for higher growth.

• Economic improvements in the country are overwhelmed by out dated philosophies and allegations by the politicians and opposition parties in India.

• Achievement of 9% of GDP growth for country as a whole is one of the boosting factor which gives the importance to the Inclusive growth in India.

• Inclusiveness benchmarked against achievement of monitor-able targets related to
  - Income & Poverty
  - Education
  - Health
  - Women & children,
  - Infrastructure
  - Environment

• At global scale, there is a concern about dissimilarities and exclusion and now they are also taking about inclusive approach for development.

• It is estimated that about 80% of India’s labour force works in the informal economy.

• Jobs in the informal economy are typically insecure, with neither employment contracts nor regular pay, and very often workers are engaged on a day-to-day basis.

• The working conditions in the informal economy therefore resemble a low-productivity trap.

• At the most basic level, economic growth results from labour force growth and productivity growth of workers.

Way forward:

• In a democratic country India, majority of population living in rural India and to bringing them into the mainstream is main concern.

• The best way to realise inclusive growth is through developing people’s talents. It is said by government authorities that a multidimensional approach towards education and skills development is essential to achieve growth.

• To address this challenge, inclusive growth with its focus on creating economic opportunities and ensuring equal access to them will play a key role.

• The challenge of skills shortage can be addressed through public private partnership.

• Special efforts to increase employment opportunities are essential as it is a necessary condition for bringing about an improvement in the standard of living of the people

Conclusion:

More and more countries are accepting it as the goal of development policy. Inclusive growth as a development notion is also being comprised by many development partners of developing countries.
including bilateral and multilateral aid agencies, international organizations, nongovernment organizations, and civil society.

**Government Budgeting. Investment models.**

Health is a critical sector for achieving overall equitable human development in the country. In the Indian setup, the idea of Public Private Partnership can bridge the investment deficit and improve the efficiency and outreach of service delivery. Explain. (250 words)

*Live Mint*

**Why this question:**
To address shortage of qualifies doctors and bridge gap in medical education, the Niti Aayog has come out with the public-private partnership model to link new or existing private medical colleges with functional district hospital to augment medical seats.

**Key demand of the question:**
Discuss the significance of PPP in health sector to the case of Indian scenario.

**Directive:**
*Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.*

**Structure of the answer:**

**Introduction:**
Define what PPP is. Then explain the context of the question.

**Body:**
Highlight the fact that India has a dire shortage of qualified doctors. It is practically not possible for the Central/state government to bridge the gaps in the medical education with their limited resources and finances.

Discuss the issues prevalent in Indian health sector.

Explain in what way PPP model can address the issue.

**Conclusion:**
Conclude with way forward.

**Introduction:**
India takes pride in the fact that it is one of the fastest-growing economies in the world. But our heads will hang in shame if we look at India’s health system. To address shortage of qualifies doctors and bridge gap in medical education, the Niti Aayog has come out with the public-private partnership model to link new or existing private medical colleges with functional district hospital to augment medical seats.

**Body:**

**Public healthcare scenario in India:**

- The government spends 1.02% of the GDP on health compared to the global spending of 6%.
- There is a shortfall of 20% sub-centres, 22% public health centres and 32% community health centres.
- The average population served by one public sector allopathic doctor is 11 times higher than the World Health Organization’s recommendations.
- High out of pocket expenditure to the tunes of 60%. The excessive reliance on OOP payments leads to financial barriers for the poorest, thereby perpetuating inequalities in health care.
Clearly, India is struggling to serve its population amid the rising burden of diseases along with poor coverage by public health on the other.

In addition to these challenges, the private sector is poorly regulated when it comes to quality and pricing.

Potential of PPP model for providing universal healthcare in India:

- **Enhancing affordability:** There has been a steady increase in the number of drugs under price control, to make medicines affordable.
- **Enhances Inclusivity:** It’s difficult for government alone to meet the healthcare infrastructure and capacity gaps in Tier II and Tier III cities as well as rural areas. To provide Health insurance-Karnataka’s Yeshasvini Cooperative Farmer’s Healthcare Scheme and Andhra Pradesh’s Arogya Raksha Scheme can be cited as successful examples.
- **Financing Mechanism:** The partnership between the public and the private sectors in healthcare is important for several reasons including equity and for promoting economic development.
- **Infrastructure:** NITI Aayog has sought to infuse fresh life into PPP in healthcare delivery through a new model focused on district hospitals and new norms on pricing of procedures. The provisions for making available infrastructure of district hospitals to private providers for 30 years along with viability gap funding appears that we have got the design right for the PPP model.
- **Quality of Service:** Private healthcare in India usually offers quality service but is often expensive and largely unregulated. The Delhi government’s new scheme is a novelty for the common man but has a precedent in several government schemes for employees which use public funds to provide private healthcare. e.g the Central Government Health Scheme (CGHS) has existed for decades and has been emulated by several states.
- **Capacity building and training:** private players can play a key role in capacity building and training through PPP modes by working with the public sector to better utilize the infrastructure of government hospitals.

Issues in public private partnership

- There is lack of inbuilt mechanism to decide how the government and the private sector share revenue and risks.
- Aim of Private sector is to maximize profit, which is inconsonance with governments aim of providing universal quality services to all
- Lack of a proper regulatory framework to regulate the health sector and partnership.
- Some PPP projects attempted earlier have failed, so there is apprehension about success of large scale PPP in health sector.

Measures needed:

- **Staunch and well-defined governance:** An institutional structure should be set up to foster, monitor and evaluate the PPPs. This needs to be established at the state-level under the leadership of the state health ministry.
- **Equitable representation of partners in the institutional framework:** Institutional structure is a cornerstone for development of a sustainable PPP project. It will help to meet consensus on shared responsibilities and roles and will facilitate communication among the partners leading to a strong sense of ownership and trust.
- **Evidence-based PPP:** Systematic research initiatives and mechanisms must be established to constantly understand the evolving needs and benefits to end users.
- **Regulate user fee**: One of the hurdles of engaging the private providers for public health service delivery is OOP expenditure. Therefore, it is important to regulate user fees of this sector under partnership.

- **Effective risk allocation and sharing**: Risks shall be allocated to the party best able to control and manage them so that value for money is maximised.

**Conclusion:**

To provide universal healthcare which is the need of hour given the dismal condition of healthcare sector in India. The key to success of PP partnership is mutual respect and trust with a common goal of providing quality care for all ages at affordable cost. This meaningful engagement may be the next game changer in healthcare for the country.

**Budget documents aid in understanding the intention of the government, its priorities, policies and allocation of resources, In this context discuss in detail the process of budgeting followed in India.** *(250 words)*

*Indian polity by Lakshmikanth*

**Why this question:**
The question is from the static portions of GS paper III.

**Key demand of the question:**
One has to discuss the process of Budget that is followed in the country and the significance of Budget documents.

**Directive:**
*Discuss –* This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
Discuss what Budget is in brief.

**Body:**
The question is direct and very much straight forward.

Discuss briefly the concept of Budget, the processes involved; The budget has four stages viz., (1) estimates of expenditures and revenues, (2) first estimate of deficit, (3) narrowing of deficit and (4) presentation and approval of budget.

Discuss the importance of having a Budget for the government.

Use an example to substantiate your answer better.

**Conclusion:**
Conclude that When it comes to budgeting, identifying areas of weakness helps the government to allocate resources in a useful and sustainable manner.

Efficient, effective and bottom up budgetary processes help determine efficacy of this planned document.

**Introduction:**

The Union Budget of India, referred to as the annual Financial Statement in Article 112 of the Constitution of India, is the annual budget of the Republic of India, presented each year on the last working day of February by the Finance Minister of India in Parliament. The budget has to be passed by the House before it can come into effect on April 1, the start of India’s financial year. It establishes a financial roadmap for the country in the ensuing financial year. Every year the Department of Economic Affairs in the Ministry of Finance prepares the Union Budget which is presented by the Finance Minister.

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There are several steps involved in the preparation, presentation and implementation of the Union Budget.

### The initial processes:
- The initial processes involved in the Budget-making begin in August-September, around six months prior to the presentation of the Budget.
- The Finance Ministry sends Budget Circulars containing skeleton forms and necessary instructions/guidelines to concerned ministries and departments.
- These circulars are then distributed amongst disbursing and field officers who provide details about financial expenditures and receipts of their department during the current and past fiscal year, and their financial requirements for the ensuing fiscal year.

### Accumulation and authorization of data:
- The data and estimates provided by ground-level officials are then scrutinized by top officials of their departments.
- Upon approval (or revision, if necessary), the data and estimates are then sent to the concerned ministries where they are examined again.
- Finally, the data and estimates are sent to the Finance Ministry.
- The Finance Ministry further scrutinizes these and correlates the estimates with the current economic state and the available resources to determine their feasibility.

### Composing the Budget:
- After analysing every aspect carefully, the Finance Ministry then allocates revenues to various administrative ministries and devises new public welfare schemes.
- At times, there are disputes between ministries over the allocation of resources.
- In such scenarios, the Finance Ministry consults the Union Cabinet or the Prime Minister.
- Their decision is deemed final in such scenarios.
- After completing the allocation of resources to future expenditures, the Finance Ministry in association with Central Board of Direct Taxes and Central Board of Excise and Customs prepares a report of the estimated revenues to be generated in the ensuing financial year.
- In the final stage, both the reports are consolidated to generate the final Union Budget.
- During this process, various departments of the Finance Ministry consult stakeholders in the public domain (such as farmers and small business owners) to gain more insights and prepare an efficient budget.

### Printing the Budget:
- The printing process of the Union Budget begins with the observance of a tradition, ‘the halwa ceremony’.
In this, the Finance Minister along with other officials and staff involved in the process eat halwa (a traditional Indian dessert).

Post completion of the ceremony, the printing process of the Union Budget begins.

During this process, all the officials and staff involved in Budget-making remain confined to the premises of the ministry, isolated from any contact with the outside world, since they have the knowledge of what has gone into the Budget days before it is tabled in Parliament.

Presenting the Budget:

The Union Budget is presented in the Parliament by the Finance Minister. For the past few years, the Union Budget is presented on a scheduled date, February 1.

In an election year, the Budget is prepared and presented twice.

Initially, a vote on account or interim budget — which is an estimate of expenditures and receipts of the next two-four months — is presented.

After the election, the final Budget for the rest of the fiscal year is presented by the new government.

In parliament, the budget goes through 5 stages

- Presentation of budget with Finance Minister’s speech
- General discussion of the budget. After this, there is an adjournment of houses so that standing committees scrutinises the demand for grants for a month.
- Voting on demand for grants in Lok Sabha
- Passing of appropriation bills
- Passing of Finance bills.

Conclusion:

Indian constitution under Article 112-117 enshrines powers of parliament in the enactment of the Budget. According to article 112-117, any proposal for expenditure and demand for a grant can be made only on the recommendation of the President. The parliament has to pass a financial bill within 75 days of its introduction. After discussion in both the houses on demand for Grants, Financial bill and appropriation bill and voting of the Lok Sabha Budget is enacted and expenditure can be incurred from the consolidated fund of India.

Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth

Discuss the challenges facing the Indian Textile Sector in detail and suggest ways and means to upsurge domestic manufacturing and promotion of exports in the this Sector.(250 words)

Business Standard
Financial Express

Why this question:
The question aims to analyse the challenges of textile industry in the country and need for a strong policy to address the issues and make the sector a strong and flourishing one.

Key demand of the question:
Discuss the challenges facing the Indian Textile Sector in detail and suggest ways and means to upsurge domestic manufacturing and promotion of exports in the this Sector.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
First discuss key statistics of the textile sector. Indian textile industry is one of the largest industries in India. It is the second largest industry in terms of providing employment opportunities to more than 35 million people in the country. Indian Textile industry contributes to 7 per cent of industrial output in terms of value, 2 per cent of India’s GDP and to 15 per cent of country’s export earnings.

Body:
List the challenges of the Indian Textile Sector –
The Indian Textile Sector is losing to competition because of lack of FTAs (Free Trade Agreements) with the EU and the USA.
The small scale of business is making it difficult for textile manufacturers to compete on cost with players from outside.
India is facing huge competition from other countries in Ready-made Garment (RMG) Exports, particularly cotton. And while the world of fashion is moving towards “Blends”, India is not making many blended apparel items. So on the one side our traditional items are facing competition, and on the other side we are behind in Product Diversification.
Textile imports from Vietnam and Bangladesh are cheaper for buyers across the world.
Suggest remedies to the above challenges.

Conclusion:
Conclude that Exports are critical, but textile manufacturers should focus on the opportunities in the domestic market too.

Introduction:
The Indian textile and apparel industry can be broadly divided into two segments – yarn & fibre, and processed fabrics & apparel. Indian textile industry has some deep-rooted problems which needs to be addressed with long-term sustainable solutions.

Body:
The government recently said the new Textiles Policy 2020 being formulated by the Centre is aimed at developing in the country a competitive textile sector which is modern, sustainable and inclusive.
This new policy will have a special focus on manufacturing of apparel and garment, technical textiles, man-made fibre products and exports.
The policy will entail the strategy and action plan for the country’s textile and apparel segments, while maintaining pre-eminent position in handicraft and handloom sectors.

Challenges faced by Indian textiles sector:
- Market Reality: India’s textile industry grapples with domestic issues including outdated technology, inflexible labour laws, infrastructure bottlenecks, and a fragmented nature of the industry.
The textiles sector in India, primarily dominated by the unorganized and small players, had taken a major hit with demonetization and the implementation of the goods and services tax (GST).

Global Policies: According to the WTO’s Agreement on Subsidies and Countervailing Measures, a country needs to phase out export subsidies for a product as it achieve export competitiveness, defined as 3.25% share in world trade, and the per-capita income reaches more than $1,000 per annum.

As per this agreement, India is under pressure to end export subsidy for the textiles sector by 2018.

This implies that the existing subsidy schemes including the Merchandise Export from India Scheme (MEIS) and the Export Promotion Capital Goods (EPCG) Scheme will get affected by the same.

Demand for MMF: Globally, manmade textiles and garments are in high demand, with the ratio of cotton-to-manmade-fibre consumption at 30:70.

India, despite being the second-largest textiles exporter in the world, lags in this category because of unavailability of manmade fibres at competitive prices.

Free-trade pacts: like the South Asia Free Trade Agreement (SAFTA) have led to intense competition from countries like Bangladesh which have zero-duty access to the Indian market. The government should take a re-look at such pacts and try to work out a solution.

The government should aim at driving scale across the textiles value chain by encouraging large investment, consolidation of firms and enlargement of clusters.

Impact of recent reforms: The sector went through a phase of stagnating exports, demonetisation, bank restructuring and implementation of the Goods and Services Tax (GST).

India, which was the second largest exporter of Textile & Clothing between 2014 and 2017 after China, slipped to the fifth place losing its position to Germany, Bangladesh and Vietnam.

Delay in disbursement of subsidies: Fast-track disbursement of subsidies for technology up-gradation under the TUFS scheme to help the industry modernise the operation.

Measures needed:

- Government needs to move away from export-specific subsidy, which violates WTO norms, to focus on regional and cluster subsidies, technology upgradation and skill development subsidies, which benefit all the producers.
- In India, cotton and manmade fibres (MMF) have differential tax treatment, here fibre neutrality will give a boost to the industry.
- Under differential tax treatment cotton is taxed at 5% and manmade fibres at 12%.
- In fact, of the total textiles and clothing exports from India, cotton accounts for around 75%, there is a need to increase production with the global consumption patterns.
- While India has abundant supply of labour, flexibility in labour laws and adequate skilling will give a big boost to the textiles industry.
- For instance, women should be allowed to work in all three shifts, after taking into account adequate safeguard measures.
- Technology upgradation schemes will help Indian players to increase both their productivity and competitiveness.
- In addition, the government needs to carefully evaluate the various trade agreement opportunities Bangladesh and Vietnam benefit from favourable access to some of the big apparel markets.
The government also needs to re-look at fibre neutrality and evaluate various trade agreement opportunities, while domestically focusing more on technology upgradation and skill development.

Conclusion:

There is a need to expand the production base to non-traditional areas where abundant land and labour are available.

Discuss the key objectives of industrial policy in India and explain how does it impact on the economy and industry?(250 words)

India Year Book 2019

Why this question:
The question is straightforward and is from the static portions of the GS paper III.

Key demand of the question:
Discuss in detail key objectives of industrial policy in India and explain its impact on the economy.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:
Explain that Industrial Policy is a typical character of a mixed economy. It is policy of government intervention which is sector specific and is aimed at giving preferential treatment to a particular sector over others.

Body:
First explain why an industrial policy is desirable.
Present arguments for and against industrial policy.
Discuss the key objectives.
Explain the impact on the economy and industry in specific aspects.

Conclusion:
Conclude with importance of a strong Industrial policy for the growth and development of the country.

Introduction
In 1991, when India faced a severe economic crisis, the government passed a new Industrial Policy resolution. The Industrial policy of 1991 set out directions for industrialization in an economy that began its journey in liberalization. It dealt with liberalizing licensing and measures to encourage foreign investments.

The Government of India will be introducing a New Industrial Policy that will replace the 27-year-old existing policy and pave the way for the promotion of new technology and reduced regulations. The policy aims to create jobs over the next two decades, promote foreign technology transfer and attract $100 billion FDI annually.

Body

Objectives of Industrial Policy in India

- Liberalizing the industry from the regulatory devices such as licenses and controls.
- Enhancing support to the small scale sector.
• To maintain a sustained growth in productivity;
• To enhance gainful employment;
• To achieve optimal utilization of human resources;
• To attain international competitiveness; and
• To transform India into a major partner and player in the global arena.

Increasing competitiveness of industries for the benefit of the common man.
• Ensuring running of public enterprises on business lines and thus cutting their losses.
• Providing more incentives for industrialization of the backward areas, and
• Ensuring rapid industrial development in a competitive environment
• Promoting workers participation in management, enhancing their welfare and equipping
them to deal with inevitability of technological change.

Impact on economy and industry

• Opening up of Industry: Sectors that were earlier exclusively reserved for public sector were reduced. Presently, only two sectors- Atomic Energy and Railway operations- are reserved exclusively for the public sector.
  ▪ This has led to efficiency of markets and increased India’s competitiveness.

• De-licensing: Abolition of Industrial Licensing for all projects except for a short list of industries.
  There are only 4 industries at present related to security, strategic and environmental concerns, where an industrial license is currently required-
  ▪ Electronic aerospace and defence equipment
  ▪ Specified hazardous chemicals
  ▪ Industrial explosives
  ▪ Cigars and cigarettes of tobacco and manufactured tobacco substitutes

• Disinvestment of Public Sector: Government stakes in Public Sector Enterprises were reduced to enhance their efficiency and competitiveness. Government in Budget 2020 announced raising Rs 1.20 lakh crore through disinvestment.
  ▪ The idea is, for the government to play the role of facilitator and a regulator.

• Liberalization of Foreign Investment: This was the first Industrial policy in which foreign companies were allowed to have majority stake in India. In 47 high priority industries, upto 51% FDI was allowed. For export trading houses, FDI up to 74% was allowed.
  ▪ Today, there are numerous sectors in the economy where government allows 100% FDI through automatic route.
  ▪ It has increased our ease of doing business and India stands at 63rd position from 100th position in 2017.
• **Foreign Technology Agreement**: Automatic approvals for technology related agreements.

• **MRTP Act** was amended to remove the threshold limits of assets in respect of MRTP companies and dominant undertakings. MRTP Act was replaced by the Competition Act 2002.

**Significance of Industrial Policy for India**

• The 1991 policy made ‘License, Permit and Quota Raj’ a thing of the past. It attempted to liberalize the economy by removing bureaucratic hurdles in industrial growth.

• Limited role of Public sector reduced the burden of the Government.

• The policy provided **easier entry of multinational companies**, privatization, removal of asset limit on MRTP companies, liberal licensing.
  
  - All this resulted in increased competition, that led to lower prices in many goods such as electronics prices. This brought domestic as well as foreign investment in almost every sector opened to private sector.

• The policy was followed by special efforts to increase exports. Concepts like Export Oriented Units, Export Processing Zones, Agri-Export Zones, Special Economic Zones and lately National Investment and Manufacturing Zones emerged. All these have benefitted the export sector of the country.

The Government of India will be introducing a New Industrial Policy that will replace the 1991 policy and pave the way for the promotion of new technology and ease of doing business.

**Conclusion**

• It is time for enabling accelerated reforms for greater strategic engagement and ensure that India is integrated into the global value chains. It is time to Reform, Perform and Transform.

• A comprehensive, actionable, outcome-oriented industrial policy will enable Industry to deliver a larger role in the economy; to fulfil its role as the engine of growth and to shoulder the responsibility of adding more value and jobs.

**What is liberalization in education? Discuss the impact of it on Indian Education system. (250 words)**

*Indian economy by Dutta and Sundaram*

**Why this question:**

The question aims to discuss the impact of liberalization upon the education system of India.

**Key demand of the question:**

Explain the impact of liberalization on education in general and specifically present the Indian education system scenario.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**

Briefly highlight the concept of liberalization.

**Body:**
Liberalization refers to relaxing certain reforms and policies in India. Our policy in terms of education is focused more on only expanding the system with no focus on quality education. One of the basic problems today is the inability of the university system to provide higher education to all who aspire for it. Discuss its importance to education.

Expand upon the impact it rendered to Indian education system.

**Conclusion:**
Conclude with way forward.

**Introduction**

Liberalization refers to relaxing certain reforms and policies in India. Usually, the term is used in reference to Economic Liberalization. Though India is Economically Liberal, the Education System is not Liberal. There are many reasons, one of them is that the national education should become a commodity that only a few can afford.

According to the Article 25 of the Companies Registration Act, educational institutes in India can be set up by trusts, societies and charitable companies, but the profits cannot be taken out of the institution and have to be reinvested. However, the government does not define and clarify rules for foreign universities to set up campuses in India. Interested parties have been hesitant about moving forward until they are clear about the degree of regulation, funding, and other issues.

**Body**

**Liberalization in India**

**Positive Impact**

- Liberalisation will bring a constant stream of funding which will also facilitate a research-based career and make it a viable option for the future of Indian teachers and students.
- It will expand the supply which is in shortage and the competition among educational institutions will ensure that they do not charge an excessive premium for education. Increase in the supply of education will automatically result in the fall in education expenditure.
- The Indian economy which is majorly fueled by the service industry will get a boost with the education sector becoming a large chunk of the economic source.
- Hundreds of thousands of Indian students study abroad at an annual estimated cost of around US$ 1 billion and it can even stem the exodus of thousands of students who left the country to study abroad. It also curbs brain drain which is also a nation's loss.
- Allowing corporates would ensure the development of better industry-oriented graduates with specific skill sets.
- Increased in educated population implies rapid developments in technology and communications. It also implies the shift of society from industrialization based towards an information-based society.
- Liberalisation offers students an option of studying close to home with the added benefit of a degree which will be valid worldwide.

**Negative Impact**
• The international higher education is largely an unregulated market. While no doubt that there are prestigious universities hoping to build links overseas, recruit top students to their home campuses and strengthen their brand abroad.
  ▪ But there is no dearth of mere sub-prime and low-end private institutions which are seeking to stave off bankruptcy through the export market and there are even a few respectable universities which have been forced by government funding cutbacks to raise cash elsewhere.

• Students and local institutions in developing countries are also similarly unregulated. At many times ill-informed and often naive.
  ▪ Students tend to avail such services without much information or understanding.
  ▪ Uninformed or simply dubious institutions in developing countries may form partnerships with low-quality colleges and universities in India. Students may be falsely tempted under the guise of foreign label.

• There is also the risk of fake institutes which are looking to stuff their pockets whenever the opportunity arises.

• Local institutes which have limited capital will not be able to survive, rendering many jobless. Even the reputed ones will face competition as their national certificates will be less valued as compared to the world recognized certificates.

Conclusion

• A possible solution to this policy is that the government should regulate the sector. Foreign universities can be regulated by giving them a limited period trial, a probation period. And it would on the basis of performance in the trial period, that these universities will be allowed to set up long-term operations. To ensure that national interests are served and the students do not receive an inferior service from unscrupulous providers, there needs to be transparency. This will also help universities think about their motivations for entering the market.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers

Massive inefficiency in the grain management system under the National Food Security Act (NFSA) of the country calls for pressing attention. Discuss the needs for urgent reforms in grain management system. (250 words)

Indian Express

Why this question:
The article provides for a detailed analysis as to how Reforms in grain management system could free up resources for infrastructure investment.

Key demand of the question:
The answer must bring out the existing issues with grain management and in what way newer reforms are the need of the hour.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the
details of the issues concerned by examining each one of them. You have to give reasons for both for
and against arguments.

Structure of the answer:
Introduction:
Suggest few facts highlighting the importance of grain management to the output of Agriculture.
Agriculture still engages about 44 per cent of India’s workforce.

Body:
First highlight massive inefficiency in the grain management system under the National Food Security
Act (NFSA).
Use data from the article and highlight the inefficiencies in the system.
Discuss the role of FCI in management of grains in the country.
Explain what needs to be done? Suggest measures to overcome the situation.

Conclusion:
Conclude with way forward.

Introduction:
The National Food Security Act (NFSA) gives certain quantities of wheat and rice to 67 per cent of the
population at Rs 2/kg and Rs 3/kg respectively, while the economic cost of these to the Food
Corporation of India is Rs 25/kg and Rs 35/kg respectively.

The FCI had pending bills of Rs 1.86 lakh crore that have not been cleared by the government, and
that it has been asked to borrow more and more to finance its operations. The grain stocks with the
FCI are far more than double the buffer stock norms as on January 1, every year.

Body:

Need for urgent reforms in grain management system is due to the following:

• Issues with procurement:
  ▪ Open-ended Procurement: All incoming grains accepted even if buffer stock is filled
    creating a shortage in the open market.
  ▪ The recent implementation of Nation food security act would only increase the quantum
    of procurement resulting in higher prices for grains.
  ▪ The gap between required and existing storage capacity.
  ▪ The open market operations (OMO) are much less compared to what is needed to
    liquidate the excessive stocks.

• Issues with storage:
  ▪ Inadequate storage capacity with FCI.
  ▪ Food grains rotting or damaging on the CAP or Cover & Plinth storage.
  ▪ The money locked in these excessive stocks (beyond the buffer norm) is more than Rs 1
    lakh crore.

• Issues with allocation of food grains:
  ▪ Inaccurate identification of beneficiaries.
• Illicit Fair Price shops: The shop owners have created a large number of bogus cards or ghost cards (cards for non-existent people) to sell food grains in the open market.

• Issues with transportation:
  • Leakages in food grains distribution to be reduced as most leakages in PDS takes place in initial stages.

Important recommendations made by Shanta Kumar Committee.:
• Reduce the number of beneficiaries under the Food Security Act—from the current 67 per cent to 40 per cent.
• While the poor under the Antyodaya category should keep getting the maximum food subsidy, for others, the issue price should be fixed at, say, 50 per cent of the procurement price (as was done under Atal Bihari Vajpayee for the BPL category)
• Allow private players to procure and store food grains.
• Stop bonuses on minimum support price (MSP) paid by states to farmers, and adopt cash transfer system so that MSP and food subsidy amounts can be directly transferred to the accounts of farmers and food security beneficiaries.
• Limit the procurement of rice particularly in the north-western states of Punjab and Haryana where the groundwater table is depleting fast, and invite private sector participation in grain management
• FCI should involve itself in full-fledged grains procurement only in those states which are poor in procurement. In the case of those states which are performing well, like Haryana, Punjab, Andhra Pradesh, Chhattisgarh, Madhya Pradesh and Odisha, the states should do the procurement.
• Abolishing levy rice: Under levy rice policy, government buys certain percentage of rice (varies from 25 to 75 per cent in states) from the mills compulsorily, which is called levy rice. Mills are allowed to sell only the remainder in the open market.
• Deregulate fertiliser sector and provide cash fertiliser subsidy of Rs 7,000 per hectare to farmers.
• Outsource of stocking of grains: The committee calls for setting up of negotiable warehouse receipt (NWR) system. In the new system, farmers can deposit their produce in these registered warehouses and get 80 per cent of the advance from bank against their produce on the basis of MSP.
• Clear and transparent liquidation policy for buffer stock: FCI should be given greater flexibility in doing business; it should offload surplus stock in open market or export, as per need.

Conclusion:
The Committee recommendations however was criticized due to suggestions like limiting NFSA, cash subsidy, privatization of FCI despite suggesting useful reforms to reform FCI, PDS. A closer scrutiny in the recommendation is needed today in times of agricultural distress & drought prone years.

Irrigation is pivotal to agricultural, social, economic growth of nation. Discuss in detail the benefits and concerns associated with Irrigation systems in the country.(250 words)

A Comprehensive Geography by Khullar

Why this question:
The question is from the static portions of the GS paper 3.

Key demand of the question:
Discuss the significance of Irrigation system and the concerns associated with it.
**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
Quote first the significance of irrigation system to agriculture of the country.

**Body:**

Irrigation has provided stability to food production. It is critical, yet a vital input of agriculture production process. Civilizations have risen and fallen with the growth and decline of their irrigation systems, while others have maintained sustainable irrigation for thousands of years. Many of the problems in irrigated agriculture can be mitigated or avoided by improved technology and management, and by adequately addressing cultural, social, and environmental aspects.

Discuss the benefits of irrigation in detail and the challenges/concerns posed.

Suggest what needs to be done to overcome such challenges.

**Conclusion:**

Conclude that irrigation is pivotal to agricultural, social, economic growth of nation. Irrigation has provided stability to food production.

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**Introduction:**

Irrigation is the process of applying water to the crops artificially to fulfil their water requirements. Nutrients may also be applied to the crops through irrigation. The various sources of water for irrigation are wells, ponds, lakes, canals, tube-wells, and even dams. Irrigation offers moisture required for growth and development, germination, and other related functions.

**Body:**

**Types of Irrigation:**

There are different types of irrigation practised for improving crop yield. These types of irrigation systems are practised based on the different types of soils, climates, crops and resources. The main types of irrigation followed by farmers include:

- **Surface Irrigation:**
  - In this system, no irrigation pump is involved. Here, water is distributed across the land by gravity.

- **Localized irrigation:**
  - In this system, water is applied to each plant through a network of pipes under low pressure.

- **Sprinkler irrigation:**
  - Water is distributed from a central location by overhead high-pressure sprinklers or from sprinklers from the moving platform.

- **Drip Irrigation:**
  - In this type, drops of water are delivered near the roots of the plants. This type of irrigation is rarely used as it requires more maintenance and
- **Centre Pivot Irrigation:**
  - In this, the water is distributed by a sprinkler system moving in a circular pattern.

- **Sub-irrigation:**
  - Water is distributed through a system of pumping stations gates, ditches and canals by raising the water table.

- **Manual Irrigation:**
  - This a labour intensive and time-consuming system of irrigation. Here, the water is distributed through watering cans by manual labour.

**Benefits of Irrigation:**
- Insufficient and uncertain rainfall adversely affects agriculture. Droughts and famines are caused due to low productivity. Irrigation helps to increase productivity even in low rainfall.
- The productivity on irrigated land is higher as compared to the un-irrigated land.
- Multiple cropping is not possible in India because the rainy season is specific in most of the regions. However, the climate supports cultivation throughout the year. Irrigation facilities make it possible to grow more than one crop in most of the areas of the country.
- Irrigation has helped to bring most of the fallow land under cultivation.
- Irrigation has stabilized the output and yield levels.
- Irrigation increases the availability of water supply, which in turn increases the income of the farmers.

**Threats posed by Irrigation:**
- **Delays in completion of projects:** In most of the projects, there have been delay in construction of field channels and water courses, land levelling and land shaping.
- **Inter-state Water disputes:** Irrigation is a state subject in India. As a result, difference with regard to storage, priorities and use of water arise between different states. Narrow regional outlook brings inter-state rivalries over distribution of water supply.
- **Regional disparities in irrigation development:** The Ninth Five Year Plan Document estimated that the water resource development in North Eastern region through major, medium and minor schemes is only at the level of 28.6 per cent whereas in the Northern region it has reached about 95.3 per cent.
- **Water-logging and salinity:** Introduction of irrigation has led to the problem of water logging and salinity in some of the states.
- **Increasing cost of irrigation:** The cost of providing irrigation have been increasing over the years from the first five-year plant to tenth five-year plan.
- **Decline in water table:** There has been a steady decline in water table in the recent period in several parts of the country, especially in the western dry region, on account over exploitation of ground water and insufficient recharge from rain-water.

**Measures needed:**
- Large public and private investment for expanding the irrigation system to accelerate agricultural growth and to meet the needs of food security;
- More efficiency in managing the irrigation system;
- Speedy exploitation of irrigation potential from major and medium sources;
• Completion of on-going projects, improvement in the utilisation of irrigation potential and expansion of rural electrification in the eastern region and replacement of high-cost diesel pump sets;
• Ensuring a conjunctive use of surface and ground water;
• The original Gadgil formula, which, earmarked 10 per cent of the total resource to the State Plans for major and medium irrigation and power projects should be revived;
• A major part of saving of fertiliser subsidy be given to States as grant for irrigation expansion; Suitable incentives be extended for advancing hi-tech irrigation systems like the microprocessor-based drip irrigation technology that has proven ability to save 25 per cent chemical fertilisers, halve the water used and nearly double the yields;
• Farmers stakes in irrigation work be raised by conferring on them some degree of co-ownership the irrigation system; and
• A comprehensive watershed management plan need be formulated and effectively implemented.

Conclusion:

The farmers should be acquainted with the type of soil moisture, quality of irrigation water, frequency of irrigation for the proper implementation of irrigation systems.

What are the different types of cropping patterns prevalent in India? Discuss the diversity of cropping pattern across the country.(250 Words)

A comprehensive geography by Khullar

Why this question:
The question is directly from the static portions of GS paper III.

Key demand of the question:
Discuss in detail the different types of cropping patterns prevalent in India and explain the diversity of cropping pattern across the country.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Start by explaining what you understand by a cropping pattern.

Body:
Cropping pattern is the yearly sequence and spatial arrangement of crops and fallow on a given area. Cropping system comprises all cropping patterns grown on the farm and their interaction with farm resources, other household enterprises and the physical, biological, technological and sociological factors or environments.

Discuss the determining factors of a cropping pattern.

Explain the spatial aspect across the country.

Conclusion:
Conclude with importance of having a suitable cropping pattern for good yields.

Introduction:

Cropping pattern is a dynamic concept because it changes over space and time. It can be defined as the proportion of area under various crops at a point of time. In other words, it is a yearly sequence and spatial arrangement of sowing and fallow on a given area. In India, the cropping pattern determined by rainfall, climate, temperature, soil type and technology.
Body:

Major important cropping patterns of India:

**Rabi crops** are sown in winter from October to December and harvested in summer from April to June. Some of the important Rabi crops are wheat, barley, peas, gram and mustard. Though, these crops are grown in large parts of India, states from the north and north-western parts such as Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh are important for the production of wheat and other rabi crops. Availability of precipitation during winter months due to the western temperate cyclones helps in the success of these crops. However, the success of the green revolution in Punjab, Haryana, western Uttar Pradesh and parts of Rajasthan has also been an important factor in the growth of the above-mentioned rabi crops.

**Kharif crops** are grown with the onset of monsoon in different parts of the country and these are harvested in September-October. Important crops grown during this season are paddy, maize, jowar, bajra, tur (arhar), moong, urad, cotton, jute, groundnut and soyabean. Some of the most important rice-growing regions are Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra, particularly the (Konkan coast) along with Uttar Pradesh and Bihar. Recently, paddy has also become an important crop of Punjab and Haryana. In states like Assam, West Bengal and Odisha, three crops of paddy are grown in a year. These are **Aus, Aman and Boro**.

In between the Rabi and the kharif seasons, there is a short season during the summer months known as the Zaid season. Some of the crops produced during ‘zaid’ are watermelon, muskmelon, cucumber, vegetables and fodder crops. Sugarcane takes almost a year to grow.

Diversity of cropping patterns across the country:

- **Rice-Wheat**: UP, Punjab, Haryana, Bihar, West Bengal, Madhya Pradesh.
- **Rice-Rice**: Irrigated and Humid coastal system of Orissa, Tamil Nadu, Andhra Pradesh, Karnataka and Kerala.
- **Rice-Groundnut**: Tamil Nadu, Andhra Pradesh, Karnataka, Orissa and Maharashtra
- **Rice-Pulses**: Chhattisgarh, Orissa and Bihar.
- **Maize-Wheat**: UP, Rajasthan, MP and Bihar.
- **Sugarcane-Wheat**: UP, Punjab and Haryana accounts for 68% of the area under sugarcane. The other states which cover the crops are; Karnataka and MP.
- **Cotton-Wheat**: Punjab, Haryana, West UP, Andhra Pradesh, Karnataka, Tamil Nadu.
- **Soyaben-Wheat**: Maharashtra, MP and Rajasthan
- **Legume Based Cropping Systems (Pulses-Oilseeds)**: MP, Gujarat, Maharashtra, Andhra Pradesh and Karnataka.

Factors affecting Cropping pattern: Cropping pattern of any region depends upon many factors

- **Physical and Technical Factors:**
  - These include the physical characteristic as soil, climate, weather rainfall etc. In the dry regions where the rainfall is scanty and where there is high uncertainty of monsoons, the dependence is on jowar and bajra. Water logging areas cultivate rice.
  - Cropping pattern also depend upon irrigation facilities. Where ever water is available, not only can a different crop be grown but even double or triple cropping will be possible.
- **Economic Factors:**
Economic motivation is the most important in determining the cropping pattern of the country. Among the various economic factors affecting crop pattern, the following are important:

- **Price and Income Maximisation**: Price variations exert an important influence on acreage shifts. The variation in the inter-crop prices led to shifts in acreage as between the crops.

- **Farm Size**: There is a relationship between the farm size and the cropping pattern. The small farmers are first interested in producing food grain for their requirements. Small holder therefore devotes relatively small acreage to cash crops than large holders.

- **Insurance against risk**: The need to minimise the risk of crop failures not only explains diversification but also some specific features of crop patterns.

- **Availability of Inputs**: Seeds, fertilizers, water storage, marketing, transport etc. also affect the cropping pattern.

- **Tenure**: Under the crop sharing system, the landlord has a dominant voice in the choice of the cropping pattern and this helps in the adoption of income maximising crop adjustments.

- **Infrastructure facilities**:
  - Irrigation, transport, storage, trade and marketing, post-harvest handling and processing etc.

- **Government Policies**:
  - The legislative and administrative policies of the government may also affect the cropping pattern. Food Crops Acts, Land Use Acts, intensive schemes for paddy, for cotton and oilseeds, subsidies affect the cropping pattern.
  - MSP – farmers shifting to wheat, rice
  - Green Revolution – skewed cropping pattern in Northern India towards wheat and rice from coarse cereals and pulses

- **Social factors**
  - Food habits also play a role – East and South India prefers rice as staple food while it is wheat in North India.

**Conclusion:**

The cropping pattern in India has undergone significant changes over time. As the cultivated area remains more or less constant, the increased demand for food because of increase in population and urbanisation puts agricultural land under stress resulting in crop intensification and substitution of food crops with commercial crops.

“ICT is becoming the facilitator of socio-economic development in rural India”, Elucidate.(250 words)

**Insights On India**

**Why this question:**
The question is from the static portions of the GS paper III, aims to evaluate the role of ICT in the aid of farmer.

**Key demand of the question:**
Discuss the aspects of ICT that contribute to the socio-economic development in rural India.

**Directive:**
**Elucidate** – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.
Structure of the answer:

Introduction:
Highlight that ICT is becoming the facilitator of socio-economic development in rural India with its obvious facilities by way of health, education, financial services and employment avenues, etc. It can help the bridge gaps by providing ‘e’ and ‘m’ services.

Body:
Explain that the ICT offering meant for rural sector can be classified into three categories:
Those solutions which aim are aimed at empowerment
Those which would do enablement.
Those for market expansion.
Quote recent case studies such as e-chaupal to substantiate your answer better.
Discuss the pros and cons of having ICT aid the farming process.

Conclusion:
Conclude that E-Agriculture; a new area of knowledge emerging out of convergence of IT and farming techniques is the future.

Introduction:
ICT can be interpreted broadly as “technologies that facilitate communication and the processing and transmission of information by electronic means.” ICT promises a fundamental change in all aspects of our lives, including knowledge dissemination, social interaction, economic and business practices, political engagement, media, education, health, leisure and entertainment.

Body:
Evolving Internet in India:
- Commercial Internet services in India were launched in August 1995.
- The initial launch of Internet in 1995 was with dial-up access speeds of upto 9.6 kbps.
- The initial launch of Internet services was with a rate of Rs25, 000 for a 250-hour TCP/IP (Transmission Control Protocol/Internet Protocol) account applicable for commercial organizations (amounting to Rs100 per hour).
- The number of Internet users in India was expected to reach 450-465 million by June, according to the Internet and Mobile Association of India (Iamai) and market researcher IMRB.
- Around 72% of Internet users in India are less than 35 years of age,
- 80% of all web traffic in India emanates from the mobile—second highest in the world, after Nigeria.
- Total number of telephone subscribers were 1,210.84 million as of 17 June, according to Trai.
- Wireless accounted for 1,186.84 million subscriptions.
- Broadband subscribers stood at 301 million at the end of June, according to Trai.

Internet has emerged as a potent tool that can lead to socio-economic empowerment:
- ICT and agriculture:
  - The vast majority of poor people lives in rural areas and derives their livelihoods directly or indirectly from agriculture.
  - Increasing the efficiency, productivity and sustainability of small-scale farms is an area where ICT can make a significant contribution. Farming
involves risks and uncertainties, with farmers facing many threats from poor soils, drought, erosion and

- ICTs can deliver useful information to farmers about agriculture like crop care and animal husbandry, fertilizer and feedstock inputs, pest control, seed sourcing and market prices.

**ICT for Education:**

- Moreover, appropriate use of ICTs in the classroom fosters critical, integrative and contextual teaching and learning; develops information literacy (the ability to locate, evaluate and use information).
- Thus, it improves the overall efficiency of the delivery of education in schools and educational management institutions at the national, state/provincial and community level.
- The use of ICTs in education aims to improve the quality of teaching and learning as well as democratize the access to education.

**ICT for Economic Development:**

- Information and Communication Technology has a vital role in connecting the rural community to outside world for exchange of information, a basic necessity for economic development.
- Effective use of ICT can demolish geographical boundaries and can bring rural communities closer to global economic systems and be of meaningful help to the underprivileged.

**Employment Opportunities:**

- Poor people in rural localities have lack of opportunities for employment because they often do not have access to information about them.
- One use of ICTs is to provide on-line services for job placement through electronic labour exchanges in public employment service or other placement agencies

**ICT in e-Governance:**

- The poverty can be adequately addressed by effective use of e-governance and ICT application in environmental management. Improved governance by using ICT can have direct impact in reducing poverty and improving the environment.
- ICT can contribute in a large way in making government processes more efficient and transparent by encouraging communication and information sharing among rural and marginalized people.

**ICT in Capacity-building and empowerment:**

- Communities and farmer organisations can be helped through the use of ICTs to strengthen their own capacities and better represent their constituencies when negotiating input and output prices, land claims, resource rights and infrastructure
• ICT enables rural communities to interact with other stakeholders, thus reducing social isolation.

• It widens the perspective of local communities in terms of national or global developments, opens up new business opportunities and allows easier contact with friends and relatives. A role is also played by ICT in making processes more efficient and transparent.

• It helps in making laws and land titles more accessible. Global Positioning Systems (GPS) linked to Geographical Information Systems (GIS), digital cameras and internet, help rural communities to document and communicate their situation.

• ICT and Service delivery mechanisms:

  ▪ There is a huge gap between information residing in agricultural knowledge centres and rural communities.

  ▪ At local level, multi-stakeholder mechanisms are important to make relevant information accessible to end users. Intermediary organizations have to connect rural communities to available Users will increasingly want tailor-made, quality answers to their questions.

  ▪ In the Agricultural Clinics in India customers get answers within one to two days.

  ▪ Mobile Q&A services are being piloted in India.

  ▪ At national level, mechanisms need to be in place to ensure learning and information sharing.

• ICT and Health:

  ▪ Health care is one of the most promising areas for poverty alleviation.

  ▪ ICTs are being used in India to facilitate remote consultation, diagnosis and treatment.

  ▪ Delivering health care with ICTs enables health care professionals and institutions to address the critical medical needs of rural communities, especially those in remote locations and those that lack qualified medical personnel and services.

• Role of ICT under climate change:

  ▪ ICTs can enable access to the set of resources in the event of climate change related shocks or disturbances.

  ▪ ICTs provide access to relevant data and information that is first processed at an individual level, then facilitate communication and interaction between a wide range of stakeholders, and ultimately enable cooperation, which can translate into adaptive
actions being implemented with the participation of a wide range of stakeholders.

- ICTs can also speed up access to information.
- This is particularly important when an acute climate related shock such as landslide or flood
- Mobile based telecommunications networks allow rapid communication of information, thus improving the speed of disaster warning, response and recovery

Conclusion:
The use of ICT tools help in strengthening social networks, empowerment and participation, as well as fostering productive processes at the local level through the provision of employment and skills, as well as support services for micro-enterprise activities. In rural communities of developing countries, with limited capacities and resources to respond to the effects of extreme natural hazards, drought, landslides, floods, and to the impacts of these events on local social systems (e.g. health, infrastructure, transportation, migration), ICT tools (the potential of telecentres for disaster preparedness and response) are emerging as an area of increasing interest.

What do you understand by Conservation Agriculture? Discuss the key principles of such a practice and elucidate upon its significance.(250 words)

**FAQ**

Why this question:
The question is based on the topic of Conservation Agriculture and its importance.

Key demand of the question:
Discuss the concept of Conservation Agriculture in detail and highlight the prospects of such a concept.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
First define What Conservation Agriculture is? – Conservation Agriculture (CA) is a farming system that can prevent losses of arable land while regenerating degraded lands.

Body:
Discuss the aspects of Conservation agriculture.
It promotes maintenance of a permanent soil cover, minimum soil disturbance, and diversification of plant species. It enhances biodiversity and natural biological processes above and below the ground surface, which contribute to increased water and nutrient use efficiency and to improved and sustained crop production.

Explain the basic principles involved in it.

Discuss how CA facilitates good agronomy, such as timely operations, and improves overall land husbandry for rainfed and irrigated production.

Conclusion:
Conclude with positive note and highlight that CA is a base for sustainable agricultural production intensification.

Introduction
Conservation Agriculture (CA) is defined as a sustainable agriculture production system comprising a set of farming practices adapted to the requirements of crops and local conditions of each region, whose farming and soil management techniques protect the soil from erosion and degradation, improve its quality and biodiversity, and contribute to the preservation of the natural resources, water and air, while optimizing yields.

**Body**

Agronomic practices included in CA are based on three core principles, which must be fulfilled concomitantly:

- Minimum soil disturbance.
- Maintenance of permanent soil covers.
- Cropping system diversity, crop rotations.

**Key Principles of Conservation Agriculture**

Conservation Agriculture is based on three main principles adapted to reflect local conditions and needs:

- **Minimum mechanical soil disturbance:** Minimum soil disturbance refers to low disturbance no-tillage and direct seeding. The disturbed area must be less than 15 cm wide or less than 25% of the cropped area (whichever is lower). There should be no periodic tillage that disturbs a greater area than the aforementioned limits. Strip tillage is allowed if the disturbed area is less than the set limits.

- **Permanent soil organic cover:** Three categories are distinguished: 30-60%, >60-90% and >90% ground cover, measured immediately after the direct seeding operation. Area with less than 30% cover is not considered as CA.

- **Species diversification:** Rotation/association should involve at least 3 different crops. However, repetitive wheat, maize, or rice cropping is not an exclusion factor for the purpose of this data collection, but rotation/association is recorded where practiced.

**Significance**

Conservation Agriculture prevents losses of arable land while regenerating degraded lands. It promotes maintenance of a permanent soil cover, minimum soil disturbance, and diversification of plant species. It is significant for following reasons:

- **Enhanced biodiversity:** It enhances biodiversity and natural biological processes above and below the ground surface, which contribute to increased water and nutrient use efficiency and to improved and sustained crop production.

- **Carbon sequestration:** No till fields act as a sink for CO2 and conservation farming applied on a global scale could provide a major contribution to control air pollution in general and global warming in particular. Farmers applying this practice could eventually be rewarded with carbon credits.

- **Labour savings:** Soil tillage is among all farming operations the single most energy consuming and thus, in mechanized agriculture, air-polluting, operation. By not tilling the
soil, farmers can save between 30 and 40% of time, labour and, in mechanized agriculture, fossil fuels as compared to conventional cropping.

- **Sustainable**: Complemented by other known good practices, including the use of quality seeds, and integrated pest, nutrient, weed and water management, etc., CA is a base for sustainable agricultural production intensification.

- **Mixed Farming possible**: It opens increased options for integration of production sectors, such as crop-livestock integration and the integration of trees and pastures into agricultural landscapes.

- **Increased yields**: Conservation agriculture is by no means a low output agriculture and allows yields comparable with modern intensive agriculture but in a sustainable way. Yields tend to increase over the years with yield variations decreasing.

- **Reduced costs**: For the farmer, conservation farming is mostly attractive because it allows a reduction of the production costs, reduction of time and labour, particularly at times of peak demand such as land preparation and planting and in mechanized systems it reduces the costs of investment and maintenance of machinery in the long term.

**Conclusion**

Today, approximately one-third of the planet’s soils are degraded. In many countries, intensive crop production has depleted soils, to the extent that future production in these areas is jeopardized. Healthy soils are key to developing sustainable crop production systems that are resilient to the effects of climate change. CA facilitates good agronomy, such as timely operations, and improves overall land husbandry for rainfed and irrigated production.

**Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.**

**Write a short note on National Mission on Sustainable Agriculture.**

Vikaspedia

**Why this question:**
The question is direct from the static portions of GS paper III.

**Key demand of the question:**
Discuss in detail the NMSA project, highlight its key objectives, quote facts of achievements so far, challenges if any and conclude with way forward.

**Structure of the answer:**

**Introduction:**
National Mission for Sustainable Agriculture (NMSA) has been formulated for enhancing agricultural productivity especially in rain fed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation.

**Body:**
Briefly discuss the mission objectives first.
Explain the mission strategy.
Discuss the major components of the scheme in detail.
Take hints from the reference and cover majority aspects in your answer.
Conclusion:
Conclude with significance of such missions to the agro-economics of the country.

Introduction:

National Mission on Sustainable Agriculture (NMSA) is one of the eight Missions under the National Action Plan on Climate Change (NAPCC) seeks to address issues regarding ‘Sustainable Agriculture’ in the context of risks associated with climate change by devising appropriate adaptation and mitigation strategies for ensuring food security, equitable access to food resources, enhancing livelihood opportunities and contributing to economic stability at the national level. It has been formulated for enhancing agricultural productivity especially in rainfed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation.

Body:

Significance of National Mission for Sustainable Agriculture:

- Sustaining agricultural productivity depends on quality and availability of natural resources like soil and water.
- Agricultural growth can be sustained by promoting conservation and sustainable use of these scarce natural resources through appropriate location specific measures.
- Indian agriculture remains predominantly rainfed covering about 60% of the country’s net sown area and accounts for 40% of the total food production.

Objectives of National Mission for Sustainable Agriculture:

- To promote location specific Integrated/Composite Farming Systems that makes agriculture more productive, sustainable, and remunerative and climate resilient.
- To adopt appropriate soil and moisture conservation measures that will enhance the conservation of natural resources.
- To adopt comprehensive soil health management practices based on soil fertility maps, soil test based application of macro & micro nutrients, judicious use of fertilizers etc.
- There should be optimisation of utilization of water resources through efficient water management to expand coverage for achieving ‘more crops per drop’.
- To develop capacity of farmers & stakeholders, in conjunction with other on-going Missions e.g. National Mission on Agriculture Extension & Technology, National Food Security Mission, National Initiative for Climate Resilient Agriculture (NICRA) etc., in the domain of climate change adaptation and mitigation measures.
- There should be selection of block by the pilot model for improving productivity of rain-fed farming by mainstreaming rain-fed technologies refined through NICRA and by leveraging resources from other schemes/Missions like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Integrated Watershed Management Programme (IWMP), and RKVY etc.
- There should be establishment of an effective inter and intra Departmental/Ministerial co-ordination for accomplishing the goal of National Mission for Sustainable Agriculture under the aegis of NAPCC.

Important components:

- Rainfed Area Development (RAD)
- Sub-Mission on Agroforestry (SMAF)
- National Bamboo Mission (NBM)
Soil Health Management (SHM)
Climate Change and Sustainable Agriculture: Monitoring, Modelling and Networking (CCSAMMN)
Paramparagat Krishi Vikas Yojana (PKVY)

Challenges:
- Proposed provision and strategies are highly extensive which is only targeting the big farmers and rest are remaining vulnerable.
- Sustainable Agriculture is based on an understanding of ecosystem services, the study of relationships between organisms and their environment.
- But the proposed strategies of the mission given importance of water and largely ignored the usage of chemical fertilizers. The use of chemical fertilizer required more irrigation as compare to the organic farming.
- The mission is lacked by the adequate framework to meet the climate change especially challenges faced by agriculture due to the climate change.

Conclusion:
Conservation of natural resources in conjunction with development of rainfed agriculture holds the key to meet burgeoning demands for food grain in the country. Towards this end, National Mission for Sustainable Agriculture (NMSA) has been formulated for enhancing agricultural productivity especially in rainfed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation.

With suitable Illustrations, explain how Livestock farming backed by Agricultural Extension services can help weaker sections of society.(250 words)

**FAQ**

**Why this question:**
Question is based on the topic of economics of animal-rearing.

**Key demand of the question:**
Discuss in detail the benefits of Livestock farming backed by Agricultural Extension services. And the positive impact it brings in development of weaker sections of the society.

**Directive:**
*Explain* – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:**
**Introduction:**

**Body:**

Explain that Livestock make a major, although largely underestimated, contribution to rural development in developing countries. They produce food, enhance crop production and provide additional economic goods and services as well as cash income.

The inclusion of livestock diversifies and increases total farm production and income, provides year-round employment and disperses risk. Sales of livestock products provide funds for purchasing crop inputs and for financing farm investments.

Livestock often form the major capital reserve of farming households and, in general, enhance the economic viability and sustainability of a farming system.

Explain how linking it with agri extension services can help weaker sections of the society.
Discuss the stakeholders that will benefit from such a combination of services; Women, Rural areas etc.

**Conclusion:**
Conclude with way forward.

**Introduction:**

India’s livestock sector is one of the largest in the world. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

India’s withdrawal from the Regional Comprehensive Economic Partnership (RCEP) is considered as a major victory for the farmer’s organisations, trade unions, MSME organisations and civil society groups, which had protested against the free trade agreement. RCEP would have proven suicidal for India’s dairy sector.

**Body:**

**Trends in livestock population:** (Source: 20th Livestock Census)

- Total Livestock population is 535.78 million- an increase of 4.6% over Livestock Census-2012.
- Total Bovine population (Cattle, Buffalo, Mithun and Yak)- 79 Million in 2019- an increase of about 1% over the previous census.
- A decline of 6 % in the total Indigenous/ Non-descript cattle population over the previous census.
- The population of cows in the country has risen by 18 per cent in the last seven years, while that of oxen dipped by 30 per cent, according to the latest census of livestock.
- There was a spectacular 16.8 per cent increase in the poultry population in the country to 851.81 million, mainly on account of a 46 per cent rise in backyard poultry birds, whose numbers have gone up to 317 million.
- The number of female cattle is 145.12 million, which is 18 per cent over the 122.98 million in 2012. The number of male cattle, on the other hand, dropped to 47.4 million as against 67.92 million in 2012.
- While cattle accounted for 35.94 per cent of total livestock in the country, goats accounted for 27.80 per cent, buffaloes: 20.45 per cent, sheep: 13.87 per cent and pigs: 1.69 per cent.

**Role of livestock in socio-economic life of India:**

The livestock plays an important role in the economy of farmers. The farmers in India maintain mixed farming system i.e. a combination of crop and livestock where the output of one enterprise becomes the input of another enterprise thereby realize the resource efficiency. The livestock serve the farmers in different ways.

- **Income:**
  - Livestock is a source of subsidiary income for many families in India especially the resource poor who maintain few heads of animals.
  - Cows and buffaloes if in milk will provide regular income to the livestock farmers through sale of milk.
Animals like sheep and goats serve as sources of income during emergencies to meet exigencies like marriages, treatment of sick persons, children education, repair of houses etc.

The animals also serve as moving banks and assets which provide economic security to the owners.

**Employment:**

- A large number of people in India being less literate and unskilled depend upon agriculture for their livelihoods.
- But agriculture being seasonal in nature could provide employment for a maximum of 180 days in a year.
- The land less and less land people depend upon livestock for utilizing their labour during lean agricultural season.

**Food:**

- The livestock products such as milk, meat and eggs are an important source of animal protein to the members of the livestock owners.
- The per capita availability of milk is around 355 g / day; eggs is 69 / annum;

**Social security:**

- The animals offer social security to the owners in terms of their status in the society.
- The families especially the landless which own animals are better placed than those who do not.
- Gifting of animals during marriages is a very common phenomenon in different parts of the country.
- Rearing of animals is a part of the Indian culture. Animals are used for various socio religious functions.
- Cows for house warming ceremonies; rams, bucks and chicken for sacrifice during festive seasons;
- Bulls and Cows are worshipped during various religious functions. Many owners develop attachment to their animals.

**Gender equity:**

- Animal husbandry promotes gender equity.
- More than three-fourth of the labour demand in livestock production is met by women.
- The share of women employment in livestock sector is around 90% in Punjab and Haryana where dairying is a prominent activity and animals are stall-fed.

**Draft:**

- The bullocks are the back bone of Indian agriculture.
- The farmers especially the marginal and small depend upon bullocks for ploughing, carting and transport of both inputs and outputs.

### Dung:

- In rural areas dung is used for several purposes which include fuel (dung cakes), fertilizer (farm yard manure), and plastering material (poor man’s cement).

### Conclusion:

With increasing population, persistent rise in food inflation, unfortunate rise in farmer’s suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario. Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society. Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional powerhouse of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

**What is Pradhan Mantri Laghu Vyapari Maan-dhan Yojana? Discuss the Significance of the scheme and its role in ensuring financial security of the citizens. (250 words)**

**Vikaspedia**

**Why this question:** The National Pension Scheme for Traders and Self-Employed Persons has failed to gain traction as only about 25,000 persons have opted for the scheme as against the government’s target to enroll 50 lakh by March-end. Thus the question.

**Key demand of the question:** Discuss the key features, Significance of the scheme and its role in ensuring financial security of the citizens.

**Directive:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**

Start by bringing out the relevance of the scheme to the agricultural setup of the country.

**Body:**

**Explain What is Pradhan Mantri Laghu Vyapari Maan-dhan Yojana?** It is a voluntary and contribution based central sector scheme. The government launched the scheme, entailing monthly minimum assured pension of ₹3,000 for the entry age group of 18-40 years after attaining the age of 60 years, with effect from July 22, 2019.

**Explain in detail the significance, beneficiaries it caters to.**

**Conclusion:**

Conclude with way forward.

**Introduction:**

The National Pension Scheme for Traders and Self Employed Persons Yojana (Pradhan Mantri Laghu Vyapari Maan-dhan Yojana) is a pension scheme for shopkeeper’s/ retail traders and self-employed persons for providing monthly minimum assured pension of Rs 3000/- for the entry age group of 18-40 years. The scheme is an extension of the PM Shram Yogi Maan-dhan Yojana. It
is a voluntary and contribution based central sector scheme. Under the scheme, the government makes matching contribution in the subscribers’ account. The scheme is based on self-declaration as no documents are required except bank account and Aadhaar Card.

Body:

Significance of the Pradhan Mantri Laghu Vyapari Maan-Dhan Yojana (PMLVM):

- All shopkeeper, retail traders and the self-employed individual will receive a monthly pension of Rs.3000 after attaining the age of 60 years.
- Under the PMLVM scheme, the eligible beneficiary will have to make a monthly contribution of Rs.55 to Rs.200 depending upon their age limit.
- The Central/State Government will make an equal contribution to the beneficiary account. For example, if a person with the age of 30 years will have to contribute Rs.105 per month, then the Government also contributes the same amount as subsidy into the beneficiary account.
- The Life Insurance Corporation of India, which acts as the pension fund manager, is responsible for the disbursement of pension amount.
- In case of permanent disability of beneficiary before superannuation age, the spouse can continue in the scheme by remitting the balance amount until you reach the loan tenure. If there is no spouse, then the total contribution along with interest will be paid to the beneficiary.
- In case of death occurs after the retirement date, the spouse will receive 50% of the pension as the family pension. After the loss of both the pensioner and the spouse, then the fund will be credited back to the nodal agency.

Role in ensuring financial security:

- Each eligible subscriber under this Scheme shall receive assured minimum monthly pension of Rs 3000 after attaining the age of sixty years.
- The Government of India will make matching contribution in the subscribers’ account. For example, if a person with age of 29 years contributes Rs. 100/- month, then the Central Government also contributes the equal amount as subsidy into subscriber’s pension account every month.
- **Benefits on disablement**: If an eligible subscriber has given regular contributions and become permanently disabled due to any cause before attaining his age of 60 years, and is unable to continue to contribute under this Scheme, his spouse shall be entitled to continue with the Scheme subsequently by payment of regular contribution as applicable or exit the Scheme by receiving the share of contribution deposited by such subscriber, with interest as actually earned thereon by the Pension Fund or the interest at the savings bank interest rate thereon, whichever is higher.
- **Benefits to the family on death of an eligible subscriber**: During the receipt of pension, if an eligible subscriber dies, his spouse shall be only entitled to receive fifty per cent. of the pension received by such eligible subscriber, as family pension and such family pension shall be applicable only to the spouse.

Conclusion:

In India, as of now, we do not have any Social Security System. So, this scheme can benefit, especially the low income group and individuals who are retail traders and shop keepers.
Do you agree that it is the bounden duty of scientific community to find long-term solutions to the problems faced by farmers and improve crop productivity?

Comment and discuss the significance of research and technology to Agriculture. (250 words)

**Business-Standard**

**New Indian Express**

**Why this question:**
The Vice President of India, M Venkaiah Naidu called upon the scientific community to find long-term solutions to the problems faced by farmers and improve crop productivity and farmers’ income. Thus the context of the question.

**Key demand of the question:**
Explain how relevant it is to involve scientific community and research in developing long-term solutions to the problems faced by farmers and improve crop productivity.

**Directive:**
Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

**Structure of the answer:**

**Introduction:**
In general discuss the importance of research and science in developing newer methods and discovering newer ways to address the challenges of Agriculture in the country.

**Body:**
Emphasis upon the critical role of technology in enhancing both the quality and quantity across the agriculture value chain from the use of inputs at the pre-production stage to post-production and marketing to improve the income of farmers.

Explain that it is the bounden duty of scientific community to find long-term solutions to the problems faced by farmers and improve crop productivity. Scientists need to explore ways to make crops more “climate-resilient, nutrition-efficient and less water consuming”. The role of technology is critical in enhancing both the quality and quantity across the agriculture value chain from the use of inputs at the pre-production stage to post-production and marketing to improve the income of farmers.

**Conclusion:**
Conclude that Science is significant in finding solutions and Technological innovation was a key driver in boosting economy, improving people’s lives and enabling better delivery of services.

**Introduction:**
Agriculture has always been a lifeline for India. Even though with age, India has made a mark in various spheres and has progressed in the manufacturing sector by leaps and bounds, but agriculture still remains one of the key drivers of the economy. Worldwide, India ranks second in farm output and accounts for about 50% of the country’s workforce.

**Body:**

**Need for scientific community to find long-term solutions:**

- The lack of remunerative prices for the crops is one of the main reasons for Agrarian distress in India today.
- The various options like Minimum Support Price for about 25 crops, Farm Loan Waiver schemes undertaken by various state governments have failed to alleviate the problem.
- The NSSO Situation Assessment Survey of Agricultural Households (2013) shows that 52% of farming households are indebted, with rates as high as 89-92% in some States.
Climate change affects all the three aspects of food security: availability, access and absorption.
Agricultural productivity is sensitive to climate-induced effects like changes in temperature, precipitation and carbon dioxide concentrations in the atmosphere.
According to 2018 Economic Survey, India incurs losses of about $9-10 billion annually due to extreme weather events.
It also noted farmers’ income losses from climate change would be between 15% and 18% on an average.

Science and Technology has helped in Agriculture:
Modern agricultural technology allows a small number of people to grow vast quantities of food and fiber in a shortest period of time.
Modern transportation technology facilities help farmers easily transport fertilizers or other farm products to their farms, and it also speeds the supply of agricultural products from farms to the markets where consumers get them on a daily basis.
Cooling facilities help farmers to deliver perishable crops to keep them fresh as they transport them to the market. These cooling facilities are installed in food transportation trucks, so crops like tomatoes will stay fresh upon delivery.
Genetically produced plants like potatoes, can resist diseases and pests, which rewards the farmer with good yields and saves them time. These crops grow very fast they produce healthy yields.
Advanced water sprinklers are being used to irrigate big farms and this helps the crops get enough water which is essential in their growth.
Most of these genetically produced animals will produce more milk or fur compared to normal animals. This benefits the farmer because their production will be high.

Technology has played a big role in developing the agricultural industry. Today it is possible to grow crops in a desert by use of agricultural biotechnology. With this technology, plants have been engineered to survive in drought conditions. Through genetic engineering scientists have managed to introduce traits into existing genes with a goal of making crops resistant to droughts and pests. However, after nearly four decades into the post green revolution period, the country still grapples with crisis each year in trying to meet the increasing demand for food by its people. Structural reforms needed are:

- Credit, finance and Insurance:
  - Raising the MSP, price deficiency payments or income support schemes can only be a partial solution to the problem of providing remunerative returns to farmers.
  - A functional institutional credit system which is accessible and accountable to all cultivators.
  - This covers not only land-owning farmers but also sharecroppers, tenants, adivasi and women farmers, and animal-rearers.
  - Credit products for agriculture need to be tailor-made based on cropping and rain cycle, specific to a particular region. The regional offices of commercial banks should contribute in this exercise. Registration of all cultivators and providing Kisan credit cards.
  - The period of crop loan should be extendable to four years, given that, on average, every second or third year the spatial distribution of rain pattern is erratic in India.
• Land holdings:
  - The average size of farm holdings declined from 2.3 hectares in 1970-71 to 1.08 hectares in 2015-16.
  - Policies for land consolidation along with land development activities in order to tackle the challenge of the low average size of holdings.
  - Farmers can voluntarily come together and pool land to gain the benefits of size. Through consolidation, farmers can reap the economies of scale both in input procurement and output marketing.

• Input Costs:
  - It is more important to make agriculture sustainable by reducing input costs of seeds, fertilizers and other inputs.
  - Investment in infrastructure and research and development are needed.
  - There is a need for collaboration of industry-academia for coming out with cost-effective solutions to agrarian distress.
  - There is a need to make a shift from rice and wheat-centric policies to millets, pulses, fruits, vegetables, livestock and fish.

• Remunerative Prices:
  - Extending reach of minimum support price which has been dedicated to few crops and in a narrow geographical area is important.
  - Set up of Futures and Trade markets, tie up of farmer and private companies for procurement should be looked into as alternative methods against distress sale.

• Agro- Produce Marketing and Processing:
  - The creation of a competitive, stable and unified national market is needed for farmers to get better prices.
  - For better price for farmers, agriculture has to go beyond farming and develop a value chain comprising farming, wholesaling, warehousing, logistics, processing and retailing.
  - The agro-processing industry and warehousing needs to expand so that agricultural produce can be stored when prices plunge.
  - Promoting viable farmer collectives to act as a “collective voice of marginal and small farmers”.
  - Legislations on the basis of NITI Aayog’s new model law — Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM) should be enacted in all states.
  - A sustainable solution is market reforms to enable better price discovery combined with long-term trade policies favourable to exports.

• Technology:
- Use water-use efficient technologies that can improve significantly the produce like drip irrigation and sprinkler irrigation.
- Precision agriculture, GM Crops should be encouraged drought prone areas.
- Space technology and Mobiles should act as “Eyes and Ears” of the farmers to assist in farming.

**Distress Management:**
- Establish farmers’ distress and disaster relief commissions at the national and State levels, based on the model of Kerala Farmers’ Debt Relief Commission.

**Conclusion:**
Although Science and Technology did help improve the situation of Agriculture but the farmer income dropped consistently due to a variety of reasons. There is a need for implementation of the structural reforms and recommendations of various commissions to realise the goal of doubling of farmer’s income by 2022.

**What do you understand by Integrated Farming System? How far is the Integrated Farming System helpful in sustaining agricultural production? Elucidate in the Indian context. (250 words)**

**Agritech**

**Why this question:**
The question is straightforward and is based on the concept of Integrated Farming System and its relevance to India agriculture system.

**Key demand of the question:**
Discuss in detail the concept of IFS, discuss its relevance and significance to the Indian Setup.

**Directive:**
Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:**

**Introduction:**
Briefly explain what Integrated Farming System is.

**Body:**
Discuss Role of Integrated Farming System and in what way it is helpful in sustaining agricultural production.
The Integrated Farming System (IFS) is a combined approach aimed at efficient sustainable resource management for increased productivity in the cropping system. The IFS approach has multiple objectives of sustainability, food security, farmer’s security and poverty reduction by involving livestock, vermicomposting, organic farming etc.
Discuss the possible challenges involved.

**Conclusion:**
Conclude with way forward such as Integrating subsistence agriculture, Encouraging livestock enterprises, Building farmer capacities etc.

**Introduction:**
Integrated farming system (IFS) refers to agricultural system that integrates livestock and crop production to deliver more sustainable agriculture. IFS utilizes the crop-livestock interaction as shown below in the cyclic diagram, according to Economic Survey 2018-19.
Body:

IFS and sustaining agricultural production:

- Higher food production to equate the demand of the exploding population of our nation
- Increased farm income through proper residue recycling and allied components
- Sustainable soil fertility and productivity through organic waste recycling
- Integration of allied activities will result in the availability of nutritious food enriched with protein, carbohydrate, fat, minerals and vitamins
- Integrated farming will help in environmental protection through effective recycling of waste from animal activities like piggy, poultry and pigeon rearing
- Reduced production cost of components through input recycling from the byproducts of allied enterprises
- IFS components are known to control the weed and regarded as an important element of integrated pest management and thus minimise the use of weed killers as well as pesticides and thereby protect the environment.
- Regular stable income through the products like egg, milk, mushroom, vegetables, honey and silkworm cocoons from the linked activities in integrated farming
- Inclusion of biogas & agro forestry in integrated farming system will solve the prognosticated energy crisis
- Cultivation of fodder crops as intercropping and as border cropping will result in the availability of adequate nutritious fodder for animal components like milch cow, goat / sheep, pig and rabbit
- Firewood and construction wood requirements could be met from the agroforestry system without affecting the natural forest
- Avoidance of soil loss through erosion by agro-forestry and proper cultivation of each part of land by integrated farming
- Generation of regular employment for the farm family members of small and marginal farmers.
- IFS promote the efficient management of resources. This enhances the productivity of the farming.
- The IFS promotes for rejuvenation of systems productivity and to achieve agroecological equilibrium.

IFS in Indian perspective:

- Some IFS features like Organic farming, and developing a judicious mix of income-generating activities such as dairy, poultry, fishery, goat-rearing, vermicomposting and others, and community-led local systems for water conservation etc help in reducing farmers’ distress.
- Integrated Farming Systems suitable particularly for hilly regions of the North Eastern Region can be adopted.
Some are as – Integrated Fish cum Pig farming, Integrated Fish cum Duck Farming, Integrated Fish Farming-Chicken, Integrated Fish farming-cum-Cattle farming, Integrated Fish farming-cum-Rabbit farming, Integrated Fish farming-cum-Agriculture.

Sikkim being an organic state is a good example.

Case studies:

1. **Integrated Fish Cum Pig farming in North east** - Pig sites are constructed on pond embankment. Pig manure (faeces and urine) are directly drained into the pond which acts as pond fertilizer and increases the biological productivity of pond water, thus increasing the fish production. Also, fish feed directly on pig excreta, which cuts down the cost of feed as well. This system has helped to improve the status of weaker rural communities, especially tribals in North eastern states.

2. **Integrated fish farming cum Horticulture** - Embankments of fish ponds provide area for planting fruits and vegetable. When Banana and Coconut is cultivated in rows in wetlands, the ditches made between such rows act as supply canal. These canals serve as fish culture system due to regular supply of water and rich insect populations. In turn it naturally boosts the productivity of soil and yield of fruits and vegetables.

Conclusion:

Keeping in mind the benefits of crop-livestock interaction, Economic Survey (2018-19) has suggested to improve Resource Efficiency for Small holder agriculture (as 85% of agriculture is dominated by small and marginal farmers), where organic farming (ZBNF, Cow Farming, Vedic Farming, Homa farming) and increasing water productivity should be given a thrust. Economic survey (2018-19) has also suggested to capitalise Small ruminants (Sheep and Goats), especially in water stressed regions for additional source income for farmers.

**Briefly discuss the objectives of Agricultural and Processed Food Products Export Development Authority (APEDA). Discuss in detail the functions performed by it and analyse its contributions to the Indian agriculture.** (250 words)

**Apedia**

**Why this question:**
The question is based on the roles and responsibilities delivered by Agricultural and Processed Food Products Export Development Authority (APEDA).

**Key demand of the question:**
Discuss in detail the objectives, functions, roles played by Agricultural and Processed Food Products Export Development Authority (APEDA).

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
The Agricultural and Processed Food Products Export Development Authority (APEDA) was established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act, 1985. It functions under the Ministry of Commerce and Industry. The Authority has its headquarters in New Delhi.

**Body:**
Discuss the key functions performed by APEDA.
APEDA is mandated with the responsibility of export promotion and development of the scheduled products viz. fruits, vegetables and their products; meat and meat products; poultry and poultry products; dairy products; confectionary, biscuits and bakery products etc. Explain the composition of APEDA, how it works. Discuss the work done so far by the authority.

Conclusion:
Conclude with significance.

Introduction:
The Agricultural and Processed Food Products Export Development Authority (APEDA) was established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act passed by the Parliament in December, 1985. It is established under the Ministry of Commerce and Industry, Government of India is mandated with the responsibility of export promotion and development of the following scheduled products.

Body:

Exports of India:

- India witnessed a jump of nearly 50 per cent in organic product exports touching the Rs 5151 crore-mark ($757 million) in 2018-19.
- India exported organic products worth Rs 5151 Crore (over US $ 757 million) in 2018-19, from Rs 3453 Crore in 2017-18 (US$ 515 million) registering an increase of about 49 %.
- According to estimates by APEDA, flax seeds, sesame, soybean, tea, medicinal plants, rice and pulses such as arhar and chana are the key organic food products that drove this growth.
- The total volume of export during 2018-19 was 6.14 lakh tonnes

Objectives of APEDA:

- The objective of APEDA is to promote schedule products export and to achieve this various functions has been undertaken by this body under the regulation of central government.
- Central government lays down the rules and regulation and implements through this body for the efficient administration of APEDA Act.

Functions of APEDA:

- Development of industries relating to the scheduled products for export by way of providing financial assistance or otherwise for undertaking surveys and feasibility studies, participation in enquiry capital through joint ventures and other reliefs and subsidy schemes;
- Registration of persons as exporters of the scheduled products on payment of such fees as may be prescribed;
- Fixing of standards and specifications for the scheduled products for the purpose of exports;
- Carrying out inspection of meat and meat products in slaughter houses, processing plants, storage premises, conveyances or other places where such products are kept or handled for the purpose of ensuring the quality of such products;
- Improving of packaging of the Scheduled products;
- Improving of marketing of the Scheduled products outside India;
- Promotion of export oriented production and development of the Scheduled products;
- Collection of statistics from the owners of factories or establishments engaged in the production, processing, packaging, marketing or export of the scheduled products or from such
other persons as may be prescribed on any matter relating to the scheduled products and publication of the statistics so collected or of any portions thereof or extracts therefrom;

- Training in various aspects of the industries connected with the scheduled products;
- Such other matters as may be prescribed.

**Conclusion:**

APEDA has been promoting the export of various agricultural commodities and provides a platform to showcase India’s quality produce to the global market. Ministry of Food Processing Industries and other agencies are working in close coordination; they are also focusing on exports. In addition, involving states since they also have an important role in encouraging exports of agriculture products from the region.

**Discuss the economics of poultry industry in India.** *(250 words)*

*Indian Express*

**Why this question:**
The question is straightforward and aims to discuss the economics of Poultry in India.

**Key demand of the question:**
Discuss in detail the economics of poultry industry in India.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
Describe key facts of present poultry industry in India.

**Body:**
Discuss the importance of poultry farming.
Explain in what way it can augment the income of farmer.
Comment on the aspects of allied agriculture and the importance of poultry
Discuss the challenges associated and how to overcome it.
Explain what the policies of the govt. in this direction are.

**Conclusion:**
Conclude with significance.

**Introduction:**
India has the world’s largest population of livestock. The country produces approximately **5.3 million MT of meat and 75 billion eggs annually**. India is also the largest producer of buffalo meat and second largest producer of goat meat. In essence, poultry and meat are vertically integrated industries in India and have witnessed colossal growth over the past few years.

**Body:**
The poultry industry in India, in particular, represents a massive success story. It has undergone a paradigm shift in structure and operation and what was largely a backyard venture before the 1960s has been transformed into a vibrant agribusiness with an annual turnover of INR 30 000 crores. Presently, India is the third largest egg producer in the world following China and the USA.

**Potential of the poultry sector:**
- The development goes beyond size – extending to efficiency, superiority and quality.
Labour: Poultry sector, besides providing direct or indirect employment to nearly 3 million people is a potent tool for subsidiary income generation for many landless and marginal farmers.

Nutritional security: For a distressed farmer’s family, food provided by livestock is the only source of nutrition required for survival and also provides nutritional security.

Reliable source of income: Further, landless labourers derive more than 50 per cent of their income from livestock especially from poultry.

Asset: Livestock are important asset for a distress farmer which can be encashed at any moment and may help him to come out of debt trap.

Undoubtedly, this remarkable growth is an outcome of several factors, such as active developmental support from the state and central government, research and development support from research institutes, application of new technologies, international collaboration and private sector participation.

Way forward:

- Measures should be taken to increase the meat production efficiency of different species of animals using the improved management practices.
- Adoption of improved shelter management practices can reduce the environmental stress.
- New breeds should be developed for meat production with higher feed conversion efficiency, faster growth and disease resistant.
- Health management practices should be followed for prevention of diseases and economic loss to the farmers.
- Regular prophetic health measures should be carried out against infectious diseases. Regular screening of animals should be carried out against disease such as tuberculosis, brucellosis, salmonellosis etc.
- The livestock market yard should have basic facilities for feeding, watering and holding animals for days.
- By vertical integration with meat processing industries the middle men can be eliminated, which will ultimately increase the profit of farmers.
- There is need for modernizing the quality control laboratories of the State Government, apart from need for strict laboratory inspection of meat and meat products, training programs for meat workers regarding hygiene and sanitation need to be organized regularly.
- Modernization of abattoirs, setting up of rural abattoirs and registration of all slaughter houses in cities/towns are essential for quality meat production.
- The setting up of large commercial meat farms have been recommended to address the traceability issues necessary for stringent quality standards of CODEX.

Conclusion:

Poultry rearing has always been an integral component of livestock production system in India. The concept of composite farming production system with crop, livestock, fish and poultry production has been practiced for centuries in India. However, poultry production in India has taken a quantum leap in the last four decades, emerging from an entirely unorganized and unscientific farming practice to commercial production system with state-of-the-art technological interventions.

Case study:
Records show that meat production was 4.69 lakh metric ton in 2017-18. Kerala is the 8th largest meat-producing state in the country, contributing 6.1 per cent of the meat produced in India. Out of the total, 38.8 per cent is poultry meat, 33.95 per cent from cattle and 20.99 per cent from buffalo.

Despite having a robust non-vegetarian food market, the processed meat market is negligible in Kerala. BDS, started in 1999 for implementing a dairy project in Wayanad, ventured into meat processing in 2013 and poultry in December 2018, thus opening new avenues for farmers.

Private agencies give only Rs 4 to Rs 6 as rearing charge for per kg of a live bird, which becomes ripe for the market in 45 days. But, BDS, which owns breeder farm and hatchery in Tamil Nadu, gives Rs 8 to Rs 11 as rearing charge as there is no middleman.

Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management.

Why are food processing industries significant? Discuss the Scope and Significance of Food Processing Industries in India. (250 words)

Comprehensive Indian Geography by Khullar

Why this question:
The question is directly from the static portions of the GS paper III.

Key demand of the question:
Discuss the significance of food processing industries, scope and its utility in the country.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Briefly define food processing industries.

Body:
Discuss that Major industries constituting the Food processing industry are grains, sugar, edible oils, beverages and dairy products. The key sub-segments of the Food Processing industry in India are: Dairy, Fruits & Vegetables, Poultry & Meat processing, Fisheries, Food retail etc.

Suggest facts that bring out the significance of the industry.

Explain the significance and scope of it.

Conclusion:
Conclude with future avenues and opportunities that the Industry has for the Indian economy.

Introduction

Food processing generally includes the basic preparation of foods, the alteration of a food product (usually raw) into another form (as in making preserves from fruit), and preservation and packaging techniques. Food processing typically takes harvested crops or animal products and uses these to produce long shelf-life food products.

It includes the process of value addition to produce products through methods such as preservation, addition of food additives, drying etc. with a view to preserve food substances in an effective manner, enhance their shelf life and quality.

Body

- Why are food processing industries significant?
The **Food Processing Industry (FPI)** is of enormous significance as it provides vital linkages and synergies that it promotes between the two pillars of the economy, i.e. agriculture and industry.

- **Employment Opportunities**: Food processing industries can absorb a major share of workers from the agriculture sector, who face disguised unemployment. It can lead to better productivity and GDP growth.

- **Prevents Wastage**: Nearly one-third of the food that is produced each year goes uneaten, costing the global economy **over $940 billion** as per report by World Resources Institute (WRI)
  - India is biggest producer of numerous fruits and vegetable. Most of these are perishable and have very low shelf life. This is the major reason for high percentage of wastage. Their shelf life can be increased through food processing.

- **Value Addition**: Products such as tomato sauce, roasted nuts, de-hydrated fruits are in high demand.

- **Reduce malnutrition**: Processed foods when fortified with vitamins and minerals can reduce the nutritional gap in the population.

- **Boosts Trade and Earns Foreign exchange**: It is an important source of foreign exchange. For e.g. Indian Basmati rice is in great demand in Middle Eastern countries.

- **Make in India**: Food processing is one of the six superstar sectors under the GoI’s, Make in India initiative and has the potential to transform India as a leading food processing destination of the World.

- **Curbing Food Inflation**: Processing increases the shelf life of the food thus keeping supplies in tune with the demand thereby controlling food-inflation.
  - For e.g. Frozen peas/corn are available throughout the year.
  - Similarly canned onions under Operation Greens can achieve price stability.

- **Doubling of farmers’ income**: With contract farming, farmers can get better technological inputs from industries as well. There is income security and proportionate value for produce. They are also protected against price shocks.

- **Crop-diversification**: Food processing will require different types of inputs thus creating an incentive for the farmer to grow and diversify crops.

**Scope and Significance in India**

- **Scope of FPI**
  - India is the world’s second largest producer of fruits & vegetables after China but hardly 2% of the produce is processed.
  - India is among the top 5 countries in the production of coffee, tobacco, spices, seeds etc. With such a huge raw material base, we can easily become the leading supplier of food items in the world.
  - In spite of a large production base, the level of processing is low (less than 10%). Approximately 2% of fruits and vegetables, 8% marine, 35% milk, 6% poultry are processed. Lack of adequate processable varieties continues to pose a significant challenge to this sector.
  - **Economic Survey 2020**: During the last 6 years ending 2017-18, Food Processing Industries sector has been growing at an average annual growth rate of around 5.06 per cent.
• Employment: According to the Annual Survey of Industries for 2016-17, the total number of persons engaged in registered food processing sector was **18.54 lakhs**. (whereas unregistered FPOs supports **51.11 lakh** workers)
  - Farmer Beneficiaries: The SAMPADA scheme is estimated to benefit about **46.37 lakh farmers** and generate about **5.6 lakh direct/ indirect employment** (ES 2020 data).
  - Curbing Distress Migration: Provides employment in rural areas, hence reduces migration from rural to urban. Resolves issues of urbanization.

• **Government Initiatives**
  - The Ministry of Food Processing Industries (MoFPI) is implementing PMKSY (Pradhan Mantri Kisan SAMPADA Yojana). The objective of PMKSY is to supplement agriculture, modernize processing and decrease agri-waste.
    - Mega Food Parks.
    - Integrated Cold Chain, Value Addition and Preservation Infrastructure.
    - Creation/Expansion of Food Processing/Preservation Capacities.
    - Infrastructure for Agro Processing Clusters.
    - Scheme for Creation of Backward and Forward Linkages.
  - **Foreign Direct Investment (FDI) policy**: FDI up to 100%, under the automatic route is allowed in food processing industries.
  - **Agri Export Zones**: To give thrust to export of agro products, new concept of Agri Export Zones was brought in 2001. APEDA has been nominated as the Nodal Agency to coordinate the efforts
    - cluster approach of identifying the potential products;
    - Adopting an end-to-end approach of **integrating the entire process** right from the stage of production till it reaches the market (farm to market).

**Conclusion**

Food processing has a promising future, provided adequate government support is there. Food is the biggest expense for an urban Indian household. About 35% of the total consumption expenditure of households is generally spent on food. As mentioned, food processing has numerous advantages which are specific to Indian context. It has the capacity to lift millions out of undernutrition. Government has it’s work cut out to develop industry in a way which takes care of small scale industry along with attracting big ticket domestic and foreign investments.

The agri value chain in India seems to be stuck in the cycle of low returns and low investment. Discuss the causative factors and analyse what needs to be done. (250 words)

**Science Direct**

**Why this question:**
The question is based on the problems that are being recurrently witnessed in the agricultural supply chain management in the country.

**Key demand of the question:**
Discuss in detail the issues concerning the Agri value chain and reasons for low returns of it and Suggest solutions to overcome such challenges.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:
Briefly explain What is supply chain management in agriculture?

Body:
Discuss that in Agribusiness, supply chain management (SCM) implies managing the relationships between the businesses responsible for the efficient production and supply of products from the farm level to the consumers to meet consumers’ requirements reliably in terms of quantity, quality and price

Explain what the issue with low returns and low investments is.

Discuss what needs to be done? Provide for cases where government has made efforts in this direction.

Conclusion:
Conclude with suitable solutions to plug in the loopholes in the system of agri value chain.

Introduction

The conceptual framework of agricultural value chains includes a sequence of value adding activities, from production to consumption, through processing and marketing. Each segment of a chain has one or more backward and forward linkages. A value chain in agriculture identifies the set of actors and activities that bring a basic agricultural product from production in the field to final consumption, where at each stage value is added to the product.

In South Asian countries, such as India, agricultural value chains are often fragmented; lack investment; and fail to include vulnerable groups and are missing critical linkages of farms and markets.

Body

• Causative Factors for glut in Agri-Value Chain

  In India, agriculture system along with value chain framework has not been conceived as a main strategy to bring more efficiency, productivity and earnings. There has not been enough emphasis on the growth and development of efficient agricultural value chains in India.

  ▪ Access to finance: Most of the Indian agricultural value chain firm’s focusses on local market and they need more resources and capacity to compete in the external markets.
    • Credit for pre and post-harvest inputs, guarantee and risk for final output have not been made part of overall agriculture and export policies in India.
    • For example, many incentives are given to IT companies and new start-ups, such facilities are not extended to agricultural products exporting firms also.
    • Thus it is preventing forward integration of farmers.

  ▪ Market Access: The existence of middlemen and agents, absence of data and information about other links in the chain and inability to invest in improving the performance in almost every part of the chain led to inefficiencies.
    • Agricultural value chains are difficult to stabilise in India with a large number of small and marginal farmers.
The production, collection, storage and delivery parts of value chains have to be made efficient in order for the small farmers to realise higher returns.

**Capacity building:** Another major challenge is improvement in the production and supply competencies of the small and marginal farmers. To get better remunerative prices or to produce export quality produce, farmers must have adequate knowledge and capacity.

- Most of the small and marginal farmers do not realise how to produce, store and preserve agricultural products in a modern and more sophisticated era and how to constantly check the quality.

**Standards and certification:** Although, in case of agriculture based exportable products testing and health safety regulations and procedures are now mandatory but infrastructure (testing and certification laboratories at crucial custom ports equipped with trained and enough number of staff members) for these have not been up to mark in India.

**Export Policy:** Exportable agricultural products are not being dealt with clear export promotion policy, which has hindered prospects of these products in overseas markets. Eg: Export restrictions can be made at any time. Minimum export price is imposed.

### Significance of a robust Agri-value chain

- Prevent Colossal Wastage of Agriculture Produce “billions of dollars” loss to economy.
- To ensure that share of Farmer in consumers wallet can increase, which is merely 25-30% as compared to western market where it goes as high as 50-75%.
- Demand for MSP regime will automatically go away and farmer can expect a rightful price for the produce.
- To ensure India becomes “Global Hub for Food Industry”

### Measures needed

- **Ending APMC monopoly:** States must implement the Model APMC act and follow the precedent set my Maharashtra in this regard.

**Creating Market Infrastructure**

- **Physical integration:** Railroad expansion changed the landscape of agricultural markets in USA.

**Transport and storage infrastructure for perishables:** Transport of perishable commodities in Reefer trucks & freight subsidy would help in better supply and availability of the produce.

- At present, India’s cold storage capacity is nearly 3.5 cr tonnes, short by 30-40 lakh tonnes, and it needs to be increased.

**Kisan Rail and Kisan Udan** in Budget 2020 are steps in the right direction.

**Setting up Farmer Producer Organizations and Cooperatives:** It would provide better avenues for pooling of resources to small and marginal farmers. It could also act as a direct marketing channel to supply produce from ‘surplus’ regions to high demand states

**Nation-wide Price Dissemination Mechanism:**
• Forward Market Commission (FMC) has set up e-portal AGMARKNET that displays real time wholesale price of agricultural commodities on e-portal connected with APMC markets, Kisan mandis, Kisan Vikas Kendras (KVKs), State Agricultural Boards etc.

• Steps must be taken to ensure farmers are benefitted from the scheme.

Conclusion

With agriculture employing nearly half the Indian population even today, it is necessary to implement structural reforms to enhance Agri-value chain. To achieve the ambitious target of doubling farmers income by 2022, productivity and efficiency of value chain in agriculture the key. It will also protect the farmers against shocks and provide food security.

A comprehensive reform process in agriculture would start with a constitutional amendment that makes agriculture and water (use) a concurrent subject in the Constitution. Do you agree? Examine. (250 words)

Times of India

**Why this question:**
The question examines the importance of making agriculture and water use a concurrent subject from the current status of being in the State list.

**Key demand of the question:**
Discuss the significance of agricultural reforms in the country and explain what steps need to be taken in this direction. Examine what changes and prospects do transferring the subject of agriculture from State to concurrent will have.

**Directive:**
*Examine* – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

**Structure of the answer:**

**Introduction:**
Briefly highlight agri scenario in the country – Agriculture is the most important sector of Indian Economy. Indian agriculture sector accounts for 18 per cent of India’s gross domestic product (GDP) and provides employment of around 50% of the countries workforce.

**Body:**
Discuss that India is the world’s largest producer of pulses, rice, wheat, spices and spice products. India has many areas to choose for business such as dairy, meat, poultry, fisheries and food grains etc. Explain that a comprehensive reform process in agriculture would start with a constitutional amendment that makes agriculture and water (use) a concurrent subject in the Constitution—there has been precedent for this in the 42nd Amendment of 1976. The purpose of this amendment would be to provide a federal fillip to states, with a primary emphasis on water effectiveness. This water effectiveness project will not only focus on bringing more areas under irrigation in a sustainable manner (not with capital but with a thoughtful district by district approach) but also focus on sprinkler and drip irrigation.

**Conclusion:**
Conclude with way forward.

**Introduction:**

Telegram: [https://t.me/insightsIAStips](https://t.me/insightsIAStips)

Youtube: [https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLijwA](https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLijwA)

Facebook: [https://www.facebook.com/insightsonindia](https://www.facebook.com/insightsonindia)
Agriculture is a state subject, i.e. it forms a part of the state list of our Constitution, which essentially means that states are supposed to address all the issues related to agriculture. The schemes introduced by Center for agriculture have failed time and again due to poor implementation and making the scheme selection optional for states.

Body:

The reason for making agriculture, a state subject:

- Subjects in the state list are the ones considered to require local knowledge.
- With our varied agro-climatic zones and cropping patterns, every region was then assumed to have geography-specific agricultural issues.

State schemes are more preferred over central schemes:

- The major stand-out features of state-run schemes are its penetration and acceptability.
- In its first year for Kharif 2017, close to 50% of area under Soyabean (major crop in MP) was covered under the Bhavantar Bhugtan Yojana.
- As per a NITI Aayog report, Karnataka farmers realised 38% more incomes in FY16 from the sale of agri-commodities through the state’s e-trading platform.
- Many of the schemes also became the guiding lines for schemes announced by the Central government on the national level. Price deficiency Payment Scheme (PDPS), a part of the umbrella scheme PM-AASHA, was inspired by MP’s Bhavantar Bhugtan Yojana.
- Karnataka’s electronic market led to the idea of the e-NAM scheme implemented nationwide. Gujarat’s soil health card scheme was taken on the national level in 2014.
- And now to solve the overarching problem of agrarian distress, the Central government is studying Telangana’s income support scheme for national implementation.

Current performance of agriculture as a state subject:

- In MP, majority of Soyabean farmers had voluntarily registered themselves for the Bhavantar Bhugtan Scheme. A stark contrast to other national level schemes assessed, wherein the registrations were done by government officials on behalf of farmers, sometimes even without the knowledge of the farmers.
- In the online market of Mysore division, Unlike the national level e-NAM, actual inter-state online transactions were being conducted successfully in these markets.
- The assessment of the national soil health card scheme showed that farmers had responded with better utility for soil health cards under the state-run scheme. Most soil health card holders interviewed responded negatively for their usage under the national scheme.

The need for making agriculture and water a concurrent subject:

- Over the years, agriculture has definitely emerged as more than a state subject
- However, logically speaking – unless it is officially transferred to the Union list or more sensibly to the Concurrent list, agricultural problems should also have state developed solutions.
- But it has always been the central government which took the lead in designing reforms for the sector.
- The major beneficiaries of agricultural reforms – farmers – perceive more value from state-run schemes.
- It is thus essential, that agricultural reforms become a two-way street.
• The Central government downloading knowledge of state run-schemes for national implementation is definitely one approach.
• In addition, enhanced financial support to states implementing effective agri-reforms would also prove beneficial.
• The ministry of agriculture’s proposed ‘ease of doing agri-business’ index can be a good parameter for assessing states on agri-reforms.

Conclusion:

The need of the hour is to make the Centre and state governments to work together as a coalition to tide over the issues of agriculture.

Briefly discuss the prospects of Food processing industries in India. Elaborate on the challenges it is facing and suggest way forward to encash its true potential. (250 words)

Invest India

Why this question:
The question is straightforward and doesn’t require much deliberation.

Key demand of the question:
Discuss in detail the objectives, scope and significant prospects of Food processing Industry in the country.

Directive:
Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:
Introduction:
Explain first what Food Processing is.

Body:
Food Processing includes process under which any raw product of agriculture, dairy, animal husbandry, meat, poultry or fishing is transformed through a process (involving employees, power, machines or money) in such a way that its original physical properties undergo a change and the transformed product has commercial value and is suitable for human and animal consumption.

Present the status of FPI in India and then List down the significance.

Discuss the govt. initiatives in this direction.

Conclusion:
Conclude that Food processing has numerous advantages which are specific to Indian context. It has capacity to lift millions out of poverty and malnutrition. Government should develop industry in a way keeping in mind the interests of small scale industry along with attracting big ticket domestic and foreign investments.

Introduction:
Food processing has an important role to play in linking Indian farmers to consumers in the domestic and international markets. The Ministry of Food Processing Industries (MoFPI) is making all efforts to encourage investments across the value chain. Major industries constituting the Food processing industry are grains, sugar, edible oils, beverages and dairy products. Food & Grocery retail market in India further constitutes almost 65% of the total retail market in India.

Body:

prospects of Food processing industries in India:
The Food & Grocery market in India is the sixth largest in the world. The Processed food market is expected to grow to $ 543 bn by 2020 from $ 322 bn in 2016, at a CAGR of 14.6%. The industry engages approximately 1.85 mn people in around 39,748 registered units with fixed capital of $ 32.75 bn and aggregate output of around $ 158.69 bn. The government has sanctioned 40 Mega Food Parks (MFPs) to be set up in the country under the Mega Food Park Scheme. Currently, 17 Mega Food Parks have become functional.

Issues food processing industry is facing:

Food Processing Sector– Impediments

- **Supply chain issues:**
  - high cost of raw material (driven by low productivity and poor agronomic practices)
  - Presence of intermediaries and APMC acts make it more complicated.
  - high cost of packaging, finance, transport and distribution
  - lack of organized retail

- **Logistics cost:**
  - Logistics cost is high for transportation, warehousing, material handling etc.
  - In India, Logistics accounts for about 13% of GDP, which translates to over USD130 billion.
  - This cost is significantly higher as compared most developed countries.

- **Economic issues:**
  - In India, the food processing industry is highly fragmented and is dominated by the unorganized sector

- **Inadequate infrastructure:**
  - The inadequate support infrastructure which is the biggest bottleneck in expanding the food processing sector, in terms of both investment and exports includes:
• long and fragmented supply chain
• inadequate cold storage and warehousing facilities
• Inadequate road, rail and port infrastructure.
• lack of modern logistics infrastructure such as logistics parks, integrated cold chain solutions, last mile connectivity,

• Political issues:
  ▪ Absence of Comprehensive national level policy on food processing sector: The food processing sector is governed by statutes rather than a single comprehensive policy on food processing. India urgently needs a national food processing policy which incorporates tax breaks for the sector.

Measures needed to plug supply side and infrastructure bottleneck:

• Foster development of backward linkages by evolving conducive regulatory framework for contract and corporate farming
• The North Eastern Region, the Hilly States (J&K, HP and Western UP), the Islands (A&N, Lakshadweep) areas in the country should be given special consideration as they are naturally conducive for Food Processing Industries.
• Encourage commodity clusters and intensive livestock rearing.
• Promote private sector participation with well-defined roles of the participants, risk sharing mechanisms, fiscal incentives and partnership models for creation of infrastructure for logistics, storage and processing
• Encourage technology upgradation of existing facilities and investment in development of ancillary industries like research and development, packaging, food processing equipment manufacturing, food safety certifying agencies by extending fiscal incentives to investors.
• Enable better access to credit by augmenting current cap of Rest 10 crore investments in plant and machinery to qualify as Priority Sector Credit to accommodate the high cost technology adoption and scale enhancement
• Streamlining the regulatory structure:
  o Remove impediments of multiple departments and laws in seeking approvals by bringing them under a single window.
  o Ensure uniform implementation of the APMC act to encourage private sector investment in infrastructure development.
• Change in mind set -Orienting stakeholders towards ‘demand and profit driven production’
  o Participants across the agri value-chain need to shift their focus from trying to market ‘what is produced’ to producing ‘processable varieties and marketable products’ meeting global quality standards and traceability requirements, duly adopting need based viable technologies and quality controls.
• Human resource development-to meet increasing demand for skilled manpower:
o Stimulate industry, academia and government to put in combined efforts for development of specialized institutes and courses for providing training on managerial, safety and enforcements, technology and production, warehousing and distribution aspects.

o Encourage State Agricultural Universities to commence courses in food packaging, processing, bio-technology, information technology in agriculture and such allied fields

Conclusion:

India’s food ecosystem offers huge opportunities for investments with stimulating growth in the food retail sector, favourable economic policies and attractive fiscal incentives. The need of the hour is to adopt an integrated approach to address the above mentioned tailbacks with a clear-cut focus on improving the quality and value of the output, reducing the cost of raw material for the processors, while improving the farmers’ income levels. To promote this sector, attempts are required to be made to promote farmer–producer interaction, provide appropriate tax incentives and holidays for setting up food processing industries, taking care of expenses on market promotion and ancillary activities.

Inspect role that supermarkets play in supply chain management of horticulture products. How do they eliminate the issue of intermediaries? Discuss. (250 words)

The Hindu Business Line

Why this question:
The question is based on the significance of supermarkets and the role played by them in SCM of horticulture products.

Key demand of the question:
Discuss the significance of Supermarkets in SCM of agri products and produce, suggest where India stands in this aspect and what more is required to be done.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Fruits and Vegetable (FFV) are one of the most important components of a retail chain (supermarket). It acts as a strategic product in attracting the customers. Agri-food produces from the farmer’s field reach the end consumer through a long chain of intermediaries such as farmers/growers, cooperatives, wholesalers, retailers, commission agents, etc.

Body:
Discuss the role of supermarkets in the supply chain:
The concept of agri-supply chain refers to the activities of procurement, order fulfillment, distribution, delivery and customer service executed by two or more separate organizations in the agribusiness industry.
Agrisupply chain consists of small and medium enterprises.
Supply chain collaboration has become the prerequisite for successful procurement and operational business practices for perishable products with the emerging trends of globalization and competitive marketplace.
Supply chain planning in the agri-food industry integrates the complex network of farmers, demand, and supply to end consumers to enhance operational effectiveness.
Discuss its significance to Indian agri systems.
India is one of the leading producers of vegetables, fresh fruits and a number of food items. Marketing of fruits and vegetables especially is more challenging than many industrial products because of their perishability, seasonality and bulkiness. A supermarket is a self-service shop offering a wide variety of food and household products.

Explain challenges and issues if any and what way they can be addressed.

**Conclusion:**
Conclude with way forward.

**Introduction:**

Fruits and Vegetable (FFV) are one of the most important components of a retail chain (supermarket). It acts as a strategic product in attracting the customers. Agri-food produces from the farmer’s field reach the end consumer through a long chain of intermediaries such as farmers/growers, cooperatives, wholesalers, retailers, commission agents, etc.

Supermarkets play a very important role in supply chain management of fruits, vegetables and food items. Supermarket chain such as SAFAL, Reliance Fresh, Easy Day, Big Basket, TESCO etc. provide backward as well as forward linkage in the supply chain

**Body:**

As part of supply chain, the retail chains (supermarkets) respond to upstream-side demand and absorb downstream-side risks with the objective to augment, retain, satisfy consumers and gain new revenue opportunities without the creation of excess inventory or capacity.

**Role of supermarkets in the supply chain:**

- The concept of agri-supply chain refers to the activities of procurement, order fulfilment, distribution, delivery and customer service executed by two or more separate organizations in the agribusiness industry. Agrisupply chain consists of small and medium enterprises.
- Supply chain collaboration has become the prerequisite for successful procurement and operational business practices for perishable products with the emerging trends of globalization and competitive marketplace.
- Supply chain planning in the agri-food industry integrates the complex network of farmers, demand, and supply to end consumers to enhance operational effectiveness.
- Super markets have eliminated the middleman in the distribution channel which reduces the amount of logistics and transportation required in the movement of goods from manufacturer to consumer. This increases efficiency significantly.
- Manufacturers, for instance, can skip wholesalers and more quickly replenish retailers with stock. Additionally, companies can offer products and websites and quickly ship them to consumers following the purchase.

**Measures for increasing efficient of supply chain:**

- There is a need for backward linkage with the farmer via contract farming
- The retail stores have to be organised in a structured way for an efficient distribution of products.
- There is a need for more cold storages so as to reduce losses due to spoilage.
- The APMC Act at the state level needs to be amended.

**Conclusion:**
Reducing intermediaries helps consumer in getting quality agriculture produce at less price. It helps farmer in getting better and assured return for their produce. It helps in increasing income of agricultural household thus reducing rural – urban migration, it also prevents farmers from falling into trap of informal moneylenders. Thus streamlining the supply chain either by supermarket or by cooperative not only helps in reducing intermediaries but also helps in bringing prosperity to rural community.

The recent Onion crisis is the result of market inefficiencies, weak supply chains and monopolies in the market. Analyse and suggest solutions to the above problem. (250 words)

Business Standard

Why this question:
The question is in the current context of fluctuating onion prices in the economy.

Key demand of the question:
Discuss in detail the underlying causes of such price fluctuations owing to market inefficiencies, weak supply chains and monopolies in the market.

Directive:
Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:
Introduction:
The onion – ubiquitous in Indian cooking – is widely seen as the poor man’s vegetable.

Body:
Discuss the causes of such fluctuation – like a drop in supply, due to heavy rains and flooding destroying the crop in large parts of India etc. are common that reason out to contribute to the price instability. Discuss the concerns associated with market inefficiencies, weak supply chains and monopolies in the market.

Explain what needs to be done? Suggest solutions such as – grass-root planning and better storage facilities and food processing services will ease the problem – and making a variety of cash crops and vegetables available across the country would also ease the pressure on onions.

Conclusion:
Conclude with way forward.

Introduction:
Onion prices, which have quite frequently seen a steep increase in the post-monsoon season in recent years, normally subside by November. But this year, the high prices linger on and there is no sign of normalisation anytime soon. Though this can partly be attributed to the monsoon-driven delay in the sowing and harvesting of the kharif onion crop, the alarm and scarcity psychosis created by the government through its ill-advised and mistimed market interventions are also to blame.

Body:
Reasons for Onion price rise:

• The root cause of the recurring onion crisis is the disregard of the reality that while the demand for onions persists the year-round, its supply is seasonal.

• India, in a way, is fortunate to be able to grow onions thrice a year — in the early kharif, late kharif and rabi seasons. The produce of these crops feeds the market between November and June.

• The period from July to October is usually the lean season when fresh supplies are not available and the market needs to be fed from the stored stocks.
Therefore, the most critical aspect of supply management is the safe upkeep of the surplus produce for the lean period.

Unfortunately, this is generally disallowed as storage is viewed negatively as hoarding for profiteering.

There is, no doubt, only a thin line between storage and hoarding but this distinction needs to be realised at least in the case of onions.

The government’s ill-advised actions like imposition of stock limits under the Essential Commodities Act and raids on those maintaining large inventories deter traders as well as farmers from retaining the surplus produce for subsequent release.

Measures needed:

- For stabilising retail prices of fresh TOP, and ensuring a higher share of the consumer’s rupee to farmers, policy makers need to focus on three things.

  - First, Ample storage for buffer stocks has to be created:
    - While potatoes and onions can be stored, repeated stocking limits on onion traders discourages private investments in modern cold storages.
    - For inviting large private investment in storages, the Essential Commodities Act has to go.
    - If the government feels that traders are colluding to rig the market, then the Competition Commission of India should look into it.
    - The government banning exports or imposing stocking limits is not a solution.

  - Second, Increase processing capacities for TOP:
    - Since buffer stocking for tomatoes is not possible, processing remains the only solution.
    - For this, the GST for tomato puree and juice should be reduced from 12 per cent to 5 per cent. Milk and most milk products attract 0 to 5 per cent GST.
    - To propagate the use of processed products (tomato puree, onion flakes, powder) among urban and bulk consumers (hospitals, schools, armed forces), the government should run campaigns in association with industry organisations, as was done for eggs.
    - Most of the advanced countries use large quantities of processed tomatoes and onions, which can be stored conveniently.
    - India needs to have time bound targets to process and export at least 10-15 per cent of TOP production.
    - While India exports 10-12 per cent of onion production in fresh and dehydrated form, it exports less than 1 per cent of tomatoes and potatoes production.

  - Third, Buying directly from FPO’s:
    - Direct buying by organised retailers from farmer producer organisations (FPOs) through contract farming, bypassing the mandi system, should be encouraged.
Like dairy cooperatives, TOP cooperatives and retail outlets like Safal across the country should be opened. With over 400 Safal outlets across Delhi-NCR, onions are being sold at Rs 25/Kg when retail prices are hovering between Rs 50-60/Kg.

A similar thing could have been done for tomatoes. However, this will require value chain development starting with market reforms along with overhauling the infrastructure of existing APMC mandis in the country.

With crumbling infrastructure, many APMC mandis are running over their capacity.

Visit to the Kolar mandi, one of the largest tomato mandi in the country, spread over 20 acres, revealed that the operations of the mandi have spread to adjoining areas.

For better functioning, it requires at least two to three times more land and much better infrastructure.

**Way forward:**

- Promote modern cold storages and develop a system similar to that of the warehouse receipt system for farmers.
- States must launch a concerted intelligence drive to crack down on hoarders and bring the stocks to the market swiftly.
- Encourage imports.
- Set up onion dehydrating units and promote demand for dehydrated onions amongst large consumers.
- More policy making and political attention should be devoted to raising onion output, or for that matter farm output in general. Complacency on the farm front is wholly avoidable.

**Infrastructure: Energy, Ports, Roads, Airports, Railways etc.**

*What is National Infrastructure Pipeline? Elucidate upon the key benefits of National Infrastructure Pipeline (NIP) (250 words)*

*Live mint*

**Why this question:**
The question aims to discuss the National Infrastructure Pipeline and its benefits.

**Key demand of the question:**
Discuss in detail the objectives, significance and contributions of such a project to the economy of the country.

**Directive:**

*Elucidate* – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:**

*Introduction:*
It is estimated that India would need to spend $4.5 trillion on infrastructure by 2030 to sustain its growth rate. The endeavor of the National Infrastructure Pipeline (NIP), is to make this happen in an efficient manner.

*Body:*
Discuss that NIP will enable a forward outlook on infrastructure projects which will create jobs, improve ease of living, and provide equitable access to infrastructure for all, thereby making growth more inclusive.
**NIP includes economic and social infrastructure projects.**

*Explain in what way such infrastructure projects would ensure ease of living: safe drinking water, access to clean and affordable energy, healthcare for all, modern railway stations, airports, bus terminals and world-class educational institutes etc.*

**Conclusion:**

*Conclude that Infrastructure investment has a special role to play as it aids to revive economic activities.*

**Introduction**

To achieve the GDP of $5 trillion by 2024-25, India needs to spend about $1.4 trillion (Rs. 102 lakh crore) over these years on infrastructure. The objective of NIP is to create a bouquet of well-prepared projects that would attract investment from Central and State Governments, Urban Local Bodies, Banks and Financial Institutions, PE funds, and private investors, both local and foreign.

- The NIP has projected total infrastructure investment of Rs. 102 lakh crore during the period FY 2020 to 2025 in India.
- NIP is expected to enable well-prepared infrastructure projects that will create jobs, improve ease of living, and provide equitable access to infrastructure for all.

**Body**

**Key Benefits of NIP**

- NIP includes both economic and social infrastructure projects.
  - Economic infra includes: Roads, energy, railways, shipping, steel etc.
  - Social infra includes: Education, health, sports etc.

- **Sustaining the Virtuous Cycle:** Economic Survey 2019 argues that growth can be sustained by a virtuous cycle approach where investment is the key driver that drives demand, creates capacity, increases labour productivity, improves ease of living, generates jobs etc.
  - NIP is prepared as a pipeline of projects based on viability and cost considerations to enable such investments.

- **Employment Generation:** Going ahead, the share of urban employment will be higher than rural employment. To sustain this, infrastructure under NIP will be vital in the coming years.

- **Increasing urbanization:** 42 per cent of the population is expected to live in urban areas in 2030 as opposed to 31 per cent now. Infrastructure to provide transport, housing, public spaces are vital for human development. This will be addressed by NIP.

- **Reviving the economy:** According to the latest estimates, the Indian economy will grow at 5% in the current fiscal year ending March. The growth projected is slower than the 6.8% recorded in 2018-19. In the quarter that ended in September 2019, growth had hit a six-year low at 4.5%.
  - NIP will help in reviving the investment cycle and spur growth through capital formation.

- The **greenfield and brownfield projects** are across power, urban development, irrigation, mobility, education, health, water and digital sectors across 18 states and Union territories.
Challenges

- **Fiscal constraint:** In FY 2019, India’s total infrastructure investments were about Rs. 10 lakh crores only. And given the challenges like high debt-to-GDP ratio, fiscal deficit and increasing twin balance sheet problem, it would be very tough to finance these projects.

- **Bank Credit:** Infrastructure financing is the cause of a major part of the bad loans in banks. So, banks would be apprehensive to finance such a large scale of investment.

- **Cooperation from States:** Centre and the states have to work together to sort issues like land acquisition and environmental clearances which have imposed huge time and cost delays on several key projects nationally.

- **Lack of new projects:** About 42% of identified projects under NIP are already under implementation, 19% are under development.

Conclusion

The road map for infrastructure creation has never been easy. The answer possibly lies enhancing private investment through a combination of measures like credit enhancement which is conditional upon specific reforms in areas like user-charges, land aggregation & monetization, deepening of municipal bond markets among others.

**Will natural gas play the game-changer in India’s energy future? Discuss. (250 words)**

*The Hindu*

**Why this question:**
A study to facilitate the development of a national gas grid is to be undertaken soon by a U.S. entity for the Petroleum and Natural Gas Regulatory Board (PNGRB). Thus the question.

**Key demand of the question:**
Discuss the prospects of Natural gas and in what way it can be a game changer in India’s energy future.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
Briefly provide facts for Natural gas scenario in the country.

**Body:**
Globally, natural gas constitutes 24 per cent of the primary energy consumption. In India, Gujarat, which has relatively better access to natural gas, is having a share of 25 per cent in its energy basket. The government proposes to increase the share of natural gas in the whole of its energy consumption to 15 per cent by 2020. Discuss the prospects in detail. Use a map to pictorially represent the resource availability in the country.

Explain the challenges posed by the industry.

Discuss the efforts of the government in this direction.

**Conclusion:**
Conclude with way forward.
Natural gas is a superior fuel as compared with coal and other liquid fuels, as it is environment friendly, safer and cheaper fuel. It can be supplied through pipelines and hence, there is no need to store cylinders in kitchen and thus saves space. It is environment friendly fuel and its usage as domestic kitchen fuel, as fuel for transport sector as well as fuel for industries and commercial units can play a significant role in reducing carbon emission. It is 60% cheaper compared with petrol and around 45% cheaper when compared with Diesel. A study to facilitate the development of a national gas grid is to be undertaken soon by a U.S. entity for the Petroleum and Natural Gas Regulatory Board (PNGRB).

Body:
Globally, natural gas constitutes 24 per cent of the primary energy consumption. In India, Gujarat, which has relatively better access to natural gas, is having a share of 25 per cent in its energy basket. The government proposes to increase the share of natural gas in the whole of its energy consumption to 15 per cent by 2020.

Current scenario:
- Currently, share of natural gas in India’s energy mix is just over 6% and aim is to reach 15% figure for moving towards gas based economy, while world average is 24%.
- The natural gas pipeline network in India totalled 16,324 km as on April 2019, according to official figures.
- Nearly 7,000 km of pipeline is under construction.
- In addition, the CGD projects, to supply the environment-friendly and cost-effective fuel to commercial, industrial and residential users, will see several thousand more kms of steel pipeline getting added.
- Share of natural gas in India’s energy basket is 6.2% as against 23.4% globally and is expected to increase.

Potential of natural gas as a game changer:
- India aims to bring down its carbon emission level and number of initiatives have been taken in this direction such as BS VI fuel, bio-energy, LED bulbs, International Solar Alliance (ISA), Pradhan Mantri Ujjawala Yojana and providing clean piped gas supply to more cities.
- India is also enhancing LNG terminal capacity, renegotiating Indo-Qatar Gas deal and encouraging positive Indo-US engagement in this direction.
- It is not only focussing on increasing use and supply of gas, but also on producing gas through agro-wastes and other products and including same into City Gas Distribution (CGD) network.
- It has also increased its focus on promoting the usage of environment-friendly clean fuel, natural gas as fuel and feedstock across country to move towards gas based economy.
- The National Gas Grid together with providing gas connections to households will provide better infrastructure for automobiles using gas.
- The National Gas Grid will also aid in renewing of the fertilizer sector and also give a boost to the Power and Automotive sector

Conclusion:
It is good that the gas network is being laid but it also depends on the consumers to pay for the pipeline connection. The government is doing well by fixing the City Gas Distribution network and simultaneously extending the pipeline infrastructure. But the limits of this outreach will depend on India’s limits to be able to import those quantities of gas in terms of availability of exchange in times
to come. To some consumers, gas could be a bridge fuel before they move on to electricity for clean cooking.

**Briefly discuss the pros and cons of the idea of privatizing the Indian Railways (250 words)**

*The Hindu*

**Why this question:**
The question seeks to examine the aspects of privatizing the Indian Railways services.

**Key demand of the question:**
Discuss in detail the opportunities and obstacles that the idea of privatizing Railways pose.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
Highlight the idea of Privatization in general and the perks it carries with it.

**Body:**
Start with – The Bibek Debroy Committee, which was set up to suggest ways to mobilize resources for the Indian Railways and restructure the Railway Board, has favored privatization of rolling stock: wagons and coaches.

Discuss the positives of such a move – Improved Infrastructure, Balancing Quality of Service with High Fares, better accountability etc.

Explain the challenges associated.

Discuss why India right now cannot afford privatization of Indian Railways.

**Conclusion:**
Conclude with way forward.

**Introduction:**
Post privatisation of the Tejas Express (to be run by the IRCTC), the government is currently in the process of forming a task force to draw a blueprint for handing over operations of as many as 150 trains and a total of 50 railway stations to private operators. The Bibek Debroy committee recommended that the rail industry needs to be liberalized by allowing the entry of private operators to provide services.

**Body:**

**Pros of privatization of Indian railways:**

- **Improved Infrastructure:** Privatisation will lead to better infrastructure which in turn would result in improved amenities for travellers.
- Currently, Indian Railways is marred by mismanagement in the form of stinking washrooms, lack of water supply and dirty platforms, it is expected that a private company will ensure better amenities.
- **Normalization of prices** due to the competition: Improvement in quality of services has to be matched up by a rise in charges paid by the travellers.
- However, the issue of price rise will be solved when private players are allowed to enter the sector since the move would foster competition and hence lead to overall betterment in the quality of services.
- **Improved Security:** Private participation can lead to better accountability and monitoring, which can keep a check on rising accidents in railways.
• **Better Technological Innovation:** Private participation can lead to the infusion of modern technology and capacity building of Indian railways.

**Cons of Privatisation of Indian Railways:**

• **Limited Coverage:** An advantage of Indian Railways being government-owned is that it provides nation-wide connectivity irrespective of profit.

• Privatisation of railways would mean the railways will become a profit-making enterprise, this would lead to the elimination of railways routes that are less popular.

• Thus, the privatisation of railways can have a negative impact on connectivity and further increase the rural-urban divide.

• **Lesser Inclusive:** Hike in fares can render the railways out of reach for lower-income groups.

• **Issue of Accountability:** The privatisation of Indian Railways is not easy, as it covers every part of India and runs for 24×7 hours.

• The whole railway system cannot be handled by a single party or coordination will be very difficult if area wise given to private parties.

• **Impact on the Economy:** Indian Railways is the backbone of India, it provides low fare transportation to agricultural and industrial trade.

• Therefore, privatisation of Indian railways shall definitely affect the Indian economy at large.

• It is difficult to privatize a portion of the railways’ operations as it is strongly vertically integrated.

• Vertical integration of railways means ownership and maintenance of the rail and associated infrastructure; all is vested under the Ministry of Railways.

• The strong worker unions of Indian Railways need to be convinced. This could be a herculean task.

• Any untoward incidents like accidents can cause greater government scrutiny and create regulations which may affect performance or efficiency.

• Regulations must ensure level playing field for all players and relevant stakeholders.

• Competition from other modes of transport can affect private railway revenues. This could give rise to crony capitalism.

**Way forward:**

• Privatisation of railways operations will require a new institutional framework where infrastructure will remain as a government’s monopoly while there would be a market of service providers.

• It is important to modernize the railways, so measures must be taken to reimburse the social costs speedily so that resources of the railways is better allocated and facilities are upgraded from time to time.

• **Core Railways functions can be Corporatized rather than privatized.**

• Corporatization refers to the restructuring or transformation of a state-owned asset or organization into a corporation. These organizations typically have a board of directors, management, and shareholders.

• However, unlike publicly traded companies, the government is the company’s only shareholder, and the shares in the company are not publicly traded.

• The peripheral function of railways (cleanliness, ticket disposal, traveller’s amenities), must be privatized.
Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

Analyze the probable impact of frontier technologies on developing countries.(250 words)

**Live Mint**

**Why this question:**
The article explains the fact that Frontier technologies are set to transform people’s lives, and developing nations must harness this revolution. But there is a danger that the gains will not reach the world’s poorest.

**Key demand of the question:**
One must provide for a detailed analysis of the probable impact of frontier technologies on developing countries.

**Directive:**
-Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

**Structure of the answer:**

**Introduction:**
The rapid technological transformations that started from the Industrial Revolution to the digital revolution, have boosted economic performance, improved efficiency, accelerated the pace of globalization, and transformed human society in the process.

**Body:**
-Explain that Frontier Technology or Industrial Revolution 4.0, the latest wave of disruptive technological change is fundamentally altering how goods, services and ideas are exchanged. However, the disruptive nature of technology is nothing new, and it offers promising new opportunities, while at the same time posing a challenge to policymaking.
- Discuss in detail what are frontier technologies and their applications.
- Explain the associated challenges in detail.
- Specifically discuss the case with developing countries; The Pathways for Prosperity Commission on Technology and Inclusive Development has shown that developing countries can still harness the new wave of frontier technologies for the benefit of all.

**Conclusion:**
-Conclude with way forward.

**Introduction:**
Frontier technologies are defined as potentially disruptive technologies that can address large-scale challenges or opportunities. Frontier technology is the next phase in the evolution of modern technology. It is the intersection where radical forward-thinking and real-world implementation meet. For example AI, robotics, 3D printing, and the Internet of Things, etc. Frontier Technology or Industrial Revolution 4.0, the latest wave of disruptive technological change is fundamentally altering how goods, services and ideas are exchanged.

**Body:**

**Impact of frontier technologies on developing countries:**

**Positives:**
- Frontier technologies have unlocked new routes to prosperity through agriculture, manufacturing, trade in services, the linking of informal and formal sectors, and domestic interconnectivity.
They have enormous potential to improve government administration and the delivery of public services.

They can help anticipate and respond to the effects of climate hazards and air pollution through the adoption of state-of-the-art technologies to address environmental impacts.

In the Republic of Korea, the smart city of Songdo is built around the Internet of Things to reduce traffic pollution, save energy and water, and create a cleaner environment.

It will be critical that these technologies work for society and the environment as well as the economy if the world is to achieve the ambitions of the 2030 Agenda for Sustainable Development.

Challenges posed by frontier technologies:

- Digital Exclusion:
  - As Information and Communication Technology infrastructure is the backbone of many frontier technologies, there is a risk of its triggering a new frontier technology divide, compounding an already existing digital divide.
  - An estimated three billion people could still lack internet access by 2023, and many more will have little or no opportunity to reap the benefits of digital technologies.
  - There is a danger that gains associated with frontier technologies will not reach the world’s poorest people.

- Uncertain Future of Work:
  - In the coming decades, the jobs of 785 million workers, that’s equivalent to over 50% of total employment in the Asia-Pacific region could be automated.

- Trust and Ethical Questions:
  - Frontier Technology per se is not the problem, but there are ethical issues surrounding privacy, ownership and transparency.
  - With the world’s population projected to reach ten billion by mid-century, global governance will become even more complex than it is today.

- Developing countries, in particular, are starting from a difficult position, because they are already grappling with the challenges of low human capital, ineffective institutions, and a difficult business environment.

Conclusion:
The Pathways for Prosperity Commission on Technology and Inclusive Development has shown that developing countries can still harness the new wave of frontier technologies for the benefit of all.

Way forward:

- An inclusive ICT infrastructure.
- A workforce fit for the emerging scale and speed of the technological revolution.
- In this context, there is a need to promote lifelong learning, reskilling and entrepreneurship development to develop a cadre of job creators.
- A policy framework to strengthen public-private partnerships, so as to capture the benefits of the Fourth Industrial Revolution.
A responsive and adaptive regulatory framework that doesn’t stifle innovation.

Whole-of-economy or Most-of-society approach: Technology alone will not guarantee success. Policymakers must also account for local contexts and conditions so that they can create social, political and economic ecosystems in which technology creates jobs and drives inclusive growth.

National governments should start planning for digital readiness in four areas: infrastructure, human capital, policy and regulation, and finance.

What do you understand by a civic technology? Discuss in what way they can pave the way towards more progressive and democratic political systems.(250 words)

Live Mint

Why this question:
The question is based on the concept of Civic technologies.

Key demand of the question:
Discuss in detail what you understand by civic technologies and how they can pave the way towards more progressive and democratic political systems.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Define what a civic technology is.

Body:
Civic technology, or civic tech, enhances the relationship between the people and government with software for communications, decision-making, service delivery, and political process. It includes information and communications technology supporting government with software built by community-led teams of volunteers, nonprofits, consultants, and private companies.

Take queues from the article and explain how they can lead to more progressive and democratic political systems.

Conclusion:
Conclude with significance, discuss that civic technology focuses on improving the daily lives of individuals, making the society more equitable and improving the efficiency of organizations such as the government.

Introduction:
Civic technology, or civic tech, enhances the relationship between the people and government with software for communications, decision-making, service delivery, and political process. It includes information and communications technology supporting government with software built by community-led teams of volunteers, non-profits, consultants, and private companies.

Body:
In the Indian context, civic technology can broadly be divided into two themes—tools aimed at improving civic engagement, and those directed at streamlining government services.

Civic technology can lead to progressive and democratic political systems:

- Civic technology solutions enhance the relationship between people and government, by giving people more of a voice to participate in public decision making and/or to improve the delivery of services usually by government to people.
- These technologies can be developed by either non-profit organizations or for-profit companies, or even by government itself.
Civic technology solutions are not restricted to urban local bodies or to citizen-driven initiatives. Because of the conveniences provided by civic technology, there are benefits as well as growing concern about the effects it may have on social behavior and civic engagement. New technology allows for connectivity and new communications, as well as changing how we interact with issues and contexts beyond one’s intimate sphere. Civic technology affords transparency in government with open-government data, and allows more people of diverse socioeconomic levels to be able to build and engage with civic matters in a way that was not possible prior. For instance, OnlineRTI streamlines the process of applying for and receiving information from the government under the Right to Information Act. Regarding elections and online polling, there is the potential for voters to make less informed decisions because of the ease of voting. The seeds of civic technology in India were sown as early as 2012, when IChangeMyCity enabled citizens to share complaints about civic issues through its platform. It also provided municipalities with real-time grievance data to resolve. Building on this, organizations such as Reap Benefit, through their online platform, work with young people to create solutions for civic problems such as low-cost sanitation systems from discarded plastic.

Way forward:
- To make the 2020s the decade of civic technology in India, entrepreneurs can work to create diversified business models and build robust impact assessment frameworks for their organizations.
- Governments can continue to work with and encourage civic-technology platforms through startup competitions and partnerships.
- Investors and philanthropists have the opportunity to craft innovative funding models to fuel growth.
- Organizations working to support civic tech in India like D-Prize, Omidyar Network, Rohini Nilekani Philanthropies and Village Capital are already paving the way.

Conclusion:
The promise of civic technology, broadly defined here as new, lower-cost technologies or platforms meant to facilitate citizen feedback, foster government accountability, and create an iterative relationship between the two. In India, a growing number of internet users is coupled with a young population, accustomed to demanding participation in all facets of their lives, including greater participation in governance. This combination is pushing governments to be more participatory and efficient.

What do understand by Scientific social responsibility (SSR)? Discuss the need and significance of having a dedicated policy to ensure SSR is achieved in a right manner.

The Hindu

Why this question:
Science outreach programme was on the agenda on the third day of the 107th Indian Science congress. Central government has a plan to launch a Programme on implementing scientific social responsibility (SSR).

Key demand of the question:
Discuss in detail the aspects of SSR and its importance. Explain why the country needs a dedicated policy to ensure SSR is in place.

**Directive:**
**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
Define what is SSR – The ethical obligation of knowledge workers in all fields of science and technology to voluntarily contribute their knowledge and resources to the widest spectrum of stakeholders in society.

**Body:**
Explain in detail the significance of SSR.
To encourage science and technology (S&T) institutions and individual scientists in the country to proactively engage in science outreach activities to connect science with the society.
To harness latent potential of the scientific community for strengthening linkages between science and society, and for making S&T ecosystem vibrant.
To develop a mechanism for ensuring access to scientific knowledge, transferring benefits of science to meet societal needs, promoting collaborations to identify problems and develop solutions.
Explain the need for a dedicated policy to ensure SSR is in place.
Discuss the highlights of the draft policy dedicated to SSR.

**Conclusion:**
Conclude with need and significance of SSR; When most research is being done by using taxpayers’ money, the scientific establishment has an ethical obligation of “giving back” to the society. SSR is not only about scientific impact upon society but also about the social impact upon science. SSR would therefore strengthen the knowledge ecosystem and bring efficiencies in harnessing science for the benefit of society.

**Introduction:**
Scientific Social Responsibility (SSR) is the confluence of scientific knowledge with visionary leadership and social conscience. SSR is about building synergies among all stakeholders in our scientific knowledge community and also about developing linkages between science and society.
India is going to be possibly the first country in the world to implement a Scientific Social Responsibility (SSR) Policy on the lines of Corporate Social Responsibility (CSR). A draft of the new policy has been made available by the Department of Science and Technology (DST).

**Body:**

**Highlights of the draft:**
- Under the proposed policy, individual scientists or knowledge workers will be required to devote at least 10 person-days of SSR per year for exchanging scientific knowledge to society.
- It also recognises the need to provide incentives for outreach activities with necessary budgetary support.
- It has also been proposed to give credit to knowledge workers/scientists for individual SSR activities in their annual performance appraisal and evaluation.
- No institution would be allowed to outsource or sub-contract their SSR activities and projects.
- The draft defines SSR as “the ethical obligation of knowledge workers in all fields of science and technology to voluntarily contribute their knowledge and resources to the widest spectrum of stakeholders in society, in a spirit of service and conscious reciprocity”.

Telegram: [https://t.me/insightslAStips](https://t.me/insightslAStips)
Youtube: [https://www.youtube.com/channel/UCpoccbCK9GEIwaile4HLjwA](https://www.youtube.com/channel/UCpoccbCK9GEIwaile4HLjwA)
Facebook: [https://www.facebook.com/insightsonindia](https://www.facebook.com/insightsonindia)
A central agency will be established at DST to implement the SSR. Other ministries would also be encouraged to make their own plans to implement SSR as per their mandate.

**Need for SSR:**
- The earlier S&T policies have also emphasised on the utilisation of science for welfare of the people.
- However, the new India with its vibrant young populace is a country of ambition and aspiration, requiring a renewed emphasis on the integration of S&T with society at both the institutional and individual levels.
- When most research is being done by using taxpayers’ money, the scientific establishment has an ethical obligation of “giving back” to the society.
- SSR is not only about scientific impact upon society but also about the social impact upon science.
- SSR would therefore strengthen the knowledge ecosystem and bring efficiencies in harnessing science for the benefit of society.
- An institutional mechanism through SSR policy, facilitating easy access to resources and knowledge, would be a significant step in the right direction.
- This will have far reaching implications for the new initiatives such as Transformation of Aspirational Districts, make in India, Swachh Bharat and Digital India, leading to inclusive growth and development.
- SSR would inculcate moral responsibility amongst scientific community which may trigger social entrepreneurship and start-ups impacting S&T ecosystem and society.
- This policy would strengthen the existing efforts of institutions in an organised and sustainable manner

**Significance of SSR:**
- Expanding the domain of science and its benefits to the community. Encouraging students into science through handholding and nurturing their interest.
- Creating an opportunity for cooperation and sharing of S&T resources in laboratories with other researchers in universities and colleges.
- Providing training for skill development and upgrading scientific knowledge.
- Helping MSMEs, Startups and informal sector enterprises in increasing their overall productivity.
- Facilitating scientific intervention in rural innovation.
- Empowering women, disadvantaged and weaker sections society through scientific intervention. Identification of best practices and success models on SSR for replication with multiplier effect in the country.
- Facilitating actions towards addressing Technology Vision 2035 Prerogatives and Sustainable Development Goals (SDGs) of the country such as water, ecology, health and livelihood.

**Conclusion:**
SSR envisages strengthening science-society linkages in an organic manner by building synergy among all the stakeholders so as to usher in a cultural change in the conduct of science for the benefit of society at large in the country.
Discuss the prospects and challenges posed by Blockchain technology; what opportunities does it have to offer to the social sectors in the country? Discuss. (250 words)

News on Air

Why this question:
The question aims to ascertain the applications of Blockchain technology and its aid to social sector. National Informatics Centre (NIC) has set up the Centre of Excellence (CoE) in Blockchain Technology in Bengaluru, Karnataka.

Key demand of the question:
Discuss the significance of Blockchain technology and its application.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Briefly define Blockchain technology.

Body:
Blockchain technology is upcoming & niche technology and adoption of the same in sectors such as health, finance, agriculture and various other sectors would aid the government in implementing various programmes and provide trust and immutability to the assets. Explain the applications of Blockchain technology, With National Informatics Centre (NIC) providing a robust and an agile infrastructure, the CoE shall also provide Blockchain as a Service (BaaS) for efficient hosting of Blockchain network.

Conclusion:
Conclude with futuristic advantages of Blockchain Technology.

Introduction:
Blockchains are a new data structure that is secure, cryptography-based, and distributed across a network. The technology supports cryptocurrencies such as Bitcoin, and the transfer of any data or digital asset. Anything recorded on them cannot be deleted, and is instantly uploaded to all users on that blockchain. Blockchain is being researched across the banking and financial services industries.

Body:
In Karnataka, Bengaluru has come up with a Centre for Excellence in Blockchain Technology. This technology helps in enhancing transparency and trust in e-Governance system by allowing all stakeholders benefit from shared learning, experiences and resources. Set up by the National Informatics Centre, the Centre for Excellence would help to bring a revolutionary change in the lives of the people by delivering e-governance services effectively through the data-centric model.
Prospects:

- Bitcoin is just one of the applications for the technology, whose use is being tested across industries.
- Healthcare, banking, education, agriculture, electricity distribution and land records are sectors that could benefit.
- Blockchain-powered smart contracts, where every piece of information is recorded can enhance ease of doing business.
- It will augment the credibility, accuracy and efficiency of a contract while reducing the risk of frauds, substantially.
- Blockchain could play a crucial part in health insurance claims management by reducing the risk of insurance claim frauds.
- The technology can also be used to prevent the sale of spurious drugs in the country by tracking every step of the supply chain network.
- Artificial Intelligence and Internet of Things (IoT) can gain immensely from blockchain applications.
- In an IoT world, thousands of devices would need to rapidly and seamlessly transact with each other in real time.
- The adoption of blockchain by India’s banks could help avert frauds such as the one at Punjab National Bank as the technology updates information across all users simultaneously.
- It could be used to further strengthen our national institutions, including the judiciary and the Election Commission.
- Critical citizen information like land records, census data, birth and death records, business licenses, criminal records, intellectual property registry, electoral rolls could all be maintained as blockchain-powered, tamper-proof public ledgers.

Challenges:

- Blockchain technology is expensive to initially put it in place.
• The massive usage of energy for the functioning of blockchain.
• Safeguarding the privacy of individuals and companies as blockchains are usually open ledgers for everyone to see.
• Knowledge of the benefits of distributed ledger technology is still limited.
• If automated risk management, smart contracts, and similar tools are deployed across a network, cascades of rapid and hard-to-control obligations and liquidity flows could propagate across a network.
• This interdependence will likely call for creative organizational thinking to address the need for governance and strong risk management

Blockchain in Social sectors:

• **Personal Identification:** Governments manage vast amounts of personal data from birth and death records to marriage certificates, passports and census data. Blockchain technology offers a streamlined solution for managing all of it securely.

• **Fight corruption:** Registering government transactions in the blockchain helps create a trusted history for any transaction and significantly eases the auditing process. This would contribute to making public procurement more transparent.

• **Cut redtapism:** As government agencies currently store data in autonomous centralized databases, they tend not to interoperate in an optimal way. This results in duplication, overlap and contradiction in the information held. Blockchain eliminates this lack of interoperability which generates unnecessary red tape in obtaining relevant information from a user, and makes the process for sharing data between agencies clear and inexpensive.

• **Identity and Land rights:** The World Identity Network and Humanized Internet project can store identifiers such as birth certificates and university degrees on a blockchain, in the form of distributed digital lockboxes. Users can keep their information private and secure, but also give permission for anyone to access it anywhere in the world. Several governments, including those in Dubai, Estonia, Georgia, and Sweden are making early forays into blockchain-based approaches to securing property rights.

• **Agriculture:** First of all, it can reduce contamination and food fraud. This can happen with the help of blockchain efficiency and transparency. Blockchain’s role is to improve the third party involvement by ensuring that they are tracking, collecting and managing data in the best possible way. With blockchain, farmers and distributors are going to get their payments faster than ever-improving their ability to work on their next set of projects faster.

• **Health:** The health sector is one of those sectors that have tons of initiatives by both for-profit and non-profit organizations. With blockchain, healthcare can improve digital healthcare records. It also improves pharmaceutical supply chain management. As usual, blockchain offers a decentralized, efficient and secure solution.

• **Governance and democracy:** Government and civil society can also leverage blockchain technology to strengthen democratic processes and participation. Blockchain systems such as Ballotchain can manage online elections with secure and anonymous voting that participants can verify at any time.

• **Environmental protection:** In the environmental arena, new blockchain-supported supply chain management systems, which are transparent but cannot be tampered with, can track products from the farm to the table, and show whether or not a food product is organic or Fair Trade.

• **Philanthropy and Aid:** Billions of dollars are invested in helping the needy. However, these aids are mostly misused due to a lack of transparency. In fact, most of the aid never reaches the intended people. This has also led people to not contribute to these non-profit organizations.
Blockchain can solve all of these problems and help elevate the confidence in non-profit in utilizing the funds.

- **Crowdfunding**: As with traditional crowdfunding, a blockchain powered crowdfunding campaign seeks to secure investment for a new project from an interested community. But in this instance, funding is most likely to come in the form of bitcoin or other cryptocurrencies.

**Way Forward:**

- Blockchain, with all its possibilities, needs a serious look at its vulnerabilities and commerciality.
- Before introducing blockchain into the public sector data-handling system, we need a robust and informative data repository.
- Linking **IndiaChain** with Aadhar, thus creating a secure personal identity for all Indians.
- Proper regulations for the use of blockchain technology in the country.
- Identifying and resolving key issues and challenges in implementing this technology, the prime amongst those being data privacy.
- India should effectively channel its technical human capital surplus to position itself as one of the pioneers during this upcoming wave of innovation.

Regardless of the ‘Make in India’ initiative being a well-wished-for policy, it suffers from key limitations. Deliberate. (250 words)

*The Hindu*

**Why this question:**
The article examines critically the performance of “Make in India”. Thus the question.

**Key demand of the question:**
Discuss in detail the objectives of the Make in India, explain the limitations and take hints from the article.

**Directive:**
Deliberate – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you agree with the original proposition.

**Structure of the answer:**

**Introduction:**
Define the details of the scheme.

**Body:**
The ‘Make in India’ initiative is to encourage manufacturing in India and galvanize the economy with dedicated investments in manufacturing and services. 

Explain the progress made so far.

Discuss the setbacks that the scheme has witnessed, explain the challenges.

Take hints from the article and explain the issues involved and suggest what reforms need to be brought out to address the challenges.

**Conclusion:**
Conclude that the lacunas need to be addressed to ensure viability of the scheme and attain success for the program for a long term period.

**Introduction:**
The Indian government announced the ‘Make in India’ initiative in 2014 to encourage manufacturing in India and galvanize the economy with dedicated investments in manufacturing and services. Immediately after the launch, investment commitments worth crores were announced. In 2015,
India emerged as the top destination for foreign direct investment, surpassing the U.S. and China. In line with the national programme, States too launched their own initiatives.

Body:

Make in India:

- The three major objectives were:
  - to increase the manufacturing sector’s growth rate to 12-14% per annum in order to increase the sector’s share in the economy;
  - to create 100 million additional manufacturing jobs in the economy by 2022; and
  - to ensure that the manufacturing sector’s contribution to GDP is increased to 25% by 2022 (revised to 2025) from the current 16%.

- The policy approach was to create a conducive environment for investments, develop modern and efficient infrastructure, and open up new sectors for foreign capital.

- The focus of Make in India programme is on 25 sectors. These include: automobiles, aviation, chemicals, IT & BPM, pharmaceuticals, construction, defence manufacturing, electrical machinery, food processing, textiles and garments, ports, leather, media and entertainment, wellness, mining, tourism and hospitality, railways, automobile components, renewable energy, biotechnology, space, thermal power, roads and highways and electronics systems.

Appraisal of Make in India after 5 years:

- Investment:
  - The last five years witnessed slow growth of investment in the economy.
  - Gross fixed capital formation of the private sector, a measure of aggregate investment, declined to 28.6% of GDP in 2017-18 from 31.3% in 2013-14 (Economic Survey 2018-19).
  - Interestingly, though the public sector’s share remained more or less the same during this period, the private sector’s share declined from 24.2% to 21.5%.
  - Part of this problem can be attributed to the decline in the savings rate in the economy. Household savings have declined, while the private corporate sector’s savings have increased. Thus we find a scenario where the private sector’s savings have increased, but investments have decreased, despite policy measures to provide a good investment climate.

- Output Growth:
  - The monthly index of industrial production pertaining to manufacturing has registered double-digit growth rates only on two occasions during the period April 2012 to November 2019.
  - In fact, data show that for a majority of the months, it was 3% or below and even negative for some months. Thus, negative growth implies contraction of the sector.

- Employment Growth:
  - Employment, especially industrial employment, has not grown to keep pace with the rate of new entries into the labour market.

Reasons for slow growth in Make in India:
- **Ambitious targets**: It set out too ambitious growth rates for the manufacturing sector to achieve. An annual growth rate of 12-14% is well beyond the capacity of the industrial sector.

- **Multiple targets**: The initiative brought in too many sectors into its fold. This led to a loss of policy focus. Further, it was seen as a policy devoid of any understanding of the comparative advantages of the domestic economy.

- **Excessive dependence on foreign capital**: The policy relied too much on foreign capital for investment. Thus in the uncertainties of the global economy and ever-rising trade protectionism, the initiative was spectacularly ill-timed.

- **Low Productivity**: Productivity of Indian factories is low and workers have insufficient skills. McKinsey report states that Indian workers in the manufacturing sector are, on average, almost four and five times less productive than their counterparts in Thailand and China.

- **Complex Labour Laws**: One of the major reasons behind small companies is the complicated labour regulations for plants with more than 100 employees. Government approval is required under the Industrial Disputes Act of 1947 before laying off any employees and the Contract Labour Act of 1970 requires government and employee approval for simple changes in an employee’s job description or duties.

**Conclusion:**

Make in India and reforms that followed have led to an improvement in ‘Ease of Doing Business’ ranking. However, investments are yet to arrive. The ‘Make in India’ programme may have the potential to transform India into a manufacturing hub but if we are to achieve that potential, the government would have to move beyond rhetoric to actual implementation of the announced policies.

**Explain the key features of National Biotechnology Development Strategy 2015-2020 (NBDS) also discuss How can Biotechnology be used to address various issues in India? (250 words)**

**PIB**

**Why this question:**
The question is straightforward and aims to evaluate the objectives of the National Biotechnology Development Strategy 2015-2020 (NBDS).

**Key demand of the question:**
Discuss the key features of the policy and its significance to the overall development of the Biotech sector in the country; also explain the applications it offers to the other sectors.

**Directive:**
*Explain –* Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:**

**Introduction:**
Briefly highlight the fact that Indian Government seeks to create a US$ 100 billion biotech industry by 2025. It has launched various programs with a view to harness available human and unlimited biodiversity resources.

**Body:**
Discuss the objectives of the strategy in detail first.
The Strategy aims to establish India as a world-class bio-manufacturing hub. It intends to launch a major mission, backed with significant investments, for the creation of new biotech products, creates a strong infrastructure for R&D and commercialization, and empowers India’s human resources scientifically and technologically.
Explain the possible benefits it would bring to other sectors of the country.

**Conclusion:**
Conclude with way forward and prospects of the sector in coming future.

**Introduction:**

United Nation Convention on Biological Diversity, defines Biotechnology “any technological application that uses biological systems, living organisms or derivatives thereof, to make or modify products or processes for specific use”. And “Biological resources” includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity. India has become the world’s 12th biggest biotechnology economy having the second highest number of USFDA-approved plants. Biotechnology will help developing countries accomplish things that they could never do.

**Body:**

The National Biotechnology Development Strategy -2015-2020 aims to establish India as a world-class bio-manufacturing hub. It intends to launch a major mission, backed with significant investments, for the creation of new biotech products, create a strong infrastructure for R&D and commercialization, and empower India’s human resources scientifically and technologically.

The Key elements of the Strategy are:

- Building a Skilled Workforce and Leadership
- Revitalizing the knowledge environment at par with the growing bio-economy
- Enhance Research opportunities in basic, disciplinary and inter-disciplinary sciences
- Encourage use-inspired discovery research
- Focus on biotechnology tools for inclusive development
- Nurturing innovation, translational capacity and entrepreneurship
- Ensuring a transparent, efficient and globally best Regulatory system and communication strategy
- Biotechnology cooperation- Fostering global and national alliances
- Strengthen Institutional Capacity with redesigned governance models
- Create a matrix of measurement of processes as well as outcome

**Biotechnology has the following relevance in India:**

- **Applications of Biotechnology in Medicine**
  - Biotechnology techniques are used in medicine for diagnosis and treating different diseases. It gives opportunities for the people to protect themselves from dangerous diseases.
  - The field of Biotechnology, genetic engineering has introduced techniques like gene therapy, recombinant DNA technology and polymerase chain reaction which use genes and DNA molecules to diagnose diseases and insert new and healthy genes in the body which replace the damaged cells
  - Genetic modification in mosquitoes can solve the problems of epidemic diseases such as dengue and malaria
- Artificial insemination is the artificial introduction of semen into the reproductive tract of a female animal. It is used extensively in breeding animals, such as sheep and cattle.

- Medical researchers believe that stem cell therapy has the potential to dramatically change the treatment of human disease. A number of adult stem cell therapies already exist, particularly bone marrow transplants that are used to treat leukaemia.

- Stem cell transplantation was first used in the treatment of blood disorders and it was a breakthrough. Conventionally known as bone marrow transplantation, the stem cells responsible for production of the blood cells reside in the bone marrow.

### Applications of Biotechnology in Agriculture

- Biotechnology has played major role in agriculture by altering genes, studying and cloning various crops in order to provide better quality products of foods ultimately improving our lives.

- Hybrid Seeds, Artificial Seeds, Photosynthesis improver, Stress resistant crops and plants, Bio-fertilisers, Bio-pesticides are some of the potential applications.

- Potential advantages that biotechnology can confer across a wide range of agricultural applications are in areas such as livestock management, storage of agricultural products and sustaining current crop yields, while reducing the use of fertilizers, herbicides and pesticides.

- Biotechnology offers a very promising alternative to synthetic foods and an improvement on conventional plant-breeding technologies. Combined with other advanced agricultural technologies, it offers an exciting and environmentally responsible way to meet consumer demand for sustainable agriculture.

### Animal husbandry:

- The application of biotechnology in this area, in increasing production efficiency through manipulation and control of physiological systems and improving the health and well-being of animals, assumes great significance.

- Embryo transplantation, used with cattle, goats, pigs, and sheep, aims to increase the number of offspring from a quality female.

- Cloning embryos to artificially produce genetic duplicates of an animal has also become possible.

- Direct manipulation and alteration of an animal’s genetic material—genetic engineering—has the potential to produce even more drastic changes in animal breeding. It is believed that genetically altered pigs may one day be able to provide compatible organs for emergency transplantation (xenotransplantation) into humans.

### Application of Biotechnology in Food Processing

- Biotechnology has a major application in the food sector.

- Bread, cheese, wine, beer, yogurt, and vinegar are all made by culturing microorganisms and are really the oldest products of biotechnology.
• It helps in improving the edibility, texture, and storage of the food; in preventing the attack of the food, mainly dairy, by the virus like bacteriophage.

• Biotechnologists are also developing tests that will allow the detection of food-contaminating microorganisms and the toxins they produce, which may be present only in minute quantities.

• Biotechnology also has applications in the detection of mutagens (substances that cause genetic mutations) in individual food products.

• GM crops which have been approved for use in food items in select countries include corn, maize, soya, tomato, potato and papaya.

• Latest innovations in biotechnology that fortify major staples with micro nutrients like vitamin A, zinc and iron can be game changers for hunger problem in India.

- Environment:
  • Biotechnology can be used to tackle environmental issues like deforestation and air pollution
  • Biotechnology can help in finding out the level of Particulate Matter 2.5 in the air,
  • Biotechnology is already providing a clean and renewable alternative to traditional fossil fuels, the burning of which contributes to global warming.
  • The benefit of environmental biotechnology helps us to avoid the use of hazardous pollutants and wastes that affect the natural resources and the environment.
  • Biosensors, which combine a biological component (such as an enzyme) with various electronic components to trigger a circuit when a particular type of chemical is detected. Biosensors are capable of detecting extremely low levels of proteins, hormones, pollutants, gases, and other molecules.

Conclusion:

In a complex play of scientific progress and market forces, the biotechnology industry is recording growth that can rival the information technology industry boom of the 1990s. India with its young workforce and a potential market for the end-products can look out for a bright future in the biotechnology sector.

Briefly elucidate upon the steps taken by India for strengthening IPR focused on technology and innovation (250 words)

DIPP

Why this question:
Recently the Union Cabinet approved the proposal for Accession of India to the Nice, Vienna and Locarno Agreements, related to the World Intellectual Property Organization’s (WIPO) international classification systems. Thus the context of the question.

Key demand of the question:
Discuss in detail the steps taken by India to strengthen the IPR that focuses on technology and innovation.

Directive:
**Elucidate** – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:**

**Introduction:**
In short discuss what Intellectual Property is.

**Body:**
First briefly present the IPR scenario in India.

Then explain the efforts being made – In order to promote Intellectual Property in India Department of Industrial Policy and Promotion has taken various initiatives to ensure that intangible assets of the country are adequately protected such as: National IPR Policy 2016, Cell for IPR Promotion and Management (CIPAM), and other various awareness programmes, Filing of Patents and Trademarks applications has been made online. Almost all old Intellectual Property (IP) records have been digitized and new records are digitized immediately. Automated Electronic modules have been adopted to process Patents and Trademarks applications which enabled achieving enhanced speed, accuracy and Transparency etc.

**Conclusion:**
Conclude with way forward.

Introduction:

**Intellectual Property Rights** (IPRs) are legal rights, which result from intellectual invention, innovation and discovery in the industrial, scientific, literary and artistic fields. These rights entitle an individual or group to the moral and economic rights of creators in their creation. For ex: In India, **patents are granted for a period of 20 years** from the date of filing of the patent application. It is also to be noted that the patents are valid only within the territory where they have been granted. Once a patent expires, protection ends and the invention enters the public domain. In India, **Patent Acts, 1970** regulate the IPRs.

Body:

**Important highlights from India’s present National Intellectual Property Rights (IPR) Policy**

- The Policy aims to push IPRs as a **marketable financial asset**, promote innovation and entrepreneurship, while protecting public interest.
- In order to have strong and effective IPR laws, steps would be taken — including review of existing IP laws — to update and improve them or to remove anomalies and inconsistencies.
- The policy is **entirely compliant with the WTO’s agreement on TRIPS**.
- **Special thrust on awareness generation and effective enforcement of IPRs**, besides encouragement of IP commercialisation through various incentives.
- India will engage constructively in the negotiation of international treaties and agreements in consultation with stakeholdes.
- The government will examine accession to some multilateral treaties which are in India’s interest, and become a signatory to those treaties which India has de facto implemented to enable it to participate in their decision making process, the policy said.
- It suggests making the department of industrial policy and promotion (DIPP) the nodal agency for all IPR issues. Copyrights related issues will also come under DIPP’s ambit from that of the Human Resource Development (HRD) Ministry.
- Films, music, industrial drawings will be all covered by copyright.
• The Policy also seeks to **facilitate domestic IPR filings**, for the entire value chain from IPR generation to commercialization. It aims to promote research and development through tax benefits.

**The steps taken by India for strengthening IPR:**

• The statutes governing different kinds of IPRs in India are **Patents Act, 1970; Trade Marks Act, 1999; Designs Act, 2000; Geographical Indications of Goods (Registration and Protection) Act, 1999; Copyright Act, 1957; Protection of Plant Varieties and Farmers’ Rights Act, 2001; Semiconductor Integrated Circuits Layout-Design Act, 2000 and Biological Diversity Act, 2002.**

• The **Department of Industrial Policy and Promotion (DIPP)** is entrusted with matters concerning the specialised UN agency on IPRs, the World Intellectual Property Organisation (WIPO), including coordination with other concerned Ministries or Departments.

• The **Controller General of Patents, Designs and Trade Marks (CGPDTM)** under the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry is entrusted with the responsibility of administering the laws relating to Patents, Designs, Trade Marks and Geographical Indications within the territory of India.

• The **Protection of Plant Varieties and Farmers’ Rights Act, 2001** is a sui generis legislation in India providing protection for plant varieties and rights of farmers and is under the aegis of the Ministry of Agriculture.

• The preservation of biological diversity in India is under the Ministry of Environment and Forests; the **Biological Diversity Act 2002** provides mechanism for regulating access and ensuring fair and equitable sharing of benefits arising out of the use of biological resources and associated traditional knowledge.

• India has always been conscious of its obligations in the international arena, and has acceded to a number of international conventions to further the cause of IPRs globally.

• India was the first country to ratify the **Marrakesh Treaty 2013 for Access to Published Works by visually impaired persons.**

• The accession to the **Madrid Protocol in 2013** is a step towards global alignment for proprietors of marks.

• The **Indian Patent Office** has been recognized as an **International Search Authority** and an **International Preliminary Examination Authority.**

• The **Intellectual Property Appellate Board** hears appeals arising from the decisions of Controllers of Patents as also Registrars of Trade Marks and GIs.

**Way forward:**

• Fostering an environment where innovation flourishes and a knowledge economy is built, is the key idea. Hence, the policy should have a balance.

• It should encourage patenting and at the same time ensure that patentability of a product/process does not deter further innovation and progress.

• Intellectual Property must not be about patents on paper but dearth of application in reality. The organisations such as CSIR and others must be encouraged to work upon socially useful applications of their patents.

• Support for innovation has to be accompanied with instruments that guard local companies against the misuse of market power, coercive bargaining and aggressive acquisition strategies.

• India needs to spread awareness on IPR in public and for its traditional industries to enable fair monetisation of IP Rights.
It needs to safeguard its patents, copyrights and traditional knowledge by ensuring easy IPR rules.

The development of the anti-satellite (A-SAT) missile capability clutches vast implications for India. Explain and also discuss the associated concerns with the Mission Shakti. (250 words)

Reference: The Hindu

Why this question:
India showcased its anti-satellite (A-SAT) missile capability of the weapon, Mission Shakti, during the parade. Thus the context of the question.

Key demand of the question:
Discuss in detail the significance of development of the anti-satellite (A-SAT) missile capability for India; discuss the details of Mission Shakti and the challenges involved.

Directive:
Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:
Introduction:
First discuss what an anti-satellite (A-SAT) missile is.

Body:
Discuss the details of the missile technology; it has been developed by the Defence Research and Development Organization (DRDO).

The A-SAT technology enables India to destroy an enemy satellite by directly colliding with it with pinpoint accuracy.

A-SAT weapons play a critical role in providing the necessary strategic deterrence.

Discuss the prospects it will have for India’s defence capabilities.

Explain the challenges involved in Mission Shakti in detail.

Conclusion:
Conclude with importance of such missions to India’s defence capabilities.

Introduction:
India recently showcased its Anti-Satellite (ASAT) missile capability to the world as the ASAT weapon, Mission Shakti, developed by the Defence Research and Development Organisation (DRDO) rolled out on the Rajpath during the 71st Republic Day parade. In addition, the IAF’s newest inductions, Chinook heavy lift helicopters and Apache attack helicopters, also made their debut during the flypast.

Body:

Anti-satellite (A-SAT) missile:

- ASAT is essentially a missile that can destroy or jam an enemy country’s satellite in space. Until now, only USA, Russia and China had operational ASAT systems.

- ASAT are space weapons designed to incapacitate or destroy satellites for strategic military purposes.

- Space weapons can attack space weapons in orbit (ASAT), attack targets on the earth from space or disable missiles travelling through space.
• ASAT missiles are of two types – Kinetic or Non-Kinetic.
• Kinetic A-SAT physically strikes an object and destroys it like ballistic missile.
• Non-Kinetic A-SAT use non-physical means to disable/destroy a space object like frequency jamming.
• The theoretical range of A-SAT weapons is limited to 20,000km.
• The capabilities of ASAT have been demonstrated by United States, Russia, China and India.
• Israel is said to be on the path of developing its ASAT technology.

The significance of development of the anti-satellite (A-SAT) missile capability for India:

• The A-SAT technology enables India to destroy an enemy satellite by directly colliding with it with pinpoint accuracy.
• A-SAT weapons play a critical role in providing the necessary strategic deterrence.
• Provide critical information like troop movements and incoming missiles.
• India became the fourth nation in the world to test an ASAT weapon after US, Russia and China.

Mission Shakti:

The mission of shooting down a live satellite by an anti-satellite missile (A-SAT) targeted in the low earth orbit (LEO) in 2019 by India is known as Mission Shakti.

• Mission Shakti is a joint programme of the Defence Research and Development Organisation (DRDO) and the Indian Space Research Organisation (ISRO).
• India had announced in 2010 to develop a hit-to-kill A-SAT system, was fully successful and achieved all parameters as per plans.
• The target destroyed by DRDO’s Ballistic Missile Defence interceptor (A-SAT missile) was an out of service Indian micro satellite launched by Indian Space Research Organisation (ISRO) in 2014.
• The anti-satellite missile test was conducted in the lower atmosphere to make sure that there is no space debris. Whatever wreckage is generated will decompose and fall back in the earth within weeks.
Significance of Mission Shakti:

- Satellites are used by countries for navigation, communications and also for guiding their missile weaponry.

- The ability to bring down an enemy’s missile, therefore, gives a country the capability to cripple critical infrastructure of the other country, rendering their weapons useless.

- Though the United States and the then Soviet Union both tested anti-satellite missiles way back in the 1970s at the height of the cold war, never has any country brought down the satellite of any other country, either during a conflict or by mistake.

- During the tests, countries target their own satellites, those which are no longer in use but continue to be in the space.

- A detailed statement by the Ministry of External Affairs (MEA) confirmed that an Indian satellite had been used for the test, but did not specify which satellite it was.

- PM Modi was careful to state that India’s test was a “defensive” move, aimed at securing its space infrastructure, and does not change India’s strong opposition to weaponisation of space.

Associated concerns with the Mission Shakti:

- Since nations use third-party satellites for their various needs, even striking down every satellite of a nation might not disable military communication of that nation entirely because that nation will simply use another nation’s satellite to communicate.

- As all major nations have hundreds of dual-use satellites in orbit, it is near to impossible for any nation to stick down these satellites by such missiles.
Also, if the situation comes when nations are striking down the satellites of adversary nations then the world has already reached the nuclear threshold.

Conclusion:

The successful development of ASAT technology has improved India’s space power. It has demonstrated its capability to intercept any satellite. So, it has created a deterrence mechanism for its space satellites which are doing various military and civilian services.
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Awareness in the fields of IT, Space, Computers, robotics, nano-technology, biotechnology and issues relating to intellectual property rights.

Discuss the technological and financial challenges that India has to overcome in the translation of the successes in the unmanned space missions into manned space missions.(250 words)

_The Hindu_

**Why this question:**
Four pilots from the Indian Air Force (IAF) will leave for Russia this month to receive training as astronauts of Gaganyaan, the first Indian crewed flight to space. Thus the context of the question.

**Key demand of the question:**
The question expects one to discuss the challenges that India space research organization is facing in conducting the manned and unmanned space missions.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
Give a brief introduction about India’s successes in unmanned space missions such as Mars orbiter mission, PSLV, GSLV etc.

**Body:**
Explain about India’s ambitious programme Gaganyaan.

Write about the needed indigenization policies and technological inventions in this regard.

Suggest suitable measures to increase the financial capacity, international agreements etc.

**Conclusion:**
Give a futuristic way forward for the same.

Introduction:
The Prime Minister of India in his Independence Day address announced that an Indian astronaut would go into space by 2022, when India celebrates her 75th year of Independence. In pursuance of this, Indian Space Research Organization (ISRO) plans to fly the first unmanned test mission ahead of its ambitious crewed Gaganyaan mission by the end of 2020, according to ISRO Chairman.

Body:
**Mission Gaganyaan:**

- India’s first manned space flight Gaganyaan is expected to send three persons into the space for seven days and the spacecraft will be placed in a low earth orbit of 300-400 km.
- Two unmanned Gaganyaan missions will be undertaken prior to sending humans.
- The total programme is expected to be completed before 2022 with first unmanned flight within 30 months.
- The mission is estimated at 9000 crore.
- It would raise scientific and technological temper across the country and inspire youngsters.
- When it achieves the mission, India would be the fourth nation to circle Earth after the Soviets, the Americans and the Chinese.

**Technological challenges:**
For a manned mission, the key distinguishing capabilities that ISRO has had to develop include the ability
  - to bring the spacecraft back to Earth after flight
  - to build a spacecraft in which astronauts can live in Earth-like conditions in space

India is yet to perfect fool-proof launch vehicle technology, the basic requirement for a manned space mission.

The Polar Satellite launch vehicle and the Geosynchronous Launch vehicle, the two Indian spacecraft deployed to launch satellites and modules into space, are yet to be man-rated.

India does not even have the facilities to train astronauts.

ISRO has not been able to put in place India’s own Global Positioning System in spite of completing the NavIC due to dysfunctional atomic clocks in the satellites, rendering the fleet a dud.

The launchpad at the Sriharikota spaceport, the Satish Dhawan Space Centre, will have to be enhanced for the human mission.

While the launch vehicle, crew module, re-entry technology, crew escape system is in place, monitoring and tracking systems, Environmental Control & Life Support System (ELCSS), space suit and crew support systems are still in the developmental phase.

Although scores of landers sent by Russia, the U.S. and the Chinese have explored moon’s surface, so far, no other agency has landed in the southern hemisphere of moon. ISRO hopes to be still the first to do so.

Financial challenges:

- Gaganyaan, announced by the Prime Minister in August 2018, is the ₹10,000-crore Indian human space flight scheduled for 2022.
- The Chandrayaan-3 lander and rover are estimated at ₹250 crore and will go to moon on a propulsion model. The GSLV Mark III vehicle costs around ₹350 crore.
- Chandrayaan-2 mission cost nearly ₹1000 crore, an orbiter carried the lander and the rover to a lunar orbit.

Way forward:

- It is important to ensure engagements at political level to obtain long term commitment for India’s human space flight missions
- Financial implications of a long-term human space-flight programme development should be assessed and the returns and benefits should be clearly articulated
- It is important to overcome the technological challenges to ensure a safe, successful manned space mission. International collaboration in this domain can help India ensure a robust technology for its HSF programme.
- Selection of Indians for astronauts will be an important step. Procedures and specifications for astronauts and a rigorous selection process is suggested.
- These developments will help ISRO in perfecting the cryogenic technology for sending up heavier and heavier payloads and will reduce India’s dependency on other countries to launch heavier satellites.
Conservation, environmental pollution and degradation, environmental impact assessment

Climate change is bound to increase the risk of forest fires further and the case for vice-versa also holds true, with suitable case studied critically analyse the statement.(250 words)

*The Guardian*

**Why this question:**
The question is from the context of the 2019-20 bushfire crises that coincided with Australia’s hottest year on record.

**Key demand of the question:**
Discuss the impact of forest fires frequently being witnessed in the world and in what way climate change has been at the centre of causes leading to such fires. Also explain the interlinkages between the two.

**Directive:**

*Critically analyze* – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

**Structure of the answer:**

**Introduction:**
Discuss the incidence of recent forest fires witnessed in Australia.

**Body:**
Forest fires have a significant impact on global atmospheric emissions, with biomass burning contributing to the global budgets of greenhouse gases, like carbon dioxide.
Discuss the concept of forest fires, causes and consequences; both positives and negatives.
Explain then the effect of climate change upon the forest fires.
And the vice-versa impact of it.

**Conclusion:**
Conclude with suggestions as to what should be done to overcome the threats posed by forest fires.

Introduction:
Australia is fighting one of its worst bushfire seasons, fuelled by record-breaking temperatures and months of severe drought. Australia has declared a state of emergency for the state of New South Wales (NSW) along with a catastrophic fire warning.

Body:

**Current scenario of Bushfire in Australia:**

- Wildfires have affected more than **12 million hectares of land in Australia** and the tragedy of the bushfires is still unfolding.
- The wildfires have caused **large scale loss to life and property** leading to the displacement of many residents.
- The wildfires have **destroyed the native flora and fauna, killing thousands of wild animals.**
  Australia is home to many endangered and rare species.
- New South Wales has been the most severely hit, with more than 1.65m hectares razed, an area significantly larger than suburban Sydney.
Tourism which constitutes a major source of revenue for Australia has been affected by the raging bushfires.

**Climate change and Forest fires are interlinked:**

- The link between rising greenhouse gas emissions and increased bushfire risk is complex but, according to major science agencies, clear.
- Climate change does not create bushfires but it can and does make them worse.
- A number of factors contribute to bushfire risk, including temperature, fuel load, dryness, wind speed and humidity.
- This year a **natural weather phenomenon known as the Indian Ocean Dipole** has meant a hot, dry spell across the country.
- But the overwhelming scientific consensus is that rising levels of CO2 are warming the planet. And Australia has been getting hotter over recent decades and is expected to continue doing so.
- Australia recorded its hottest month in January 2019, its third-hottest July and its hottest October day in some areas, among other temperature records. That comes on top of a long period of drought.
- Scientists have long warned that this hotter, drier climate will contribute to fires becoming more frequent and more intense.
- The more extreme weather patterns and higher temperatures increase the risk of bushfires and allow them to spread faster and wider.
- Complex computer models have not found a consistent climate change signal linked to rising CO2 in the decline in rain that has produced the current eastern Australian drought.

**Measures to fight forest fires:**

- There are four approaches to fighting forest fires.
- The first is what may be called technological, where helicopters or ground-based personnel spray fire retardant chemicals, or pump water to fight the blaze.
- The second is to contain the fire in compartments bordered by natural barriers such as streams, roads, ridges, and fire lines along hillsides or across plains. A fire line is a line through a forest which has been cleared of all vegetation.
- The third is to set a counter fire, so that when a fire is unapproachable for humans, a line is cleared of combustibles and manned.
- The fourth approach, which is the most practical and most widely used, is to have enough people with leafy green boughs to beat the fire out. This is practised in combination with fire lines and counter fires.

**Conclusion:**

As evidenced, the Great Barrier Reef “is dying”, the “world-heritage rain forests are burning”, giant kelp forests have disappeared, “numerous towns have run out of water or are about to, and now the vast continent is burning on a scale never before seen.

**Increasing the total area of forests is vital for India to meet its Intended nationally determined contributions under the ambit of Paris agreement 2015.** Discuss. (250 words)

*Indian Express*

*Why this question:*
India, as part of its contribution to the global fight against climate change, has committed itself to creating an “additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent” by 2030. Thus the question.

**Key demand of the question:**
Discuss in detail the means and ways through which India aims to achieve its climate change targets.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**
Briefly bring out the highlights of the *State of Forest Report (SFR) 2019* relevant to the question.

**Body:**
Explain that while showing an increase in the carbon stock trapped in Indian forests in the last two years, the report also shows why it is going to be an uphill task for India in meeting one of its international obligations on climate change.

Discuss briefly relationship between the forests and carbon.

Explain the challenges that India is facing in meeting the targets.

Discuss why it is important for India to meet its INDC targets.

Elaborate on the efforts India is making in this direction.

**Conclusion:**
Conclude with what should be the way forward.

**Introduction:**
Forests, by absorbing carbon dioxide from the atmosphere for the process of photosynthesis, act as a natural sink of carbon. India, as part of its contribution to the global fight against climate change, has committed itself to creating an “additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent” by 2030. The India State of Forest Report (ISFR) 2019 has found an increase of 5,188 sq. km in total forest and tree cover in the country. Tree and forest cover together made up 24.56% (8,07,276 sq. km) of India’s area.

**Body:**
**Importance of increasing forest cover in India:**

- Maintenance of environmental stability through preservation and, where necessary, restoration of the ecological balance that has been adversely disturbed by serous depletion of the forests of the country.
- Checking soil erosion and denudation in the catchments areas of rivers, lakes, reservoirs in the “interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs.
- Checking the extension of sand-dunes in the desert areas of Rajasthan and along the coastal tracts.
- Increasing substantially the forest/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands.
- Meeting the requirements of fuel-wood, fodder, minor forest produce and small timber of the rural and tribal populations.
- Increasing the productivity of forests to meet essential national needs.
- Encouraging efficient utilisation of forest produce and maximising substitution of wood.
Creating a massive people’s movement with the involvement of women, for achieving these objectives and to minimise pressure on existing forests.

Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the country.

Forests, by absorbing carbon dioxide from the atmosphere for the process of photosynthesis, act as a natural sink of carbon.

Together with oceans, forests absorb nearly half of global annual carbon dioxide emissions.

In fact, the carbon currently stored in the forests exceeds all the carbon emitted in the atmosphere since the start of the industrial age.

An increase in the forest area is thus one of the most effective ways of reducing the emissions that accumulate in the atmosphere every year.

However, there are challenges:

An assessment by the Forest Survey of India (FSI) last year had projected that, by 2030, the carbon stock in forests as well as tree cover was likely to reach 31.87 billion tonnes of carbon dioxide equivalent in the business as usual scenario.

An additional 2.5 to 3 billion tonnes of sink, as India has promised to do, would mean taking the size of the sink close to 35 billion tonnes of carbon dioxide equivalent.

Considering the rate of growth of the carbon sink in the last few years, that is quite a stiff target India has set for itself.

In the last two years, the carbon sink has grown by just about 0.6%.

Even compared to 2005, the size of carbon sink has increased by barely 7.5%.

To meet its NDC target, even with most optimistic estimates of carbon stock trapped in trees outside of forest areas, the sink has to grow by at least 15% to 20% over the next ten-year period.

Way forward:

There are two key decisions to be made in this regard — selection of the baseline year, and addition of the contribution of the agriculture sector to carbon sink.

The baseline year can impact the business-as-usual projections for 2030. BAU projections are obtained using policies that existed in the baseline year.

Now, there has been a far greater effort in recent years to increase the country’s forest cover.

So a 2015 baseline would lead to a higher BAU estimate for 2030 compared to a 2005 baseline when less efforts were being made to add or regenerate forests.

The FSI projections made last year used a 2015 baseline. If 2005 baseline is used, India’s targets can be achieved relatively easily.

India’s emissions intensity target uses a 2005 baseline, so there is an argument that the forest target should also have the same baseline.

But there is a strong demand for a 2015 baseline as well, so that it results in some concrete progress in adding new forest cover.

When India announced its NDC in 2015, it did not mention the baseline year. It has to decide on it before it reconfirms its NDC targets ahead of the next climate change meeting in Glasgow towards the end of the year.

At that time, India would also have to specify whether it wants to count the carbon sink in the agriculture sector in its target.
The NDC specifically mentions that an “additional” 2.5 to 3 billion tonnes of carbon sink would be created through “additional forest and tree cover by 2030”, but Environment Ministry officials insist that tree cover outside forest areas must include agriculture as well.

How far do you think privatizing multi-use forest areas is a viable option to ensure contributions to commitments made to mitigate climate change? Critically examine in the backdrop of recently proposed Green Credit Scheme. (250 words)

The Hindu

Why this question:
The Forest Advisory Committee, an apex body tasked with adjudicating requests by the industry to raze forest land for commercial ends, has approved a scheme that could allow “forests” to be traded as a commodity. If implemented, it allows the Forest Department to outsource one of its responsibilities of reforesting to non-government agencies. Thus the question.

Key demand of the question:
Discuss in detail the pros and cons of privatizing multi-use forest areas in the country. Also highlight the opportunities and obstacles pointed out by the Green Credit Scheme.

Directive:
Critically examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:
Introduction:
First discuss basic statistics of the forest area available in the country and the quantum of area required by the Industries.

Body:
Discuss that the Green credit scheme allows “forests” to be traded as a commodity. It allows the Forest Department to outsource one of its responsibilities of reforesting to non-government agencies. Then move onto present the advantages and disadvantages of such a move. Explain that such a scheme will encourage plantation by individuals outside the traditional forest area and will help in meeting international commitments such as sustainable development goals and nationally determined contributions. Also explain that Forests are treated as a mere commodity without any social or ecological character and that could pose a major challenge in meeting the goals of the policy.

Conclusion:
Conclude that a balanced approach is the need of the hour.

Introduction
The Forest Advisory Committee, an apex body tasked with adjudicating requests by the industry to raze forest land for commercial ends, has approved a scheme that could allow “forests” to be traded as a commodity. If implemented, it allows the Forest Department to outsource one of its responsibilities of reforesting to non-government agencies.

The total forest cover of the country is 7,12,249 sq km which is 21.67% of the geographical area of the country. The 2019 survey has found an increase of 5,188 sq km in total forest and tree cover in the country. The nation’s tree and forest cover has largely hovered from 21-25% and is short of the National Forest Policy, 1988, which envisages 33% to be under such cover.

Body
- **Green Credit Scheme**

Forest Advisory Committee (FAC) has recently proposed to overhaul the compensatory afforestation process by introducing the Green Credit Scheme.

- It will allow agencies to identify appropriate non-forest land and begin growing plantations. These agencies could be private companies, village forest communities or NGOs.
- After three years, the land would be eligible to be considered as compensatory forest land.
- An industry needing forest land could then approach the agency and pay for parcels of such forested land.
- The participating agency will be free to trade its asset, that is plantation, in parcels, with project proponents who need forest land.

The concept of privatizing is thus introduced with this idea.

- **Privatizing of forest as a Viable Option**

**Advantages**

- The FAC believes that such a scheme will encourage plantation by individuals outside the traditional forest area.
- It will help in meeting international commitments such as sustainable development goals and nationally determined contributions.
- It will also help in solving various industries’ complain that they find it hard to acquire appropriate non-forest land, which has to be contiguous to existing forest.
- The scheme will also supplement the **Green India Mission**, which is one of India’s initiatives to combat climate change.
  - It aims to sequester 2.523 billion tonnes of carbon by 2020-30 and this involves adding 30 million hectares in addition to an existing forest.

However, it does not solve the core problems of afforestation or even compensatory afforestation.

**Disadvantages**

- It will allow the Forest Department to outsource one of its responsibilities of reforestation to non-government agencies. These agencies may not realize the ecological value of forest, nor have resources to manage them effectively.
- This could allow for “forests” to be traded as a commodity. It could lead to the privatization of multi-use forests into monoculture plantations, and even their destruction, along with loss of biodiversity and violation of land rights.
- If the economic value of these plantations becomes lucrative, it can pose a serious threat to agricultural land, by diverting the latter for plantations.
- If the company raising the plantation does not wish to trade, it can retain and harvest the plantation for timber, once ready. This goes against the rehabilitative
principle of compensatory afforestation which seeks to restore the ecological imbalance.

- The crisis of fragmentation of forests and the spike in man-animal conflict will augment.
- Plantations cannot replace biodiversity integral to natural forests.

Conclusion

The value of forests must be reimagined, pushing the policy discourse on nature beyond the narrow confines of profiteering. But if policy is to reflect this change in perspective, the apparatus of forest management must be made inclusive. The forest advisory committee, (the green credit scheme is its brainchild) must work in tandem with all stakeholders, including independent voices, so as not to miss the wood for the trees.

Gram Sabha-based forest governance is quintessential to sustain management and conservation of forests along with implementation of community forest resource rights under the Forest Right Act of the country. Elucidate.(250 words)

Live Mint

**Why this question:**
The article discusses in detail the role that Gram Sabhas have to play in managing and conserving forests in the country.

**Key demand of the question:**
Discuss in what way Gram Sabha-based forest governance is quintessential to sustain management and conservation of forests along with implementation of community forest resource rights under the Forest Right Act of the country.

**Directive:**
*Elucidate* – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:**

**Introduction:**
Briefly highlight the importance of conserving our forests.

**Body:**
Discuss Role of Gram Sabhas in general.

Explain why they should be given importance in the governance of the forest areas.

More than 300 million people including tribals live in and around forest areas in India, depending on forests for their sustenance and livelihood. Ecological security is the prime objective of National Forest Policy, 1988, but forest-dwelling communities cannot be separated from forests.

Explain that Provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996 and Forest Right Act, 2006 have gone further to empower gram Sabhas for the management of forest resources. Take queues from the article and explain in detail the relevance.

**Conclusion:**
Conclude with way forward and reassert that The gram Sabha-based forest governance has to be implemented in a large way to maintain sustainability of forests and improve their quality.

**Introduction:**
There are more than 300 million people including tribals live in and around forest areas in India, depending on forests for their sustenance and livelihood. Ecological security is the prime objective of National Forest Policy, 1988, but forest-dwelling communities cannot be separated from forests.

Telegram: https://t.me/insightsIAStips

Youtube: https://www.youtube.com/channel/UCpoccbCX9GElwaile4HljwA

Facebook: https://www.facebook.com/insightsonindia
Body:

Laws that empower gram sabhas for the management of forest resources:
- The 73rd Constitutional amendment act provided importance to such institutions for resource management.
- Provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996
- Forest Right Act, 2006

Importance of Gram Sabha-based forest governance:
- India’s Constitution places trust in village-level institutions for conservation of forest resources.
- Gram Sabha ensures that the locals have a direct say in matters related to them thus devolving power at the grass root level
- The involvement of communities in forest management was initiated in 1990 through joint forest management institutions—a government-driven programme which did not achieve the objective of involvement of people in decision-making for sustainable forest management.
- Tribals have been residing in the forest for years, so the local community best know how the area around them can be developed but sustainably
- Over one million hectares of forests are managed by gram sabhas in eight states—Maharashtra, Chhattisgarh, Odisha, Madhya Pradesh, Kerala, Andhra Pradesh, Telangana and Rajasthan.
- Their knowledge about traditional use of forest produce as medicines can be harnessed for the benefit of all.
- Gram sabhas can potentially administer governance of more than 34 million hectare of forests.
- By demanding for their forest rights they in effect act as a check on reckless deforestation in name of development
- The Union ministry of tribal affairs has taken the initiative to conduct research for the development of models of forest governance based on gram sabhas.

Challenges faced by Gram Sabhas:
- There are no guidelines with respect to the management of community forest resources by gram sabhas.
- There are examples when some gram sabhas have shown both authority and responsibility, including when mining projects in Odisha were stopped by the gram sabha to save forests and livelihood.
- the present system of so many committees for the natural resource management at village level, including Joint Forest Management Committee, Biological Diversity Management Committee, Watershed Management Committee, and Forest Right Committee, is creating confusion.
- The opinions and recommendations given by the Gram Sabha regarding the sustainable use of forest resources are side-lined by the government
- The tribal communities routinely face existential threat by losing onto their land to development projects

Way forward:
- The supremacy of the gram sabha must be maintained while preparing governance models under the umbrella of national and state government policies, regulations and judicial orders.
- The bureaucracy must share authority with gram sabhas and the state forest department must perform the regulatory and monitoring role.
• There is need to have one committee which can have separate sub-committees for the management of forests and biodiversity.
• The gram sabha can maintain three bank accounts—operating account for implementing government schemes, core account for revenue received through sale of forest produce, and biodiversity account for receiving money for allowing access benefit sharing of bio-resources utilized by industry.
• The gram sabha-based forest governance has to be implemented in a large way to maintain sustainability of forests and improve their quality, along with implementation of community forest resource rights under the Forest Right Act, 2006.

Explain why the crisis engulfing nature matters for business and the economies of the world countries? Analyse in the backdrop of recently released nature risk rising report by World Economic Forum (WEF). (250 words)

India Times

Why this question:
The World Economic Forum (WEF) released a report titled Nature Risk Rising, the first in the series of New Nature Economy (NNE) reports. Thus the question.

Key demand of the question:
Discuss in detail the findings of the report; discuss why nature matters to the economies and business of the world. Highlight their importance.

Directive:
Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:
Introduction:
Start with the fact that The World Economic Forum is launching a series of New Nature Economy (NNE) reports in 2020, making the business and economic case for safeguarding nature.

Body:
Discuss the details of the report and its key findings – The series of reports is being developed under the umbrella of the Nature Action Agenda (NAA), a platform for committed actors to catalyze public-private momentum in the run-up to the UN Convention on Biological Diversity COP15 – in Kunming, China, in October 2020.
The report explains how nature-related risks matter to business and why they must be urgently mainstreamed into risk management strategies.

Key findings:
Around $44 trillion of economic value generation – more than half of the world’s total GDP – is moderately or highly dependent on nature and its services and is therefore exposed to nature loss. Together, the three largest sectors that are highly dependent on nature generate close to $8 trillion of gross value added (GVA): construction ($4 trillion); agriculture ($2.5 trillion); and food and beverages ($1.4 trillion), the report says.

Conclusion:
Conclude with significance of the report.

Introduction:
The World Economic Forum (WEF) in collaboration with PwC released a report titled “Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy”. The report is the 1st in a series for the New Nature Economy(NNE). As per the report, global businesses are more than
dependent on nature with an estimated exposure of $44 trillion which is half of world GDP (Gross Domestic Product).

Body:

Crisis engulfing nature matters for business and the economies of the world countries because:

- **Threat to plants & animals:**
  - 25% of the assessed plant & animal species are in threat due to human actions. Nearly a million species are to face extinction within decades. Human activities have severely altered 75% of land and 66% of marine environments too.

- **Nature dependent industries:**
  - Many countries are nature dependent industries. Among them, the 3 largest industries dependent on nature are Construction ($ 4 trillion), agriculture ($ 2.5 trillion) and food and beverages ($ 1.4 trillion). Their combined value is twice the size of Germany’s economy.
  - China, the EU (European Union) and the United States(US) have the highest absolute economic value in nature dependent industries generating $2.7 trillion, $2.4 trillion and $2.1 trillion respectively.

- **Resources relied on by industries:**
  - 163 industry sectors have analysed that the GDP is highly dependent on nature and its services. Pollination, water quality and disease control are three examples of the services provided by an ecosystem.
  - Many industries rely on either the direct extraction of resources from forests & oceans or the provision of ecosystem services. Some of the examples include healthy soils, clean water, pollination and a stable climate.
  - Industries highly dependent on nature generate 15% of global GDP which is $13 trillion, whereas moderately dependent industries generate 37% i.e., $31 trillion.
  - Construction (USD 4 trillion), agriculture (USD 2.5 trillion) and food and beverages (USD 1.4 trillion) are the three largest industries that depend most on nature.

- **Framework adoption:**
  - The WEF has already adopted a framework proposed by the Financial Stability Board’s Task Force on Climate-related Financial Disclosures (TCFD) to identify, measure and manage climate risks which could be used to manage the nature risks.

Way forward:

- We have the power to change this.
- Humanity urgently needs to rethink its relationship with nature, in order to halt and reverse the alarming degradation of the natural world.
- Business leaders have a crucial role to play, by putting nature at the core of their processes and decision-making and systematically identifying, assessing, mitigating and disclosing nature-related risks to avoid severe consequences.
- Businesses can be part of the global movement to protect and restore nature.

Conclusion:

Nature loss matters for most businesses – through impacts on operations, supply chains, and markets. Despite an increasing focus on nature loss, there is still a limited understanding of why it matters to businesses and what the private sector can practically do about it. Thus, it is vital to
prioritize the protection of nature’s assets and services within the broader global economic growth agenda.

Recently India achieved the complete phase out of one the most potent ozone depleting chemical – Hydrochlorofluorocarbon (HCFC)-141 b, discuss the impact of such a move.(250 words)

Reference: Vikas Pedia

Why this question:
India has successfully achieved the complete phase out of Hydrochlorofluorocarbon (HCFC)-141 b. Thus the question.

Key demand of the question:
Discuss in detail the positive impact of Phasing out of Ozone Depleting substances and also the challenges involved in doing so.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
India has successfully achieved the complete phase out of Hydrochlorofluorocarbon (HCFC)-141 b, which is a chemical used by foam manufacturing enterprises and one of the most potent ozone depleting chemical after Chlorofluorocarbons (CFCs). (HCFC)-141 b is used mainly as a blowing agent in the production of rigid polyurethane (PU) foams.

Body:
Government of India through Ministry of Environment, Forest and Climate Change Brought out a notification through which the issuance of import license for HCFC-141b is prohibited from 1st January 2020 under Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2019 issued under Environment (Protection) Act, 1986.

Nearly 50% of the consumption of ozone depleting chemical in the country was Attributable to HCFC-141b in the foam sector.

Discuss in detail the environmental benefits of the phase out; healing of the stratospheric ozone layer, aids climate change mitigation etc.

Explain the challenges involved in phasing out.

Conclusion:
Conclude with way forward.

Introduction:
The Ministry of Environment, Forest and Climate Change (MoEF&CC) notified that the issuance of import license for HCFC-141b is prohibited from 1st January 2020 under Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2019. Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2019 have been issued under the Environment (Protection) Act, 1986. This step is among the first at this scale in Article 5 (special status of developing countries) parties under the Montreal Protocol.

Body:
HCFC- 141 b:
- It is a chemical used by foam manufacturers.
- It is used mainly as a blowing agent in the production of rigid polyurethane (PU) foams.
It is one of the most potent ozone depleting chemical after Chlorofluorocarbons (CFCs).
the foam manufacturing sector is a mix of large, medium and small enterprises having varying capacities, with the preponderance of Micro, Small, and Medium Enterprises (MSMEs).

Impacts of HCFCs on the environment:
- Hydrochlorofluorocarbons (HCFCs) are a large group of compounds, whose structure is very close to that of Chlorofluorocarbons (CFCs), but including one or more hydrogen atoms.
- As VOCs, they may be slightly involved in reactions to produce ozone, which can cause damage to plants and materials on a local scale.
- At a global level however, releases of HCFCs have serious environmental consequences. Although not as stable and therefore not so persistent in the atmosphere as CFCs, HBFCs or Halons, they can still end up in the higher atmosphere (stratosphere) where they can destroy the ozone layer, thus reducing the protection it offers the earth from the sun's harmful UV rays.
- HCFCs also contribute to Global Warming (through “the Greenhouse Effect”). Although the amounts emitted are relatively small, they have a powerful warming effect (a very high “Global Warming Potential”).

Impact of phasing out of hydrochlorofluorocarbons (HCFC)-141 b:
- Nearly, 50% of the consumption of ozone depleting chemicals in the country was attributable to HCFC-141 b in the foam sector.
- India has now emerged as one among the few countries globally and a pioneer in some cases in the use of technologies, which are non-Ozone Depleting and have a low Global Warming Potential (GWP).
- The phase out of HCFC-141b from the country has twin environmental benefits, viz, assisting the healing of the stratospheric ozone layer, and towards climate change mitigation due to transitioning of foam manufacturing enterprises at this scale under HPMP to low global warming potential alternative technologies.

Conclusion:
India is one of the few countries that are pioneer in the use of non-Ozone Depleting technologies and have a low Global Warming Potential (GWP). The Ministry also adopted a structured approach to engage with foam manufacturing enterprises for providing technical and financial assistance in order to transition to non-ODS and low GWP technologies under the HCFC Phase-out Management Plan (HPMP).

The growing global stalemate over the climate crisis offers India the chance to focus upon the State and sub-State levels on developing its climate change action. Comment.

Reference: The Hindu

Why this question:
The article discusses in detail the prevailing climate crisis the world countries are facing and as to what should be India’s role in dealing with it by focusing upon State and Sub-State level planning and development.

Key demand of the question:
Discuss in detail the growing climate crisis in the world; explain what India should be doing to avoid the crisis in the coming future.

Directive:
Comment—here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:
Explain with examples the ongoing climate crisis facing the world.

Body:
Discuss that the stalemate at the global level offers India the opportunity to focus earnestly on developing its climate change action at State and sub-State levels, where the environment and climate continue to be relegated to peripheral status.
Explain what will be the benefits of doing so—Attention to climate change offers co-benefits to India for development.
Elaborate upon the efforts being made by India.

Conclusion:
Conclude with what should be the way forward for India and efforts in this direction.

Introduction:
Global climate change has already had observable effects on the environment. Glaciers have shrunk, ice on rivers and lakes is breaking up earlier, plant and animal ranges have shifted and trees are flowering sooner.

Almost everyone agrees that the recent global climate summit, the annual Conference of the Parties (COP25), held in Madrid in December 2019, was a failure and that the multilateral process to address the climate crisis is broken. At several discussions on finance, ambition, transparency of support and pre-2020 action, wealthy countries were recalcitrant.

Body:

Ongoing climate crisis facing the world:

- Global warming above pre-industrial levels has touched about 1 degree Celsius.
- The IPCC 1.5 report basically says, at the current rates at which we are producing greenhouse gases, we are looking at a couple of decades really before what we have available is exhausted.
- At one level, for many people climate change has become an existential problem, a problem that risks undermining the conditions for productive life and therefore a problem that does not override but certainly permeates all kinds of other issues.
- For many others, climate change is a distant problem that is overwhelmed by more immediate issues.
- The rapid change of climate change is likely to exceed the ability of many species to migrate or adjust. Experts predict that one-fourth of Earth’s species will be headed for extinction by 2050 if the warming trend continues at its current rate.
- Sea levels have risen between four and eight inches in the past 100 years. Current projections suggest that sea levels could continue to rise between 4 inches and 36 inches over the next 100 years.
- As temperatures rise globally, droughts will become more frequent and more severe, with potentially devastating consequences for agriculture, water supply and human health. This phenomenon has already been observed in some parts of Asia and Africa, where droughts have become longer and more intense.
- Hot temperatures and dry conditions also increase the likelihood of forest fires.

The stalemate at the global level offers India the opportunity to focus earnestly on developing its climate change:
• The stalemate at the global level offers India the opportunity to focus earnestly on developing its climate change action at State and sub-State levels, where the environment and climate continue to be relegated to peripheral status.

• Over decades, this has led to the destruction of ecosystems, forests, waterbodies and biodiversity.

• Numerous studies have shown the high economic and ecological costs and loss of lives due to extreme events.

• We do not need more data to stimulate action. As is also well recognised, India is extremely vulnerable to the effects of warming.

• With support from bilateral agencies, States initially took different approaches in the first round of State Action Plans on Climate Change (SAPCCs).

• Some of them set up separate climate change cells while some collaborated with academic institutions.

• A few produced detailed action plans while others developed strategy documents. Still others integrated improvements in energy efficiency (contributing to reducing emissions) while almost all focused on adaptation.

• Attention to climate change offers co-benefits to India for development. For instance:

  • **Improving energy efficiency in industry reduces costs and local pollution;** improving public transport reduces congestion, pollution and improves access; and using natural farming methods reduces fossil fuel-based fertilizers, improves soil health and biodiversity.

  • **These show that there are synergies in the steps to be taken for good development and climate change.** Emissions), while almost all focused on adaptation.

  • **As the next round of the SAPCCs are being drawn up, under recommendations from the Centre, the focus ought to be on integrating the response to climate change with the development plan in different departments.**

  • **Since the States together are to deliver the Nationally Determined Contributions (NDCs) that India has promised, it means that they require guidance from the Centre.**

**Major initiatives of the Government towards combating climate change:**

• **National Action Plan on Climate Change (NAPCC):** The Action plan covers eight major missions on Solar, Enhanced Energy Efficiency, Sustainable Habitat, and Water, Sustaining the Himalayan Ecosystem, Green India, Sustainable Agriculture and Strategic Knowledge on Climate Change.

• **International Solar Alliance (ISA):** ISA was jointly launched by the Prime Minister Narendra Modi, and the then President of France, Francois Hollande in Paris on the side-lines of CoP 21 in 2015. The vision and mission of the alliance is to provide a dedicated platform for cooperation among solar resource rich countries that lie completely or partial between the Tropics of Capricorn & Cancer.

• **State Action Plan on Climate Change (SAPCC):** State governments have drafted climate strategies aligned with the eight National Missions under the NAPCC. The strategies focus on issues ranging from climate mitigation, energy efficiency, and resource conservation to climate adaptation.

• **FAME Scheme for E-mobility:** Union Government in April 2015 launched Faster Adoption and Manufacturing of Hybrid and Electric vehicles (FAME) – India Scheme with an aim to boost sales of eco-friendly vehicles in the country. It is a part of the National Mission for Electric Mobility.

• **Atal Mission for Rejuvenation & Urban Transformation (AMRUT)** for Smart Cities.

• **Pradhan Mantri Ujjwala Yojana:** The scheme provides LPG connections to five crore below-poverty-line beneficiaries. The connections are given in the name of women beneficiaries to
reduce their dependence on fossil fuels and conventional fuel like cow dung for cooking food, thus reducing air pollution.

- **UJALA scheme:** The scheme was launched by the Prime Minister Narendra Modi in January 2015 with a target of replacing 77 crore incandescent lamps with LED bulbs. The usage of LED bulbs will not only result in reducing electricity bills but also help in environment protection.

- **Swachh Bharat Mission:** Swachh Bharat Abhiyan (Clean India Movement) is a campaign that was launched by Prime Minister Narendra Modi on October 2, 2014. The campaign seeks to clean the streets, roads and infrastructure of the country’s 4041 statutory cities and towns.

**On integration with states, districts and sub-district levels:**

- Line departments for government schemes and programmes in key development sectors, such as agriculture, transport and water, should be identified for carefully integrating actions that respond to climate change.

- This integration should also take place at district and sub-district levels. But only a demonstration of its success in some departments would show how this can be done. But first and foremost, States need to get the signal that climate is an urgent issue.

- How funds for implementing SAPCCs will be obtained is not clear. There will not be enough from the Green Climate Fund, Adaptation Fund and bilateral agencies to support all States unless new sources are found.

- The coal cess in India is a good initiative, and as others have pointed out, could be used for environment and climate-related expenses. Similar alternative sources from high emissions’ industries and practices would be an option, but still probably insufficient.

- There also needs to be a clear analysis of how the first round of action plans fared

- If States are to develop SAPCCs that would ultimately add up to India’s NDCs, then the country needs reliable greenhouse gas inventories

- Individual research groups and the civil society initiative, GHG Platform India, have been producing such inventories and would be useful in synchronizing and coordinating State and Central mitigation programmes.

**Conclusion:**

States must also develop their programmes with longer timelines, with mid-course correction based on lessons and successes that can be integrated into the next stage of the plan. If the second round of SAPCCs were treated as an entry point to long-term development strategy, the States and the country would be better prepared for climate change. Ultimately, climate should be part and parcel of all thinking on development.

**Discuss the importance and role played by Wetlands in the Ecological conservation of Earth. (250 words)**

Reference: *The Hindu*

**Why this question:**

37 sites in the country have been freshly recognized under the international treaty of Ramsar Convention.

**Key demand of the question:**

Discuss in detail the importance and role played by Wetlands in the Ecological conservation of Earth.

**Directive:**

*Discuss* – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.
Structure of the answer:

Introduction:
First discuss what wetlands are – Wetlands are defined as: “lands transitional between terrestrial and aquatic eco-systems where the water table is usually at or near the surface or the land is covered by shallow water”.

Body:
Discuss first the importance of wetlands to the ecosystem.
Wetlands are highly productive ecosystems that provide the world with nearly two-thirds of its fish harvest.
Wetlands play an integral role in the ecology of the watershed. The combination of shallow water, high levels of nutrients is ideal for the development of organisms that form the base of the food web and feed many species of fish, amphibians, shellfish and insects.
Wetlands’ microbes, plants and wildlife are part of global cycles for water, nitrogen and sulphur.
Wetlands store carbon within their plant communities and soil instead of releasing it to the atmosphere as carbon dioxide.
Wetlands function as natural barriers that trap and slowly release surface water, rain, snowmelt, groundwater and flood waters. Wetland vegetation also slow the speed of flood waters lowering flood heights and reduces soil erosion etc.
Discuss the importance of Ramsar convention. Explain the scenario in India.

Conclusion:
Conclude that along with such treaties, spreading awareness by initiating awareness programs about the importance of wetlands and constant monitoring of wetlands for their water quality would provide vital inputs to safeguard the wetlands from further deterioration.

Introduction:
Wetlands are Ecotones between terrestrial and aquatic ecosystems. They get periodically get inundated with water. They support a flourishing community of aquatic organisms including frogs and other amphibians. Swamps, marshes and mangroves are examples of wetlands.

India has added 10 more wetlands to sites protected by the Ramsar Convention, With this, a total of 37 sites in the country have been recognized under the international treaty. Wetlands declared as Ramsar sites are protected under strict guidelines.

Body:
The importance of wetlands to the ecosystem:

• Wetlands play an integral role in the ecology of the watershed. The combination of shallow water, high levels of nutrients and primary productivity is ideal for the development of organisms that form the base of the food web and feed many species of fish, amphibians, shellfish and insects.

• Wetlands are among the most productive ecosystems in the world, comparable to rain forests and coral reefs. An immense variety of species of microbes, plants, insects, amphibians, reptiles, birds, fish and mammals can be part of a wetland ecosystem.

• Wetlands are indispensable for the countless benefits or “ecosystem services” that they provide humanity, ranging from freshwater supply, food and building materials, and biodiversity, to flood control, groundwater recharge, and climate change mitigation.

• Wetlands are an important resource for sustainable tourism.

• They carry out water purification, filtration of sediments and nutrients from surface water.

• They help in nutrients recycling, groundwater recharging and stabilization of local climate.
• Buffer (act as a riparian buffer) shorelines against erosion and pollutants.
• They act as a genetic reservoir for various species of plants (especially rice).
• Wetlands function as natural sponges that trap and slowly release surface water, rain, snowmelt, groundwater and flood waters.

Role played by Wetlands in the Ecological conservation of Earth:

• **Flood attenuation**: many water-stressed regions in South Africa are subject to high intensity rainfall over very short periods, often resulting in flash floods. Wetlands are effective in spreading out and slowing down floodwaters, thereby reducing the severity of floods downstream.
• **Regulation of stream flow**: wetlands are often compared to sponges, in their ability to absorb water in wet periods, and release it during dry periods.
• **Sediment trapping**: wetlands reduce runoff velocity, and through their vegetation are effective in trapping and retaining sediment.
• **Phosphate and nitrate assimilation**: removal by the wetland of phosphates and nitrates carried by runoff water. This takes place through the presence of wetland vegetation and the action of anaerobic bacteria (which would otherwise not exist in fast-flowing, energised streams or rivers).
• **Erosion control**: wetlands can limit the extent of erosion, predominantly through the protection provided by vegetation, and through their ability to reduce stream flow velocity.
• **Maintenance of biodiversity**: through the provision of habitat and the maintenance of natural processes, wetlands contribute to supporting and maintaining biodiversity.

Ramsar convention

Ramsar convention is an international treaty for the conservation and wise use of wetlands. It is named after the Iranian city of Ramsar, on the Caspian Sea, where the treaty was signed on 2 February 1971. It is Known officially as ‘the Convention on Wetlands of International Importance especially as Waterfowl Habitat’ (or, more recently, just ‘the Convention on Wetlands’), it came into force in 1975.

Ramsar “Wise use concept” requires that wetlands’ ecological character should be maintained within the framework of sustainable development. This concept recognizes that:

• Developmental activities are inevitable in wetland areas such as construction of roads, electricity infrastructure, schools and hospitals for poor families.
• Economic activities are also inevitable in wetland areas such as fisheries, farming and tourism.
• Such activities aid in human development and economic development in a wetland area.
• And for these activities, wetland’s land, water and bio-resources will have to be used.
• However, these resources should not be used in a manner that wetland’s ecological character is harmed.

Conclusion:

Wetland conservation is crucial for protecting biodiversity and mitigating the adverse impacts of climate change. At the same time, due to high level of poverty & population, it’s not possible for developing countries & Least Developed Countries (LDCs) to keep wetlands in pristine conditions completely free from human activities.
How to tackle the groundwater crisis in India especially keeping in view the demands of the farmer? Discuss. (250 words)

Reference: Indian Express

Why this question:
The article highlights the need to switch to newer approaches that are centric to farmers’ demands and yet aid addressing the groundwater crisis.

Key demand of the question:
Discuss the rising issue of groundwater crisis in India and need to recognise the fact that farmers can be centric to approaches that can resolve the issue of groundwater crisis.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:
First discuss key notable facts pointing at the crisis.

Body:
Discuss why there is a crisis in the groundwater in the country.
Establish the link existing between the groundwater crisis and agriculture; explain the role played by farmers.
Explain the factors responsible for the crisis and that agriculture is a major contributor and thus any approach that aims to address this issue must centre on agriculture with farmer as a key stakeholder.

Conclusion:
Conclude with solutions. Take hints from the articles and suggest way forward.

Introduction:
In 2020, according to the Niti Aayog, 21 Indian cities, including Delhi, Chennai and Bengaluru, will run out of groundwater. The Aayog’s “Composite Water Management Index” (CWMI), released in June, notes that “Seventy per cent of our water resources are contaminated”. Several other reports, including the Central Water Commission’s “Water and Water Related Statistics 2019”, have thrown light on the poor state of India’s groundwater aquifers.

Body:
The groundwater crisis is embedded at two different levels:

- Groundwater exploitation of aquifers (where groundwater is stored) in different parts of the India and
- Groundwater contamination that find origins, both in geogenic source such as Arsenic and Fluoride along with anthropogenic sources of contamination primarily due to poor disposal of waste and wastewater.

Present Water Crisis

- Water levels in India’s major reservoirs have fallen to 21 per cent of the average of the last decade.
- Fifty four per cent of the country’s groundwater is declining faster than it is being replenished.
- There is a crippling dependence on monsoon rains to replenish most of India’s key water sources– underground aquifers, lakes, rivers and reservoirs.
- Close to half the country, about 600 million people, face severe scarcity year after year.
A June 2018 Niti Ayog report forecasts water demand will be twice the present supply and India could lose up to 6 per cent of its GDP.

India’s water table is falling in most parts; there is fluoride, arsenic, mercury, even uranium in our groundwater.

The groundwater and sand extraction from most river beds and basins has turned unsustainable.

Tanks and ponds are encroached upon.

Dug-wells and borewells are constructed with alarming impunity to slide deeper and deeper to suck water from greater depths.

Water is being diverted from food-crops to cash-crops; livelihoods to lifestyles; rural to urban—mismanagement is a bigger reason for the drought.

Water shortages are hurting India’s ability to produce power and 40% thermal power plants are in areas facing high water stress, a recent World Resources Institute report says.

Not only farmers, urban dwellers in cities and towns across India are also staring at a never seen before drinking water scarcity.

Residents in the arid Thar desert of Rajasthan are spending Rs 2,500 to buy 2,500 litres of water which they share with their cattle.

Reasons for ground water exploitation in India:

Groundwater is one of the most important water sources in India accounting for 63% of all irrigation water and over 80% of the rural and urban domestic water supplies.

Subsidies:

Subsidies on electricity are thought to play a central role in the Indian groundwater crisis.

The vast majority of groundwater pumps are unmetered, and if charged, are billed at a flat, non-volumetric, and highly subsidized tariff.

Water intensive crops:

Government encourages farmers to produce water-intensive crops like rice and sugarcane through increased minimum support prices (MSP). This has also led to groundwater depletion, income inequality and unsustainable agriculture.

Farmers are digging more and more borewells, but the sources of the problem are many, including transition to water-intensive crops and spate of construction activity along catchment areas.

Unpredictable monsoon:

Successive droughts and erratic rainfall have led to excess extraction of groundwater. That explains 61 per cent decline in groundwater level in wells in India between 2007 and 2017.

Land use changes:

India’s huge groundwater-dependent population, uncertain climate-reliant recharge processes and indiscriminate land use changes with urbanization are among the many factors that have rendered the Indian groundwater scenario to become a global paradigm for water scarcity, for both quantity and quality.

Trans-boundary upstream water sources and archaic irrigation methods for the water shortage.

Government failure:
• The government finance for well digging and pump installation with capital subsidies, massive rural electrification and pervasive energy subsidies all have enabled this process to aggravate.
• In the north western parts of India and southern peninsula, the early and rapid rural electrification, free or subsidised power to the farm sector, large productive farmers and attractive procurement prices for major cereals led to intensive use of groundwater.
• Zero marginal cost of pumping and lack of restriction on volume of water resulted in inefficient and unsustainable use of the resource.
• Lack of adequate planning, crumbling infrastructure, indiscriminate drilling of borewells, large-scale consumption of water, and a false sense of entitlement in using water carelessly are causing water shortages.

Steps needed to be taken in this regard:
• Jal Shakti Ministry has been incorporated to address the issue. It clubs Water Resources, River Development and Ganga Rejuvenation) and has promised that it would ensure potable, piped drinking water to every home by 2024.
• Serious crisis has been partly avoided as rabi crops have been harvested and kharif crops are yet to be sown.
• States are also taking the lead in this regard with various schemes like:
  o Mukhya Mantri Jal Swavlamban Abhiyan-Rajasthan
  o Jalyukt Shivir Abhiyan-Maharashtra
• Hiware Bazar, a village in the Ahmednagar District of Maharashtra, India is noted for its irrigation system and water conservation program, with which it has fought the drought and drinking water problems.
• Prime Minister has written to all Sarpanch in the country to undertake water conservation programme within their village.
• India has had a Groundwater Management and Regulation Scheme since 2013.
• The Atal Bhujal Yojana will draw on some of the institutions created by this scheme, especially village-level water user associations (WUAs).
• The Atal Bhujal Yojana would do well to follow the Niti Aayog’s recommendations for strengthening the financial state of the WUAs, including allowing these bodies to retain a significant portion of irrigation fees.

Measures needed:

Reducing electricity subsidies:
• An analysis of panel data across 370 districts in India found that a reduction in electricity subsidy was correlated with a decrease in groundwater extraction.
• Most empirical studies are in favour of pricing electricity on the basis of actual consumption. They show that the energy prices at which the farmers start responding to tariff changes in terms of reducing the demand for water and electricity would be socio-economically viable.

Micro-irrigation:
• Encouraging farmers to adopt micro-irrigation techniques such as drip irrigation and micro-sprinklers.
• According to the CWMI report, adopting micro-irrigation techniques can save roughly 20% of the groundwater used annually on irrigation in India.

Creating awareness:
Creating sustainable change would require a bottom-up approach by empowering the local community to become active participants in managing groundwater.

Proper implementation of initiatives:

- 12th five-year plan proposed a policy of participatory groundwater management (PGM), which involves a collaborative approach among government departments, researchers, NGOs and community members.
- The plan involves training community workers to carry out aquifer mapping and implement innovative ways to use groundwater conservatively with the local community.
- Government has come up with a 6,000-crore World Bank-aided Atal Bhujal Yojana with community participation to ensure sustained groundwater management in overexploited and ground water-stressed areas in seven States.
- World Bank’s Water Scarce Cities Initiative seeks to promote an integrated approach to managing water resources and service delivery in water-scarce cities as the basis for building resilience against climate change.
- India needs better policies that directly help small-holders and labourers to adapt and adjust to risks associated with groundwater depletion and a more variable future climate.
- Crisis can be tackled by restoring and enhancing groundwater recharge areas, stopping polluted water from recharging groundwater, rainwater and roof top harvesting and the restoration of ponds, lakes and other river systems.
- Growing less water-intensive crops in the dry season and transitioning away from irrigation-intensive systems where there is little water.
- Behavioural economics and other novel approaches can be brought to bear on maximizing agricultural production with minimal water use instead of focusing on marginal increases in yields with unbounded water use.
- Water-deficient states should promptly move towards micro-irrigation systems. These techniques have significantly higher efficiency vis-à-vis flood irrigation techniques.
- States should continue to focus on command area development (CAD). This is now part of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) which focuses on “more crop per drop”.
- The cropping patterns in the states should be changed as per the agro-climatic zones. Improper cropping patterns affect both crop productivity and irrigation efficiency.
- Farmer producer organizations (FPO) provide a sense of ownership to farmers and encourage community-level involvement with lower transaction costs.
- India needs to establish data networks to track not only crop transpiration but also total inflows and recoverable outflows of irrigation water but also the losses to unrecoverable sinks such as evaporation.
- The CWMI report talks of other solutions like persuading farmers to adopt more efficient technologies such as drip irrigation.
- By emphasising on local-level institutions like the WUAs, the Atal Bhujal Yojana has signaled the Jal Shakti ministry’s inclination towards such persuasive solutions.

Conclusion:

There is a need to modernise the regulatory framework for accessing groundwater soon after massive expansion in mechanical pumping led to the realisation that recharge could not keep pace with use.
Discuss the recently released enforcement and monitoring Guidelines for Sand Mining 2020. How far will the new guidelines help in Sustainable Sand Management?

Explain (250 words)

Reference: Indian Express

Why this question:
Following a series of orders by the National Green Tribunal in 2018, the Ministry of Environment, Forests and Climate Change (MoEF) has for the first time released guidelines to monitor and check illegal sand mining in the country. Thus the question.

Key demand of the question:
Discuss in detail the new guidelines for sand mining and its significance; about illegal sand mining in India and government’s efforts to curb it.

Directive:
Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:
Introduction:
First discuss the status of sand mining in the country, use data and quote facts.

Body:
Discuss briefly the background – The Mines and Minerals (Development and Regulation) Act, 1957 has empowered state governments to make rules to prevent illegal mining, transportation and storage of minerals.

But in the recent past, it has been observed that there were a large number of illegal mining cases in the country and in some cases, many of the officers lost their lives while executing their duties to curb illegal mining.

Illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment.

Discuss the aspects of Sustainable Sand Management.

Explain how these new rules would aid in Sustainable Sand Management of the country.

Conclusion:
Conclude with significance of such a move.

Introduction:
The Union Cabinet has approved the promulgation of Mineral Laws (Amendment) Ordinance 2020 that will amend the Mines and Minerals (Development and Regulation) Act 1957 and Coal Mines (Special Provisions) Act 2015.

Body:

Background:
- In 2018, the government had allowed commercial mining by private entities but non-coal companies couldn’t participate in the auction.
- In August 2019, the government announced 100 per cent foreign direct investment (FDI) under the automatic route in coal mining for open sale, besides creating associated infrastructure, such as washeries.
- The Mines and Minerals (Development and Regulation) Act, 1957 has empowered state governments to make rules to prevent illegal mining, transportation and storage of minerals.
But in the recent past, it has been observed that there were a large number of illegal mining cases in the country and in some cases, many of the officers lost their lives while executing their duties to curb illegal mining.

Illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment.

Enforcement and monitoring Guidelines for Sand Mining 2020:

- The guidelines have basically laid down the uniform protocol to be followed by all states for monitoring and enforcement of rules. The gist of which is that enforcement of rules must continue even after the grant of green nod to the leaseholder through measures such as environment audit.
- In case of river sand mining, which is pertinent to Goa, the guidelines have stipulated that precautions must be taken that the water flows unhindered and the river meandering does not get affected.
- Furthermore, no river mining must be permitted in an area up to width of 100 meter from the active edge of the embankments or distance prescribed by the irrigation department.
- To curb illegal sand mining, the recommendation is to use of technology through remote surveillance, drones, etc.
- The states have been asked to monitor the movement of sand at different levels, for instance, at the time of sale and purchase at stockyards, and during transportation.
- The guidelines have said that sand transportation must be carried out with valid transport permits, and should be checked through an online monitoring system.
- The guidelines have recommended special monitoring near state borders.
- To identify illegal sand mining, the MOEF has suggested field visits, use of GPS instruments and satellite images to calculate the mined out area.
- The enforcement guidelines focus on the “effective monitoring of sand mining from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public and looks at a uniform protocol for the whole country”
- The 2020 guidelines are to be enforced simultaneously with the Sustainable Sand Management Guidelines, 2016, but in instances where the two sets of guidelines may seem to be in conflict, the new set will hold legal precedence.
- In cases where rivers become district boundaries or state boundaries, the districts or states sharing the boundary shall constitute the combined task force for monitoring of mined materials, mining activity and participate in the preparation of District Survey Reports (DSR) by providing appropriate inputs.
- The guidelines say the detailed survey needs to be carried out for quantification of minerals and the demand and supply of the riverbed material through market survey, including the future demand for the next five years.
- It is suggested that the state government should develop an online portal for sale and purchase of sand and RBM. The state government will also decide the model of sale and the price of RBM.

These new rules would aid in Sustainable Sand Management of the country in following ways:

- Identification and Quantification of Mineral Resource and its optimal utilization.
- To regulate the Sand & Gravel Mining in the Country since its identification to its final end-use by the consumers and the general public.
- Use of IT-enabled services & latest technologies for surveillance of the sand mining at each step.
- Reduction in demand & supply gaps.
Setting up the procedure for replenishment study of Sand.
Post Environmental Clearance Monitoring.
Procedure for Environmental Audit.
To control the instance of illegal mining.
The guidelines also push for online sales and purchase of sand and other riverbed materials to make the process transparent

Procedure for Comprehensive DSRs:

- While the Sustainable Sand Mining Guidelines, 2016, require the preparation of District Survey Reports (DSR), which is an important initial step before grant of mining lease, the government has found that the DSRs carried out by state and district administrations are often not comprehensive enough, allowing space for illegal mining.
- The new guidelines, therefore, list a detailed procedure of how the DSRs are to be made, including the development of an inventory, for the first time, of river bed material and other sand sources in the district.

Critical appraisal of the Guidelines:

- The guidelines has put the entire onus on the states to enforce and monitor sustainable mining while completely relieving itself from any kind of responsibilities.
- There is no mechanism on who will enforce and monitor sustainable mining in bigger projects while states have been told to monitor for projects below 100 hectares.

Conclusion:
The new guidelines also focused on involving the public in the process. It said once mining sites that are to be auctioned for sand are identified, they should be put in public for at least one month for obtaining their comments and the final list should be finalized in accordance with them. Thus, the new guidelines are nothing but a compilation of all court orders for curbing illegal sand mining over the last few years.

Disaster and disaster management.
Discuss some of the key challenges faced in the India’s Disaster Response Mechanism while suggesting solutions to the same. (250 words)

Reference: VIF India
Why this question:
The article discusses in detail the key challenges faced in the India’s Disaster Response Mechanism.

Key demand of the question:
Discuss in detail the key challenges faced in the India’s Disaster Response Mechanism and suggest solutions to overcome the same.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Start with what you understand by a Disaster and what is a Disaster Response Mechanism.

Body:
The question is straightforward and there isn’t much to deliberate.
Disaster is an event or series of events, which gives rise to casualties and damage or loss of properties, infrastructures, environment, essential services or means of livelihood on such a scale which is beyond the normal capacity of the affected community to cope with. Discuss some of the key Disasters faced by India – ranging from floods, droughts etc.

Discuss what are the key challenges in handling the Disasters in India.

Discuss the existing response mechanism available in the country.

Narrate the key challenges involved.

**Conclusion:**

Conclude with solutions to address them.

**Introduction:**

India is more vulnerable to natural disasters because of its unique geo-climatic condition, having recurrent floods, droughts, cyclones, earthquakes, and landslides. As India is a very large country, different regions are vulnerable to different natural disasters.

Disaster management in India refers to the conservation of lives and property during natural or man-made disasters. Disaster management plans are multi-layered and are planned to address issues such as floods, hurricanes, fires, mass failure of utilities, rapid spread of disease and droughts.

**Body:**

**Key challenges in handling the Disasters in India:**

**Lack of governance:**

- Most city governments struggle to deal with other day-to-day development challenges such as education, infrastructure and health, and so climate resilience and adaptation figure low on their priority list.
- Big cities such as Delhi and Mumbai have no city resilience plans because there is not just multiplicity of problems but also of authorities, which tend to work in silos whereas climate change cuts across several departments: public health, water, environment, energy, and social justice to name a few.

**Lack of financial management:**

- While the upfront capital costs of climate change mitigation and adaptation are being increasingly well understood, decision making and investment planning are hindered by uncertainty in the indirect costs and lack of simplified and transparent methods for assessing cost-benefit analysis of the steps that a city takes.
- They are not equipped with the financial management systems and processes required to access climate financing, such as green bonds

**Lack of awareness:**

1. Lack of active citizens who are informed and engaged on the subject of climate change and sustainability, which is essential to mitigate and build resilience, and demand accountability including transparency and information on liveability indicators such as air pollution levels, percentage of garbage segregated, modal share of public transport, walking and cycling.

**Lack of manpower:**
1. Then there is a shortage of skilled personnel specialized in areas such as environmental engineering, transportation, traffic management, disaster management, and related areas.

No Environmental Impact Assessment:

- Roads, railway lines, and housing colonies being laid and built without regard for natural waterways, but with formal planning permission.
- The State Disaster Management Agency also ignores them.
- Despite India being a signatory to the UN's Sendai Framework for Disaster Risk Reduction, little has changed on the ground.

Land use:

- Injudicious use of land is responsible for making states more prone to floods and landslides.
- However, other factors such as a change in land use patterns and climate change could have contributed to the situation on the ground.

Deforestation:

- Unfettered development activity had increased the chances of landslides, a major cause of casualties during the floods.
- Wetlands have been lost to development projects, construction of roads, and buildings at places too close to rivers.
- Other issues mentioned such as deforestation, encroachment, and unplanned construction are self-evident priorities when development is viewed using the lens of climate-resilient water management (CRWM).

Disaster management constraints:

- There is a need to enhance the role of Civil Defence in Disaster Management process and formulating an effective National Plan for Disaster Management.
- Even now, the communication systems at the local level haven't been much developed.
- There are no Standard Operating Procedures for the deployment of National Disaster Response Force.
- There have been many cases where there has been a relief and rescue mobilization but by the time the teams reach the damage would have already been done.
- Ignoring all the safety guidelines, dwellings, factories, and infrastructure facilities have been constructed in areas that are potentially vulnerable to natural hazards like floods.
- Disaster management plans exist on paper, but implementation remains a challenge.
- Despite the emphasis on a paradigm shift to a preparedness approach by the government, most parts of the country continue to follow a relief-centric approach in disaster management, rather than a proactive prevention, mitigation, and preparedness path.

Disaster Response Mechanism:

- National Disaster Response Force remains afflicted with a number of constraints, be it in terms of infrastructure, training, and equipment, etc. to upgrade its efficiency up to the international standard.
- About 2% of the GDP of India is spent annually on post disaster recovery and added that the country cannot alleviate poverty and achieve our developmental goals unless concrete steps are taken to make the country disaster resilient.
Lack of appropriate training infrastructure, well trained personnel and state of art technical equipment’s.

There is a need to bring about high end technology to increase our capacity in the domain of response and for that we need to integrate all our key institutions such as Indian Institute of Technology, Indian Institute of Management and Indian Space Research Organization in the area of research & development.

Non-availability of critical equipment’s, especially in the area of management of fire.

**Way forward:**

- Frame good macroeconomic policies before and after shocks.
- Provision in the budget for emergency spending helps crisis mitigation and resolution, insurance coverage and low public debt bolster government spending flexibility if reconstruction needs arise.
- Public investment in risk reduction.
- Improvement in government policy frameworks to better manage risk and mitigate economic and social costs.
- Estimate the probability of shocks and identify local vulnerabilities and integrate into plans for contingencies, investing in risk reduction, insurance, self-insurance, and disaster response.
- Tax and spending policies need to be flexible, to allow rapid redeployment of spending when needed.
- Coordination with foreign partners before disaster strikes could mobilize external assistance for risk reduction, which is likely to earn.
- NDRF needs to be better equipped with technical equipment and personnel training and emphasis should be laid on deploying young men in the response force.
- Need to have better coordination between NDMA and MHA for achieving an international standard response mechanism in India.
- Emergency medical response & preparedness for mass casualty management should acquire priority in the education curricula of medical nursing.
- The need and importance of priority attention to be accorded to training of personnel and procurement of modern equipment’s.
- The government should create an online software for the management of the onsite data which could be updated without getting in to protocols.

**Conclusion:**

Disaster is a catastrophic situation in which normal pattern of life and or ecosystem has been disrupted and extraordinary emergency interventions are required to save and preserve lives and or environment. The best strategy is to be Proactive rather than reactive in tackling natural disasters and in mitigating the disasters in case of natural or man-made disasters.

**Discuss the role of technology and advancement in Disaster management.(250 words)**

*Why this question:*

*Technology is being explored with great enthusiasm in solving various problems ranging from transportation to services delivery and industrial production. In this context it is important to analyze how Technology can help in disaster management.***

*Key demand of the question:*

*The question wants us to write in detail as to how Technology and innovation can play a role and help us in disaster management.***

*Directive:*


Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:
Define what constitutes a Disaster.

Body:
Discuss the role of technology in disaster management E.g. technology has proven its merit as a resource for disaster relief and preparedness;
Technology in emergency responder agencies- identify and track populations such as elderly communities or areas with high concentrations of babies and children etc.
help rescue workers identify support resources and plan logistics during emergencies, also facilitates real-time communication during a disaster, and emergency managers use the technology to forecast how residents will react to crises;
“By seeing how residents move, by gathering data on their experiences, what worked, what did not, and then going back after the emergency is over to study the emergency response and identify weak spots.” etc.
Discuss the utility of latest technologies such as Big data, artificial intelligence etc.

Conclusion:
Conclude with way forward.

Introduction:
A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community’s or society’s ability to cope using its own resources. Though often caused by nature, disasters can have human origins.

Body:
India is a large country and prone to a number of natural hazards. Among all the natural disasters that country faces, river floods are the most frequent and often devastating. The shortfall in the rainfall causes droughts or drought like stimuli in various parts of the country. The country has faced some severe earthquakes causing widespread damage to the life and property. India has a coastline of about 8000 km which is prone to very severe cyclonic formations in the Arabian Sea and Bay of Bengal. Another major problem faced by the country is in the form of landslides and avalanches.

The role of Information Technology in disaster prevention:

GIS AND REMOTE SENSING:

• GIS provides a tool for effective and efficient storage and manipulation of remotely sensed data and other spatial and non-spatial data types for both scientific management and policy oriented
• This can be used to facilitate measurement, mapping, monitoring and modelling of variety of data types related to natural
• The specific GIS application in the field of Risk Assessment are Hazard Mapping to show earthquake, landslides, floods or fire hazards.
• Theses map could be created for cities, districts or even for the entire country and tropical cyclone T
Maps are used by meteorological departments to improve the quality of the tropical storm warning services and quickly communicate the risk to the people likely to get affected by the

- GIS and Remote Sensing can be used for preparing seismic hazards maps in order to assess the exact nature of risks.
- GIS can be used in carrying out search and rescue operations in a more effective manner by identifying areas that are disasters prone and zoning them accordingly to risk magnitudes.

INTERNET:

- In the present era of electronic communication, the internet provides a useful platform for disaster mitigation communications.
- Launching of a well-defined website is a very cost-effective means of making an intra-national and international presence felt.
- It provides a new and potentially revolutionary option for the rapid, automatic, and global dissemination of disaster information. A number of individuals and groups, including several national meteorological services, are experimenting with the Internet for real-time dissemination of weather observation, forecasts, satellite and other data.
- In the most critical phase of natural disasters electronic communication have provided the most effective and in some instances perhaps the only means of communication with the outside world.

WARNING AND FORECASTING SYSTEM:

- An advance system of forecasting, monitoring and issuing early warnings plays the most significant role in determining whether a natural hazard will assume disastrous proportions or not.
- Indian Meteorological Department (IMD) provides cyclone warnings from the Area Cyclone Warning Centres (ACWCs). It has developed the necessary infrastructure to originate and disseminate the cyclone warnings at appropriate time.
- Seismological observations in the country are made through national network of 36 seismic stations operated by the IMD, which is the nodal body.
- Long term drought proofing programmes on the natural resources of the district have been greatly helped by the use of satellite data obtained by National Remote Sensing Agency.
- The drought assessment is based on a comparative evaluation of satellite observed green vegetation cover (both area and greenness) of a district in any specific time period by the National Agricultural Drought Assessment and Management System (NADAMS).
- Flood forecasts and warnings are issued by the Central Water Commission (CWC), Ministry of Water. These are used for alerting the public and for taking appropriate measures by concerned administrative and state engineering agencies in the flood hazard.
Conclusion:
Advancement in Information Technology in the form of Internet, GIS, Remote Sensing, Satellite communication, etc. Can help a great deal in planning and implementation of hazards reduction. For maximum benefit, new technologies for public communication should be made use and natural disaster mitigation messages should be conveyed through these measures.

Discuss in detail the Institutional Framework for Disaster Management in India. (250 words)

Reference: VikasPedia

Why this question:
The question is direct from the static portions of GS paper III.

Key demand of the question:
One must discuss in detail the Institutional Framework for Disaster Management in India.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Briefly explain the Conceptual and Institutional Framework of Disaster Management in the country.

Body:
The National Disaster Management Authority (NDMA) was set up in 2005 by the Government of India as an apex body to spearhead and implement a holistic and integrated approach to Disaster Management.
NDMA has the responsibility for laying down policies, plans and guidelines for disaster management and coordinating their enforcement and implementation for ensuring preparedness, mitigation and timely and effective response to disasters.
NDMA has launched a number of initiatives to take the message of Disaster management to all the stakeholders including community at the grassroots level.
NDMA has taken up mainstreaming of disaster risk reduction concerns in Government departments, States, Districts and civil society, School and College education, technical education, Panchayati Raj Institutions and Urban Local Bodies. NDMA has laid down the framework of capacity building and mainstreaming DM for various disasters through its National Disaster Management Guidelines.

Conclusion:
Conclude with way forward.

Introduction:
The Indian subcontinent is among the world’s most disaster prone areas. Almost 57% of the land is vulnerable to earthquake (high seismic zones III-V), 68% to drought, 8% to cyclones and 12% to floods.

Disaster management in India has evolved from an activity-based setup to an institutionalized structure; from single faculty domain to a multi-stakeholder setup; and from a relief-based approach to a ‘multi-dimensional approach for reducing risk’

Body:

Institutional framework for disaster management in India:
The institutional structure for disaster management in India is hierarchical and functions at four levels – Centre, State, District and Local. The structure draws involvement of various relevant ministries, government departments and administrative bodies.

National Disaster Management Authority (NDMA):

- The Disaster Management ACT, 2005 provides for setting up of a National Disaster Management Authority (NDMA) with the Prime Minister as Chairperson.
- NDMA is to be assisted by a National Executive Committee which comprises of Secretaries to the Government of India heading various Ministries or Departments having administrative control over Agriculture, Atomic Energy, Defence, drinking water supply, environment and forests, finance, health, power, rural development, science and technology, space, telecommunication, urban development and water resources.

State Disaster Management Authority (SDMA):

- The Disaster Management Act 2005 also provides for setting up of State Disaster Management Authorities under the Chairpersonship of the Chief Minister.
- State Authority is to be assisted by a State Executive Committee under the Chairpersonship of the Chief Secretary of the State.

District Disaster Management Authority (DDMA):

- The structure of disaster management institutions goes down to the district level where the responsibility is given to DDMA which is headed by the Collector/ District Magistrate with elected representative of the local authority as co-chairperson.
- DDMA will act as the planning, coordinating and implementing body for disaster management at the district

Local Authority:

- For the purpose of disaster management, local authorities would include Panchayati Raj institutions and those agencies which control and manage civic services.
- These bodies are required to ensure capacity building of their employees for managing disasters and carrying out relief and reconstruction activities in the affected areas.

National Institute of Disaster Management (NIDM):

- The institute was formed as National Centre for Disaster Management (NCDM) in 1995 but was re-designated as National Institute of Disaster Management in 2005 after the enacting of the Disaster Management Act.
- The institute is headed by the Union Home Minister and Vice-Chairman, NDMA also acts as the Vice-President of the Institute.

National Disaster Response Force (NDRF):

- NDRF was constituted in 2006 with 8 battalions drawn from the paramilitary forces.
- Presently it has strength of 10 battalions. General superintendence of the force vests in NDMA and the force is headed by the Director General of NDRF and Civil Defence.
- These battalions are positioned at different locations to provide timely response to disaster situations and are available to State Governments at the time of need.

Integrated Data Resource Network (IDRN):
- Integrated Data Resource Network is a database in the electronic form maintained by the Ministry of Home Affairs.
- The data enlists inventory of equipment and human resources relevant to disaster management.

**National Disaster Management Authority:**

The Government of India (GOI), in recognition of the importance of Disaster Management as a national priority, has set up a High-Powered Committee (HPC) in August 1999 and also a nation committee after the Gujarat earthquake, for making recommendations on the preparation of Disaster Management plans and suggestion effective mitigation mechanisms.

**NDMA Vision:**

“To build a safer and disaster resilient India by a holistic, pro-active, technology driven and sustainable development strategy that involves all stakeholders and fosters a culture of prevention, preparedness and mitigation.”

**Functions and Responsibilities:**

NDMA, as the apex body, is mandated to lay down the policies, plans and guidelines for Disaster Management to ensure timely and effective response to disasters. Towards this, it has the following responsibilities:

- Lay down policies on disaster management
- Approve the National Plan
- Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan
- Lay down guidelines to be followed by the State Authorities in drawing up the State Plan
- Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the Purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects
- Coordinate the enforcement and implementation of the policy and plans for disaster management
- Recommend provision of funds for the purpose of mitigation
- Provide such support to other countries affected by major disasters as may be determined by the Central Government
- Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with threatening disaster situations or disasters as it may consider necessary
- Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management.

**Conclusion:**

International agencies also play a role in disaster management. UNDP along with NDMA took up Disaster Risk Reduction (DRR) and Urban Risk Reduction programmes. World Bank is associated with National Cyclone Risk Mitigation Project (NCRMP) being taken up in Andhra Pradesh and Orissa. Red Cross Society also provides valuable support during relief operations.
What do you understand by a public health emergency of international concern? Present the case of Corona outbreak in China while discussing the preparedness of India for such an epidemic. (250 words)

Reference: Live Mint

Why this question:
Wuhan has been the epicenter of this spread of Coronavirus. There has been a consistent rise in number of cases registered and death due to it in the province. WHO has confirmed that the virus can spread from human-to-human. Thus the context of the question.

Key demand of the question:
Discuss in detail what a public health emergency of international concern is.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
Public health emergency of international concern is defined as an “extraordinary event that is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response.” The public emergency announcement is the highest level of alarm that is only raised during the gravest of outbreaks.

Body:
Discuss the case of corona virus spreading rapidly in China.
Explain the factors that need focus during such an outbreak.
Explain how China is managing the outbreak.
Discuss the levels of preparedness of India for such mass epidemics.

Conclusion:
Current health infrastructure in India paints a dismal picture of healthcare delivery system in the country, however India needs to ensure that the Central and state health agencies act in tandem and gear up the capacity to handle such concerns.

Introduction:
The World Health Organization (WHO) has announced that it was “too early” to declare the outbreak of the novel coronavirus in China a public health emergency of international concern (PHEIC), while warning that the number of cases may increase as much about the virus remains unknown.

Body:
Public health emergency of international concern
Public health emergency of international concern is defined as an “extraordinary event that is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response.” The public emergency announcement is the highest level of alarm that is only raised during the gravest of outbreaks.

Coronavirus:
Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). Coronaviruses are zoonotic, meaning they are transmitted between animals and people.
Corona virus spreading rapidly in China

- China is struggling to contain the spread of a new virus that has claimed at least six lives so far since 31st December.
- Almost 300 people have been hospitalised. Worryingly enough doctors have confirmed that the infection is spreading rapidly among humans.
- The outbreak has triggered memories of SARS or severe acute respiratory syndrome, SARS originated in China in 2002, by 2003 it infected more than 8,000 people and killed 774 in a pandemic that ripped through Asia. The present virus is called the Coronavirus.
- It was first detected in Wuhan city that has cancelled the upcoming Lunar New Year celebrations, where hundreds of thousands of people were expected to attend.
- Tour agencies have also been banned from taking groups out of Wuhan, even as Chinese President Xi Jinping has ordered resolute efforts to curb the spread of the virus.
- With one patient infecting as many as 14 medical staff in just one hospital, Chinese doctors believe the disease is spreading far more easily than it was thought previously.
- By late January, there were 300 confirmed cases in China and a death count that was still in the single digits, but rising. And despite airport screenings, a traveler had brought the first case to the U.S.

The levels of preparedness of India for such mass epidemics:

- Most countries, including India, are unprepared for outbreaks of major infectious diseases, with Asian countries facing significant risks, according to the Global Health Security Index 2019.
- India is not prepared to tackle health epidemics, particularly given its urban congestion. In fact, given the city structure and the way the settlements have grown, epidemics, once they occur, will spread at a galloping rate.
- The slum clusters all around the cities, the unhygienic growth, and poor waste disposal system will only aggravate the situation.
- Health infrastructure is the basic support for the delivery of public health activities, but current facilities in the country paint a dismal picture of the delivery system.
- There are 23,582 government hospitals with 710,761 beds in the country, according to the National Health Profile 2018. These comprise 19,810 hospitals in rural areas with 279,588 beds and 3,772 hospitals in urban areas with 431,173 beds.
- More than 70% of India’s population lives in rural areas and there are 156,231 sub centres, 25,650 primary health centres and 5,624 community health centres to cater to their needs, according to figures from 31 March 2017.

Conclusion:
The private sector has emerged as a strong force in India’s healthcare service delivery. For health emergencies such as coronavirus, private hospitals have geared themselves up.

“Ease of living for women in the India is intricately linked to the water woes of the country”, Comment. (250 words)

Reference: Indian Express

Why this question:
The question is in the backdrop of disasters in the form of water woes and in what way they affect the lives of women in the country directly. The article highlights the facts that With women playing a leadership role in managing their community’s water resources, the Jal Jeevan Mission will provide a massive fillip to the ease of living for women, and they will no longer be beasts of burden.
Key demand of the question:
Discuss the interlinkages between Ease of living of women and the water scarcity/Issues in the country.

Directive:
Comment – here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:
Introduction:
Briefly discuss some facts pointing at the context of the question.

Body:
Discuss Role of women in handling water as a resource in the community.

Explain the water crisis prevalent in the country.

Explain why is it important to address water issues to ensure good living for women in the country.

One can use suitable case study and explain what needs to be done.

Quote the policies like Jal Jeevan mission and their reach.

Conclusion:
Conclude with way ahead.

Introduction:
For centuries, in most parts of the country, especially in rural areas, our women have borne the responsibility (or should I say the burden) of ensuring the water security of their homes. Our mothers and sisters have silently catered to every water need of their families. In some instances, this would involve walking long distances in unfriendly weather and treacherous terrain — in the blistering heat of Rajasthan to the majestic hills of Uttarakhand to the parched lands of eastern Maharashtra.

Body:
Water crisis prevalent in the country:

- About 60% of the States were marked as “low performers” and this was cause for “alarm”.
- The report has predicted that by 2030, the country’s water demand is projected to be twice the available supply, implying severe water scarcity.
- Nearly 600 million Indians faced high to extreme water stress.
- About 2,00,000 people died every year due to inadequate access to safe water.
- 52% of India’s agricultural area remains dependent on rainfall so the future expansion of irrigation needs to be focused on last mile efficiency.
- Twenty-one cities, including Delhi, Bengaluru, Chennai and Hyderabad will run out of groundwater by 2020, affecting 100 million people.
- Critical groundwater resources, which accounted for 40% of India’s water supply, are being depleted at “unsustainable” rates and up to 70% of India’s water supply is “contaminated”.

Role of women in handling water as a resource in the community:

- According to a report by the National Commission for Women, on an average, a rural woman in Rajasthan walks over 2.5 km to reach a water source.
This is probably an underestimate, but the bottom-line is that our women and girls spend a significant proportion of their time on fetching water.

But things are changing. In 2014, India witnessed history in the making as the nation saw an incredible shift in the national development agenda.

This shift in policy focus was to reduce the drudgery faced specially by women and girls, and improve their quality of life by providing them services targeted for their convenience.

**Government measures to address the problem:**

- The first major step in this direction was when Prime Minister Narendra Modi drew the attention of 1.25 billion Indians from the ramparts of the Red Fort and addressed the need to end the practice of open defecation — and restore the dignity of our women and their basic health.

- **By October 2019, all villages in India had declared themselves ODF.** Just recently, another study by scholars from the Ashoka University and the University of Virginia, has found that the increased *in-home toilet access in India has significantly reduced sexual assaults on women.*

- There were many subsequent programmes of our government focused on reducing drudgery for women, improving their health and giving them the respect they deserve. These programmes have also empowered women to lead the change.

- **The Ujjwala scheme provided LPG cylinders** to crores of rural women, saving them from the toxic fumes that they breathed on a daily basis when they burnt firewood for their chulhas.

- **The POSHAN abhiyan** supports the health of children, adolescent girls and women, to reduce cases of low birth weight, stunting, under-nutrition, and anaemia.

- **The Swachh Bharat Mission** has created a cadre of head women masons, better known as “Rani Mistris”, who have breached a traditional male bastion and have already constructed lakhs of toilets across the country.

**Jal Jeevan mission – a solution:**

The Mission was announced in August 2019. The chief objective of the Mission is to provide piped water supply (Har Ghar Jal) to all rural and urban households by 2024.

- With adequate capacity building and training, water can be most efficiently managed at the lowest appropriate level.

- Adopting this principle, the Jal Jeevan Mission’s first preference will be to have community-managed single village ground water-based schemes, wherever sufficient quantity and good quality of groundwater exists.

- Wherever adequate quantity of safe groundwater is not present, or where it may be technically not feasible to have single-village schemes, surface water-based multi-village schemes will be promoted.

- Further, in some remote regions, where it may not be techno-economically feasible to have household water supply schemes, local innovations, such as solar-based schemes will be encouraged.
- It is not commonly known that household waste water from HWS amounts to about 75% of the amount of water supplied.

- With the rural households to get HWS under the proposed mission, huge quantities of household waste water will be generated across the country, therefore making its effective management critical.

- There is a plan to include a mandatory provision under the mission for the effective channeling and treatment of household waste water, through appropriate and low cost drainage and treatment systems.

- Once appropriately treated, this waste water can be used for both recharge of groundwater as well as for irrigation purposes.

**Way forward:**

- An extensive information, education and communication will be needed to create a people’s movement for water management.

- The ongoing Jal Shakti Abhiyan will help in creating awareness about the importance of integrating source sustainability and water reuse.

- This integrated approach to decentralized, community managed, and sustainable water management is the backbone of the government’s plan to ensure that every household gets the benefits of water supply.

**Conclusion:**

With women playing a leadership role in managing their community’s water resources, minus the drudgery of walking for miles to fetch water for their families, the Jal Jeevan Mission will provide a massive fillip to the ease of living for women, and they will no longer be beasts of burden. **The signs are all there and the winds of change are in tandem with the mood of the nation. For real change, it is optimal that we ensure that the real heads of the households our mothers and sisters continue to be at the center of our country’s development agenda.**

**Discuss the significance of disaster prevention and highlight issues involved using a suitable case study.** *(250 words)*

**Reference:** Hindustan Times

**Why this question:**

The question is in the backdrop of recent onset of Corona virus and the mass epidemic it has created in China, forcing us to evaluate the importance of disaster prevention methods.

**Key demand of the question:**

Discuss in detail the significance of disaster prevention in the cycle of disaster management.

**Directive:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**

Briefly define what disaster prevention is.

**Body:**

Discuss the aspects of preparedness for Disaster; explain the key areas that need address for disaster prevention.
Define disaster, hazard, vulnerability and risk.
Describe the types and the causes of disasters.
Discuss the magnitude and distribution of disasters.
Explain different phases of disasters.
Take the case of China’s Corona virus and suggest what needs to be done.

Conclusion:
Conclude with way forward.

Introduction:

Disaster prevention is the outright avoidance of adverse impacts of hazards and related disasters prevention (i.e. disaster prevention) expresses the concept and intention to completely avoid potential adverse impacts through action taken in advance.

Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. Very often the complete avoidance of losses is not feasible and the task transforms to that of mitigation. Partly for this reason, the terms prevention and mitigation are sometimes used interchangeably in casual use.

Body:

Important key terminologies:

Disaster: several definitions are frequently given to disaster. The World Health Organization (WHO) defines a disaster as “a sudden ecological phenomenon of sufficient magnitude to require external assistance”. It is also defined as any event, typically occurring suddenly, that causes damage, ecological disruption, loss of human life, deterioration of health and health services, and which exceeds the capacity of the affected community on a scale sufficient to require outside assistance.

Hazard: is a rare or extreme event in the natural or human made environment that adversely affects human life, property or activity to the extent of causing a disaster. It is essential to make a distinction between hazards and disasters, and to recognize that the effect of the former upon the latter is essentially a measure of the society’s vulnerability.

Vulnerability: is the degree of loss resulting from a potentially damaging phenomenon.

Risk: is the expected losses (lives lost, persons injured, damages to property and disruption of economic activity) due to a particular hazard. Risk is the product of hazard and vulnerability.

Risk is the probability that a person will experience an event in a specified period of time. Risk as a function of hazard and vulnerability, a relationship that is frequently illustrated with the following formula, although the association is not strictly arithmetic: Risk = hazard x vulnerability.

The need for Disaster prevention:

- The Vulnerability Atlas of India reveals that about 60% area is vulnerable to Earthquakes, 8% to Cyclones, 12% to Floods and 68% of land under cultivation is prone to Drought.
- According to World Bank report, India’s direct loss due to disaster is around 2% of its GDP.
• Rapid increase of population and urbanization along prone areas and other developments have increased the level of exposure to hazards.

• Floods are becoming a common phenomenon in India. Ignoring all the safety guidelines, dwellings, factories and infrastructure facilities have been constructed in areas that are potentially vulnerable to natural hazards like floods.

• As India is still not catching up with the developed countries in adopting disaster management strategies effectively, the losses are mounting.

• A report published in 2017 by the Comptroller and Auditor General (CAG) about India’s performance audit on flood control and management schemes categorically stated that only 7% of dams (349 out of 4,862) have Emergency Action Plans.

• Man-made factors have compounded the scale of the disaster. Unabated expansion of hydro-power projects and construction of roads to accommodate ever-increasing tourism, especially religious tourism, are also major causes for the unprecedented scale of devastation.

• India has been ranked as the sixth most climate change-vulnerable country by the Climate Risk Index 2018.

• Dealing with current vulnerabilities and projected climate change impacts needs innovative thinking and participatory planning and action.

Challenges involved:

Lack of governance:
• Most city governments struggle to deal with other day-to-day development challenges such as education, infrastructure and health, and so climate resilience and adaptation figure low on their priority list.

• Big cities such as Delhi and Mumbai have no city resilience plans because there is not just multiplicity of problems but also of authorities, which tend to work in silos whereas climate change cuts across several departments: public health, water, environment, energy, and social justice to name a few.

Lack of financial management:
• While the upfront capital costs of climate change mitigation and adaptation are being increasingly well understood, decision making and investment planning are hindered by uncertainty in the indirect costs and lack of simplified and transparent methods for assessing cost-benefit analysis of the steps that a city takes.

• They are not equipped with the financial management systems and processes required to access climate financing, such as green bonds

Lack of awareness:
• Lack of active citizens who are informed and engaged on the subject of climate change and sustainability, which is essential to mitigate and build resilience, and demand accountability including transparency and information on liveability indicators such as air pollution levels, percentage of garbage segregated, modal share of public transport, walking and cycling.
Lack of manpower:

- Then there is a shortage of skilled personnel specialised in areas such as environmental engineering, transportation, traffic management, disaster management, and related areas.

No Environmental Impact Assessment:

- Roads, railway lines and housing colonies being laid and built without regard for natural water ways, but with formal planning permission.
- The State Disaster Management Agency also ignores them.
- Despite India being a signatory to the UN’s Sendai Framework for Disaster Risk Reduction, little has changed on the ground.

Land use:

- Injudicious use of land is responsible for making states more prone to floods and landslides.
- However, other factors such as a change in land use patterns and climate change could have contributed to the situation on the ground.

Deforestation:

- Unfettered development activity had increased the chances of landslides, a major cause of casualties during the floods.
- Wetlands have been lost to development projects, construction of roads, and buildings at places too close to rivers.
- Other issues mentioned such as deforestation, encroachment and unplanned construction are self-evident priorities when development is viewed using the lens of climate-resilient water management (CRWM).

Disaster management constraints:

- There is a need to enhance the role of Civil Defence in Disaster Management process and formulating an effective National Plan for Disaster Management.
- Even now, the communication systems at the local level haven’t been much developed.
- There are no Standard Operating Procedures for the deployment of National Disaster Response Force.
- There have been many cases where there has been a relief and rescue mobilization but by the time the teams reach the damage would have already been done.
- Ignoring all the safety guidelines, dwellings, factories and infrastructure facilities have been constructed in areas that are potentially vulnerable to natural hazards like floods.
- Disaster management plans exist on paper, but implementation remains a challenge.
- Despite the emphasis on a paradigm shift to a preparedness approach by the government, most parts of the country continue to follow a relief-centric approach in disaster management, rather than a proactive prevention, mitigation and preparedness path.
Disaster maps and vulnerability profiles by the Ministry of Housing and Urban Poverty Alleviation of the Government of India identify winds and cyclones, earthquakes, and floods as disaster risks.

It is unclear if the maps have been updated to include weather and climate extremes and the associated crop losses or loss of lives or health risks.

Case of China’s Corona virus

In order to handle any issues regarding food, water and other essential supplies, the Hubei Foreign Affairs Office has also provided two helplines (027-87122256 and 87811173) on which the provincial authorities can be contacted round the clock.

In accordance with international practice and in accordance with relevant Chinese epidemic prevention regulations, China has made corresponding arrangements to provide necessary assistance,

The evacuation of foreign nationals including Indians from Hubei and Wuhan remain mired in logistical issues especially about not allowing the virus to spread through those being evacuated.

Conclusion:

Infectious diseases including those of the zoonotic variety are on the rise in India. In addition, regions in India suffer from seasonal outbreaks of dengue, malaria and influenza strains. In this context, the nation-wide disease surveillance programme needs to be strengthened.

Linkages between development and spread of extremism.

Has the world entered a new normal where the space has become the next frontier? Elucidate with suitable examples. (250 words)

Reference: The Hindu

Why this question:
The question is based on the theme that space security is next frontier that the world countries must aspire for.

Key demand of the question:
Discuss the possible threats that space as the new frontier poses upon the security aspects of a country. Explain with possible examples.

Directive:
Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context.
You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:
Introduction:
Briefly explain that it’s a brave new world for business leaders and emerging economies that want to flex their strength at zero gravity.

Body:
Explain that today we are in a complex, multifaceted geopolitical situation than the over-simplistic East-versus-West narrative of the past and that Space has occupied a new perspective.
Discuss the efforts being made by countries to explore space as the new frontier.
Explain the challenges that it may pose to internal security of a country.

Conclusion:
Conclude with what needs to be done to address the new threat.

Introduction:

Recently India carried out an anti-satellite (ASAT) test using an interceptor missile (as a kinetic kill vehicle) to neutralize a target satellite (possibly the Microsat-R launched in January this year) in a Low Earth Orbit (LEO) at an altitude of around 300 km.

In contrast, China had quietly carried out its first successful hit-to-kill intercept in January 2007 till international reports about the consequent increase in space debris forced Beijing to acknowledge the test. France and Israel are believed to possess the capability. India’s test has not violated any norm as there is no international treaty prohibiting the testing or the development of ASATs.

Body:

Efforts being made by countries to explore space as the new frontier

- Both the U.S. and USSR began to develop ASAT systems as a part and parcel of their anti-ballistic missile programmes. During the 1980s, both countries concluded their kinetic kill interceptor testing.
- Instead, they began to focus on co-orbital anti-satellite systems and directed energy (laser) systems which could neutralise a satellite without fragmenting it and generating space debris.
- Since the Sputnik was launched in 1957, more than 8,000 satellites/manmade orbiting objects have been launched, of which about 5,000 remain in orbit; more than half are non-functional.
- Currently, more than 50 countries own/operate the nearly 2,000 functional satellites in orbit.
- The U.S. accounts for more than 800 of these, followed by China (approximately 280), Russia (approximately 150).
- India has an estimated 50 satellites. Of these 2,000 satellites, over 300 are dedicated military satellites.
- Once again, the U.S. has the biggest share here, with nearly 140, followed by Russia with nearly 90 and China with nearly 40.
- The salience of space in defence is evident from the fact that all three countries — the U.S., Russia and China — have set up ‘Space Commands’.

India’s efforts:

Over the last one year, the Indian Space Research Organisation (ISRO) took giant leaps forward, one success after the other.

- **INSAT:** The system is a network of satellites that facilitates communication and broadcasting across the south Asian region. It ushered in a revolution in India’s television and radio broadcasting, telecommunications and meteorological sector.
- **Created Polarized Satellite Launch Vehicle (PSLV)** to make cost effective launch system. This has also increased international space collaboration by launching satellites of other nations at low costs.
- **Chandrayaan 1:** It has launched Chandrayaan 1 lunar probe mission in 2008.
- **Mangalyan:** ISRO has launched Mars Orbiter Mission in 2013 and created history by launching Mangalyan (mission spacecraft) into the Mars orbit in maiden attempt.
- **ASTROSAT:** It has launched first space observatory in 2015 to become fourth agency to do so after NASA, Roscosmos and ESA.
- **Scramjet:** Supersonic Combusting Ramjet has been launched by ISRO. This system works on Air-breathing Propulsion System which uses atmospheric oxygen to burn the fuel in the rocket.
• **RLV-TD:** ISRO demonstrated its Reusable Launch vehicle space shuttle RLV -TD to launch satellites around earth orbit and re-enter into the atmosphere.

• **104 satellites:** ISRO has created history by launching 104 satellites in one go.

• **Crew Escape module:** ISRO has test-launched Crew Escape Module paving the way for manned space mission Gaganyaan.

**Privatization of Indian space:**

• ISRO has been pursuing a conscious approach of building up and nurturing the industrial capabilities in the country to maximally support the Indian Space Programme.

• Through appropriate transfer of technology and hand-holding, ISRO is making focused efforts to consolidate and enhance participation of Indian industries for manufacturing and production of space related hardware such as rocket engine & stages, propellant tanks, spacecraft structures, solar panels, thermal control systems, electronic packages etc., required for satellites and launch vehicles.

• A number of private players have shown interest and promise in the Indian space programme, and a few of them are interested in their own launch vehicles. Privatizing the operation of the rocket would free up ISRO to focus on more cutting-edge missions.

• ISRO is severely constrained to meet the ever-increasing demands from over 60 central departments, 29 states and thousands of private sector companies hence urging the domestic industry to come forward and help augment the manufacture and launch of satellites will help ISRO.

• The nascent private space industry in India will not only provide services within the country but also opportunities for services in the neighboring countries and other parts of the globe.

**Challenges:**

• The salience of space in defence is evident from the fact that all three countries — the U.S., Russia and China — have set up ‘Space Commands’.

• This has given rise to demands to prevent the militarisation of space so that it is preserved “as the common heritage of mankind”.

• The U.S. has been adamantly opposed to negotiating any legally binding instrument to prevent ‘militarization of space’, questioning the very meaning of the term, given that space as a medium is increasingly used for military applications.

• Growing amounts of space debris pose a real risk to satellites and spacecraft. There are over 20,000 objects of debris which are the size of golf balls while those of smaller size run into hundreds of thousands, totalling nearly 6,000 tonnes.

• The U.S. Department of Defense routinely tracks approximately 23,000 man-made objects achieving orbit to ensure safety of its space-based assets.

• One of the reasons that the international community protested strongly about the 2007 Chinese test was that it added nearly 3,000 pieces of debris as the test was done at a higher altitude (800 km), from where it would take decades to dissipate.

• Anyhow, the debris created by the Indian test, which was undertaken at a low altitude, is expected to dissipate much faster.

**Conclusion:**

At present, the U.S. is the dominant presence in space, which reflects its technological lead as well its dependence on space-based assets. It therefore perceives any negotiations as a constraint on its technological lead. While countries have developed and tested ASATs, they are not known to have
stockpiled ASAT weapons. Effective use of an ASAT also requires space situational awareness capability, which works best if it is a cooperative effort.

Discuss the role of external state and non-state actors in creating challenges to internal security. (250 words)

Reference: Idsa

Why this question:
The question is straightforward and is from the static portions of the syllabus.

Key demand of the question:
Discuss in detail the role of external state and non-state actors in creating challenges to internal security.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
First explain who constitute external state and non-state actors.

Body:
Highlight that India has been facing internal security threats from various external and internal state and non-state actors since independence. Explain about external non state actors – Non-state actors are individuals or organizations that have powerful economic, political or social power and are able to influence at a national and sometimes international level but do not belong to or allied themselves to any particular country or state. They include NGOs, MNCs, religious outfits, Drug Cartels, Mafias, terrorist groups etc. they may work in tandem for the peace, stability and development of a country or they may work against the State. Discuss the threat that they pose to internal security in India such as insurgency, terrorism, cyber security, communalism, counterfeit currency etc.

Discuss how should India deal with such challenges

Conclusion:
Conclude with solutions and ways to address the problems.

Introduction:
India has been facing challenges on the front of internal security since independence from various state and non-state actors. External State actors refer to those entities which have formal backing of a sovereign state for carrying out any intended action. Non state actors on the other hand, have a considerable power of influencing international events but they do not have formal state backing. Examples of state actors are the army, bureaucracy, intelligence agencies etc. whereas non state actors would be NGOs, civil society organizations, extremist outfits, multinational companies etc.

Body:

External State actors are responsible for posing a challenge to internal security in multiple ways:

- Countries surrounding India have been active in exploiting the volatile situation presented by the turmoil in the northeast. Not only countries such as China, Pakistan, Bangladesh and Myanmar, but also smaller powers such as Bhutan and Nepal have been involved in the region.
- Through political backing, economic assistance, logistic support, military training or arms supplies these countries have varyingly contributed to the ongoing violence in this region.
The state may carry out a limited war against Indian state and this might have ramifications for our internal security too.

- They might support the various insurgent groups, Naxalites, or separatist groups through funding, training or logistics.
- There have been instances where state actors have been responsible for carrying out cyber warfare through hacking and other espionage.

**Non state actors however have played their nefarious role too in creating problems for India:**

**Insurgency:**
- North-East suffers from violent movements based upon ethnic identities leading to clashes. China is alleged to support such acts for instance. ULFA members of Assam were given shelter by China.

**Terrorism:**
- Pakistan has been a major exporter of terrorism to India. Non-state actors like terrorist groups for instance Lashkar-e-Taiba, Jaish-e-Mohammad are a continuous threat.
- Non state actor -sponsored terrorism, often motivated by fundamentalist ideologies, backed by secretive but efficient financial networks, use of IT, clandestine access to chemical-biological and nuclear materials, and illicit drug trafficking, has emerged as a major threat to international stability.
- These groups aim to not only create instability in states like J&K, they also have a larger aim of destabilising the country. This is done through sporadic terrorist strikes, which spreads terror and panic. This could also adversely affect the ability of the Indian state to pursue economic modernisation.

**Naxalism:**
- Left wing extremism affects states like Chhattisgarh, Jharkhand and West Bengal.

**Drug trafficking:**
- Inter and Intra state trafficking takes place, through golden crescent and golden triangle routes.
- Drugs from Golden Crescent (Pakistan, Afghanistan and Iran) have affected Punjab and Golden Triangle (Laos, Myanmar and Thailand) has affected North Eastern states.

**Human-trafficking:**
- Children and women trafficking takes place via Bangladesh and Nepal.

**Counterfeit currency:**
- It corrodes economy from inside, by facilitating black money and money laundering activities as well as funding terrorism, which itself creates a demand for fake currency, thereby creating a positive feedback loop. This is the issue arising especially from Pakistan.

**Communalism:**
- Propagandas are run and funded by enemy country and other non-state actors (NGOs and CSOs) to destabilize India by damaging the socio-religious fabric and ensure riots.

- Cyber Security:
  - Recent cyber-attacks by Legion, ATM skimming are examples. Pakistani hackers often hack government websites.
  - They can also incite people for regionalism thus demanding their separate state which further increases secessionist tendency

Conclusion:
Both state and non-state factors from outside have created problems in our internal security framework. Hence while it is imperative to guard our borders and strengthen our diplomacy, on the other hand, we need to check the various non state actors who come in hidden forms. There is a need for a national internal security doctrine to deal with various challenges.

Security challenges and their management in border areas - linkages of organized crime with terrorism
India faces significant challenges in the internal, geopolitical and economic front going ahead in 2020. Managing these challenges will decide the progress India makes in 2020. Elucidate. (250 words)

Reference: The Hindu
Why this question:
The article brings out a detailed analysis of the Geopolitical fault-lines that have been widening since 2019 and in what way these challenges will contribute positively and negatively to the progress that India will make in 2020.

Key demand of the question:
Discuss the challenges that India is facing on the internal, external and economic fronts. Suggest solutions to resolve the same.

Directive:
Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:
Introduction:
Briefly explain the context of the question.

Body:
Firstly, discuss the problems India is facing on the internal, geopolitical and economic fronts. Discuss the causative factors responsible for these challenges. Explain in what way these factors will decide progress of India in 2020.

Conclusion:
Conclude with what needs to be done to address these threats and challenges.

Introduction:
In 2020, India needs to gear up to face thorny problems on the internal, geopolitical and economic fronts. The image of a darkening world which haunted 2019 continues, even as 2020 commences.
Together with increased turbulence, what is evident is that the world is regressing in several directions. Democracy and democratic freedoms are coming under increasing attack accompanied by a retreat from liberalism and globalisation. This is not limited to any one country or a group of countries, but is evident across much of the world.

Body:

Challenges that India is facing:

Geopolitical scenario:

- Geopolitical fault-lines widened in 2019. America’s leadership of the world came under increasing threat from countries such as China.
- The future of the United Kingdom, under the shadow of Brexit, remained unclear. Europe seemed to be in eclipse. Latin and Central America were in turmoil.
- In Asia, Afghanistan appeared to be at a crossroads in its history. Instability plagued Syria, Iraq, Lebanon and Egypt.
- Civil war conditions prevailed in many regions. Violent protests raged in many domains, including Hong Kong, once a symbol of “One Country Two Systems”.
- Existing threats to the security of nations remained unchanged, even as offensive cyber-attacks became the new weapon of choice in many situations.
- As 2020 progresses, the spectre that haunts nations is, if anything, bleaker. Geopolitically, it would be tempting to assert that this is perhaps the most troubled time in recent history, given the looming spectre of an all-out war between Iran and the United States.
- Exertion of “maximum pressure” by the U.S. to minimise Iran’s influence and reduce its support to proxies in the region and elsewhere, combined with Iran’s only slightly less provocative posture as seen towards the end of 2019, had resulted in a major stand-off by the beginning of 2020.

Domestic tensions:

- From a national perspective, 2019 posited at best, a mixed bag. Political tensions had intensified in the first half of the year in view of the General Elections held in April-May, and against the backdrop of victories of Opposition parties in the Assembly Elections in Madhya Pradesh, Rajasthan and Chhattisgarh towards the end of 2018.
- Acrimony over allegations of corruption, especially over the Rafale fighter aircraft deal, had further vitiated the political atmosphere.
- The Government initiated another controversial move to push through the Citizenship (Amendment) Act, which is implicitly seen as linked to a National Register of Citizens, though the Government (after having indicated at one point about such linkage) has since declared that this is not the case.
- It provoked widespread protests on the ground that the legislation violated some of the basic precepts of the Constitution, and applied the test of religion, to exclude (Muslim) refugees from neighbouring countries such as Pakistan, Bangladesh and Afghanistan, from being given Indian citizenship.

Neighbourhood ties:

- As 2020 commences, India’s foreign policy challenges remain very considerable. India-Pakistan relations remain frozen, even as Pakistan continues to make overtures to the U.S., and further cements its relationship with China at one level and Saudi Arabia at another.
• Sino-Indian relations continue to be riddled with numerous problems. The vexed Sino-Indian border dispute remains in deep freeze.
• China, meanwhile, has embarked more aggressively on establishing its leadership across Asia; in the shadow play for influence across parts of Asia, including South Asia, China seems to be gaining at India’s expense.
• India’s attempts at creating a supportive environment in its immediate neighbourhood in 2020 remains equally challenging. While relations with the Maldives improved during the past year, the advent of a new Government in Sri Lanka, headed by the Rajapaksas, does not augur too well for India.
• Relations with the United Arab Emirates are better than at any time previously, but the India-Saudi Arabia relationship can at best be termed uncertain.
• Relations with Iran are likely to become highly problematic, in view of India’s “tilt” towards the U.S., and the open hostility on display currently between Iran and the U.S.

Issues within the country:

• On the domestic front, India again will need to find solutions to quite a few thorny problems.
• Removing tight controls in J&K and restoring civil liberties there, including the release of senior political leaders, will require very deft handling, given the “pressure cooker” atmosphere that prevails.
• India will also need to watch out for a very different type of agitation in J&K, something between “civil disobedience” and an “intifada type” struggle.
• While India appears reasonably well-positioned to deal with some of the other internal threats, including insurgencies in the North-east, Naxalite violence, and the “terror imperative”, the fallout of protests over the CAA has the potential to become India’s most serious threat in decades.
• Already, the eddies of controversy over this and other disparate issues are beginning to coalesce into a major maelstrom of protests, with India’s youth, including many belonging to universities and higher institutes of learning, up in arms on manifold issues.
• At present these seem to have little in common, excepting opposition to those in authority for the latter’s perceived insensitivity to public protests.

Economic crisis:

• Furthermore, given the current economic malaise facing the country, which can hardly be treated as a cyclical phenomenon, the economic portents for 2020 also do not look too good.
• For several months now, the country has witnessed the slowing down of the economy and India’s growth story appears set to lose much of its shine.
• A sustained below 5% GDP growth could become a recipe for disaster. Already, India is being mentioned as among 2020’s top geopolitical risks.

Way forward:

India as an “emerging power” faces many challenges of poverty, internal conflicts, political instability in the domestic and regional ambit, as well as economic and security issues in the global realm. Hence, India’s preoccupation ought to be directed at reforming the market structure, developing infrastructure to hasten growth of the manufacturing sector at the domestic level, rather than increasing India’s dependence on an export-led economic system.
Such economic agendas call for significant changes in the domestic sphere: allocation of more funds to the social sector, job creation for the unemployed youth, health and sanitary issues, and an inclusive development agenda. This will ensure that a distinct identity can be furthered, instead of India merely emulating norms and practices constructed and sustained by countries with different social structures and domestic concerns.

Only an inclusive and all-round developmental agenda can allow India’s inclusion in the “great power” club in a true sense, where development of its people will coincide with the development of the nation.

Conclusion:

Given the total impact of the various aspects, those in charge would do well to be aware of and prepare for the major problems that lie ahead. The digital revolution that is under way and the awesome power of Artificial Intelligence, Machine-Learning, Quantum Computing and Bio-Technology may not be enough in the circumstances.

Given a rising graph of cross-border terrorism over the past two decades, Discuss in what way cooperation with neighbors on security is essential for India.(250 words)

Reference: Research Gate

Why this question:
The question tends to analyse the effect of rising incidences of cross-border terrorism over the past two decades and in what way they necessitate India to have cooperation with neighbors on security.

Key demand of the question:
Discuss in detail the case of the question, highlight significance of the relations with neighbor countries and especially on the aspects of Security.

Directive:
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:
With eleven neighboring countries (including four across the seas), many of which share cross-border Diasporas with India, internal peace and external security are inextricably intertwined.

Body:
Discuss in detail relations of India with the neighboring countries on a case by case basis; Bangladesh, China, Nepal and Pakistan etc.

Take hints from the article and explain singularly the key issues and threats posed by each neighboring country to India.

Explain what needs to be done and what should be the way ahead for India.

Conclusion:
India must seek to maintain independence of its foreign policy and security choices reflective of its civilizational ethos, while working in partnership with all friendly countries on issues of common interest.

Introduction:

India has one of the longest and most varied of international borders. Historical and political reasons have left India with an artificial unnatural border. Border Management is an integral approach towards borders in which along with security enhancement, infrastructure & human development is undertaken. The challenge of coping with long-standing territorial and boundary disputes with China.
and Pakistan, combined with porous borders along some of the most difficult terrain in the world, has made effective and efficient border management a national priority.

**Body:**

**Issues and threats posed by each neighboring country to India:**

**Indo-Pakistan Border:**

- Indo-Pakistan Border (3,323 Km) runs along the states of Gujarat, Rajasthan, Punjab and J&K. Direct accessibility of the borders and some technological developments enabling quick passage of information and transfer of funds has changed the focus and tenor of border security.
- Cross-Border Terrorism from Pakistan has exacerbated due to non-recognition of boundaries by its terrorist groups and their success in acquiring legitimacy due to religious or ethnic identity.
- Inadequate Cooperation from Pakistan has made the management of border further difficult for India.

**Indo-Bangladesh Border:**

- The Indo-Bangladesh Border (4,096 Km) passes through West Bengal, Assam, Meghalaya, Tripura and Mizoram.
- The entire stretch consists of plains, riverine belts, hills & jungles which make illegal migration very easy.
- Illegal Migration across this border poses serious security threats and acts as a fertile ground for organisations like the Inter-Services Intelligence of Pakistan to penetrate and expand their activities.
- Also, poor law and order situation at the border, has led to smuggling of arms and drugs. Supply of arms help in sustaining any conflict.

**Indo-China Border:**

- India shares a long land border with China (3,488 Km) in the Indian states of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh.
- Although this border remains relatively aloof from illegal migrations, this border remains a cause of constant vigil for Indian forces.
- India has a longstanding border dispute with China running back to British era in Aksai Chin and Arunachal Pradesh.

**Indo-Nepal Border:**

- India-Nepal Border (1,751 Km) is an open border in the sense that people of both the countries can cross it from any point, despite the existence of border check posts at several locations.
- Anti-India organizations use this border to plant their people in the territory of India.
- Also, smuggling of gold, small arms, drugs and fake currency helps terrorists in executing an attack.

**Indo-Bhutan Border:**

- This border (699 km) passes through states of Assam, Arunachal Pradesh, West Bengal and Sikkim.
- Illicit establishment of camps by militant outfits in the dense jungles of south-east Bhutan helps insurgents from India in executing anti-India activities.
Indo-Myanmar Border:

- The northeast states of Arunachal Pradesh, Nagaland, Manipur and Mizoram share the border with Myanmar (1,643).
- Some of the insurgents groups like the National Socialist Council of Nagaland (NSCN) and ULFA operate from Myanmar, which threatens the security of India as well as Myanmar.

India has had to deal with numerous challenges with respect to border management such as:

**Current fence:**

- The present one has a high rate of degradation due to snow and has to be repaired after every season which costs about Rs. 50-60 crore every year
- Over time infiltrators have devised ways to cross it.
- India’s internal security challenges are inextricably linked with border management. This is so because Indian insurgent groups have for long been provided shelter across the nation’s borders by inimical neighbours.

**No real-time coordination:**

- Due to the lack of understanding of military issues among the decision-making elite, India’s borders continue to be manned by a large number of military, paramilitary and police forces
- Each of which has its own ethos and each of which reports to a different central ministry at New Delhi, with almost no real coordination in managing the borders.
- Border management is designed for a ‘firefighting’ approach rather than a ‘fire prevention’ or pro-active approach
- It is based on a strategy of ‘reaction and retaliation’ rather than on a holistic response to the prevailing environment, resulting in stress and decision making problems at the functional level.
  - Perennial and Seasonal Rivers via which terrorists can infiltrate.
  - Un-demarcated boundaries with overlapping claims cause constant friction along borders.
  - Mountainous and Hilly terrain especially in North Indian borders which are snow clad and inhabitable during winter season.
  - Unilateral actions by some nations to change the status quo in their favour.
  - Little or no support from counterparts of neighbouring nations and in some cases active support by cross border elements to illegal activities.
  - Cultural, ethnic and linguistic affinity across borders and clan loyalties
  - Multiple agencies are involved in border management, lack of Inter agency cooperation and coordination
  - Support of state and non-state actors to aid infiltration, smuggling, trafficking etc.

**Significance of the relations with neighbor countries**
India advocates the policy of constructive engagement, despite such serious provocations as have been in the past (attack on Parliament, Mumbai terrorist attacks etc). It believes that violent retaliation and confrontation can only complicate the matters. This applies in particular to Pakistan- the origin of State-sponsored terrorism targeted at India.

India adheres to its benign and noble policy of non-interference into internal affairs of other countries in the region. However, if an act – innocent or deliberate – by any country has the potential of impinging upon India’s national interests, India does not hesitate in quick and timely intervention.

Foreign policy in India by and large enjoys national consensus. At times, however, there are instances when it appears that the foreign policy is being held hostage to domestic regional politics. Bangladesh and Sri Lanka are the most glaring examples.

India has endeavoured to deal with the government-of-the-day, be it a democracy, monarchy or military dictatorship, insisting that the choice of the form of government is best left to the people of the country concerned.

India has skilfully used its policy of non-prescriptive development assistance as its soft power since early 1950s. In return India has sought “good will” and “friends of India”. In a slight departure India is gradually switching over from pure charity to a judicious mix of outright grants and soft loans linked to project/commodity exports.

Finally, India is ready to go an extra mile in seeking the integration of the region. As often cautioned by the International Financial Institutes, only through regional cooperation can the South Asia be a part of Asian century.

Solutions for addressing cross border terrorism:

- Infrastructure along with border has to be improved – rail connectivity along with road connectivity has to be provided for quick mobilization.
- Building of additional checkpoints and Border posts along major and minor trade routes connected with borders.
- Building of floating bridges, walls & electrical fences where there is high probability of infiltration.
- Taking up of joint Border management with Countries like Myanmar, Bhutan and Nepal.
- Improving healthcare, physical infrastructure and digital connectivity in villages around borders thus making them stakeholder in Border Management.
- Madhav Godbole task force recommendations on border management need to be implemented.
- It had recommended that the CRPF should be designated as the primary national level counter-insurgency force. This would enable the other central paramilitary forces like the BSF and Indo-Tibetan Border Police to return to their primary role of better border management.
- It had also recommended that all paramilitary forces managing unsettled borders should operate directly under the control of the army and that there should be lateral induction from the army to the paramilitary forces so as to enhance their operational effectiveness.
- The principle of ‘single point control’ must be followed if the borders are to be effectively managed.
- The advances in surveillance technology, particularly satellite and aerial imagery, can help to maintain a constant vigil along the LAC and make it possible to reduce physical deployment.

Conclusion:

Keeping a strong vigil on its border is very important for any nation to check any kind of illegal activities or intrusion through them. For India, the task becomes difficult where terrain and climate...
is very complex across some of its border areas. Focussing on improved technology will help in making the task easier for the security forces and make its borders more secure.

Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

Discuss the case of Cyber bullying across the Lifespan of Education:, explain the issues and Interventions required to overcome it from family and schooling.(250 words)

*Indian Express*

**Why this question:**
The question is straight forward and is around discussing the case of Cyber bullying.

**Key demand of the question:**
Explain what cyber bullying is and discuss the importance of tackling it at the level of education and upbringing of values by the family.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

*Introduction:*
Define cyber bullying.

*Body:*
Cyber-bullying, in simple terms, may be defined as the act of harassment, intimidation, threatening of another person, via the cyber-space.

Explain the influence of social media on children in general.

Discuss the ill effects of cyber bullying, causes and effects.

Discuss what can be done to overcome the same.

Signify the role of family and schooling in overcoming the cyber bullying.

*Conclusion:

In short, social media has had a mixed effect on children. Proper supervision by parents and teachers, and regulating the time spent on internet through various productive activities and hobbies might be regarded as some of the ways in which the ill effects of social media on children might be minimized.

*Introduction:*

*Cyber Bullying:*

- Cyberbullying or cyber harassment is a form of harassment that takes place over digital devices like cell phones, computers, and tablets.
- Cyber bullying can occur through SMS, Text, and apps, or online in social media, forums, or gaming where people can view, participate in, or share content.
- It includes sending, posting, or sharing negative, harmful, false, or mean content about someone else.
- It can include sharing personal or private information about someone else causing embarrassment or humiliation.
- Some cyber bullying crosses the line into unlawful or criminal behaviour.

*Body:*

*Reasons for increasing Cyber bullying:*
- The increasing access to affordable data service has given rise to these faceless evil worldwide – young children, in particular teenagers, being the most vulnerable victims.
- The language and content of Web series: The certain shows running on Amazon Prime or Netflix are not appropriate for teenagers. Teenagers try to adapt that language used in the TV series or shows.
- Nuclear families and isolation of children: Most of the families in India are nuclear families and parents are going to their job regularly so the children’s get neglected and isolated. Therefore, many are not able to identify what the child is going through.
- Cyber bullying, under the Information Technology Act, is not an offence. The Act was last amended in 2008. Since then, social media has exploded in the country. The ground reality of 2017 is vastly different.
- Cyber bullying does not qualify in the category of cognizable criminal offences. Only if it is in aggregated form for example, someone created fake profile of others and used that account for detrimental things that only qualifies as offence of impersonation.
- Most of the time the victim is a juvenile but at the same time the person who is committing this crime is also a juvenile and therefore this is covered under juvenile justice act. So the role of police authority in the conventional manner is limited hence registering an FIR and arresting the juvenile, these scenarios are not possible.
- Under-reporting of cases. The reasons are People don’t want unnecessary media publicity; the current process is very slow; and there is low confidence in the ability of the system.
- The US has often failed to share information vital to dealing with cybercrime. It denies access to data held by companies such as Google and Facebook.
- Because Cyberbullying is difficult to track, many victims feel helpless and unable to cope with it, especially if the bullying is personal and long-drawn.

**Government Initiatives against Cyberbullying:**

- Guidelines by NCERT: Because of lack of awareness about cyber bullying among the children’s, teachers as well as the parents, NCERT came up with three guideline booklets. One for teachers one for school and one for students. For students it’s in the form of DO’s & DON’Ts.
- Government of India is come up with ministry of home affairs Cybercrime reporting portal gov.in.
- For generating awareness in state of Delhi, Delhi police has come up with an initiative in which Police visits school administration to get aware of cyber bullying and also engage workshops for computer teachers.

**Other measures needed:**

- **Family/home measures:**
  - Parents can make a vast and positive difference by talking with their children. Like sexuality education in general, the topic of pornography is not one big talk but rather a series of discussions that easily can arise from the content of songs, music videos, video games, movies and unintended or intended exposure to sexually explicit images.
  - Parents can help their children develop a critical eye when viewing media, so they see the lies, and differentiate that fiction from the joy in loving equitable and respectful relationships.
Parents need to explain to children that the same rules apply during interactions online, as they do in person.

**Government level:**
- **National Cyber Crime Reporting Portal** shall be designated as the national portal under-reporting requirements in the POCSO Act in case of electronic material.
- Union Government shall be empowered through its designated authority to block and/or prohibit all websites/intermediaries that carry child sexual abuse material.
- Law enforcement agencies should be permitted to brake end to end encryption to trace distributors of child pornography.

**Use of Artificial intelligence:**
- Tools can be developed which can analyse the behaviour of every internet user. So it can help prevent the user from falling into cyber bullying.
- Developing some mobile applications that can alert parents if the child is under threat of cyber bullying.
- Prevent malware attacks by tying up with antivirus agencies.

**Academic measures:**
- School diaries should carry an anti-bullying pledge.
- Schools shall undertake training programmes for parents at least twice a year, making them aware of hazards for children of free access to smartphones, internet at an early age.
- The subjects related to cyber bullying and cyber security should be made mandatory instead of only guidelines.
- In school there should be cyber cell where one could report their grievances whether by its name or anonymously.

**Multipronged approach to handle cases:**
- Need to handle the cases of cyber bullying through multipronged approach such as counselling through Psychiatrist, approaching police, etc.

**What do you understand by Juice jacking? How big is it a threat? Discuss means and ways to prevent the same.**

*Times of India*

**Why this question:**
Public USB power charging stations are now ubiquitous in the spaces business travelers frequent, including airports, hotels and other points of transit or accommodation. That’s why every business traveler and organization needs to understand that these resources could be hijacked by cybercriminals as a conduit for delivering malware or stealing sensitive data.

**Key demand of the question:**
Discuss in detail the underlying concept of juice jacking, explain in what way it poses threats on citizens and suggest means to overcome and prevent the same.

**Directive:**
Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:
First define what is meant by Juice Jacking.

Body:
Juice jacking is a type of cyber-attack involving a charging port that doubles as a data connection, typically over USB. This often involves either installing malware or surreptitiously copying sensitive data from a smart phone, tablet, or other computer device.
Discuss in short then the history of Juice Jacking.

Discuss how to prevent juice jacking; Don’t use public charging stations that offer USB ports. Use your own AC charging adaptor and your own cables to plug into electrical outlets. Carry a high-quality, certified mobile battery so you don’t have to rely on power sources of opportunity. Don’t use somebody else’s PC for charging your mobile device. Use a USB data blocker dongle, which is a product that disables data transfer for USB cables etc.

Conclusion:
The bottom line is that juice jacking is either a rare or currently unpracticed attack that’s brimming with potential for cybercriminals and spies. Because the remedies are so easy and inexpensive and tend to offer other benefits as well, it makes sense to integrate anti-juice jacking measures into the organization’s overall cybersecurity plans.

Introduction:
Juice jacking is a type of cyber-attack involving a charging port that doubles as a data connection, typically over USB. This often involves either installing malware or surreptitiously copying sensitive data from a smart phone, tablet, or other computer device.

The power/data cable that we see in public charging stations, provides unauthorized access to attackers during the charging process; leveraging illegitimate access to get our personal information taken away.

Body:

Threats posed:
- **Data theft:** During the charge, data is stolen from the connected device. Once the device is plugged-in and connection is established, it either installs malware or secretly copies sensitive data from a smartphone, tablet, or any other computer device.
- **Malware installation:** As soon as the connection is established, malware is dropped on the connected device. The malware remains on the device until it is detected and removed by the user. The attack could be as simple as extracting all your contact details and private pictures or can be an invasive attack of injecting malicious code directly into your device which can then copy all your passwords of financial data.

Measures to protect from juice jacking:
- **Keep your devices fully charged or carry personal charger/power bank with you.** Alternatively, always keep your charger and power bank in your bag for charging to maintain control over the data port.
- **Lock Your Phone:** When your phone is locked, I mean truly locked and inaccessible without the input of a PIN or an equivalent pass code, it cannot be paired with any device. Be cautious not to
use your face/finger print id for even a second since pairing can happen within a flick of a second.

- **Switch off or Power the phone down:** This technique only works on few mobile models as some phones, despite being powered down, still powers on the entire USB circuit and allows access to the flash storage in the device.

- **Use specialized cables:** You can buy a special USB cable that doesn’t have pinout connections for pins 3 and 2. Therefore it’s impossible to transmit data across the connection.

- **Use a USB condom:** It is a device that goes between your normal data charging cable and a USB port to block data transfer through the connection. USB condoms are adaptors that allows power transfers but don’t connect the data transfer pins. You can attach them to your charging cable as an “always on” protection.

**Conclusion:**

The best defence against any such attack is awareness. Follow the above tips, and avoid plugging your mobile into unknown charging stations the same way you avoid opening attachments from unknown senders.
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