

GENERAL STUDIES
PAPER – 1

NOTE: Please remember that following 'answers' are NOT 'model answers'. What we are providing is content that both meets the demand of the question and at the same time gives you extra points to attempt similar questions. The images given are for representation purposes – for your understanding.

1. How will you explain the medieval Indian temple sculptures represent the social life of those days?
(Answer in 150 words) 10

Introduction

Temples not only served as places of worship but represented a way of life for people – cultural activities, fairs, festivals, etc. The style of Indian temple sculpture is largely **determined not by a dynasty but by region.**

Body:

Every region and period produced its distinct style of images, largely independent of any particular dynasty that happened to rule over a specific region.

Northern India

Gurjara-Pratihara Dynasty:

- **Importance of army:** Pratihara's were involved in a tripartite conflict with the Rastrakutas and Palas. The sculpture of **Vishnu Trivikrama** from this period shows the **warriors** wearing their long hair in a huge bun at the back of the head, loose or in varying hairstyles, elaborately done.
 - The swords are of various shapes and sizes. Axes, bows, maces, and spears were also used. Armours and possibly helmets were used by elites.

Chandela dynasty:

- **Kama and the Khajuraho temples:** The society of the time believed in dealing frankly and openly with all aspects of life. Artwork at the temple is also about daily life and symbolic values in ancient Indian culture.
 - **Kama:** Scholars state that the erotic arts are part of the Hindu tradition of treating kama as an essential and proper part of human life, and its symbolic or explicit display is common in Hindu temples.
 - **Spirituality:** the Kama was seen as the symbol of moksha, the final release or reunion of two principles, the essence (Purusha) and nature (Prakriti).

Eastern India:

Palas:

- **Confluence of cultures- cosmopolitan life:** The Palas hosted the well-known universities such as Nalanda, Vikramashila, etc. Students and pilgrims throughout South East Asia came to these monasteries for education and religious purposes. This confluence can be seen in sculptures as well.
 - Terracotta is a key feature of Pala sculpture. Remains found at Paharpur (Northern Bengal) bear low reliefs with characters of a diligent and picturesque style, whose simplified compositions very closely resemble those of the enameled plates that decorated several Burmese sanctuaries from the 9th to the 12th century.
 - Similar features of Pala sculpture are also to be found in countries like Myanmar and Indonesia. Some of the Buddhist buildings here have been inspired from the Paharpur style of architecture.

Western India:

Solanki:

- **Importance of science and engineering:** Solankis went long way in making industrial architectural sculptures and carvings. Famous among the temples of the Solanki era – The Sun Temple of Modhera and the **Vimala Vasahi temple**. The temple complex is a marvel of engineering, mirroring their principles of Vaastu-Shastra and Astronomy.

- **Reverence to natural elements:** The remains of the **Sun Temples at Modhera** are relics of that era, when reverence of the natural elements like Earth, Water, Fire, Sky, Air, were at their peak and was sharing space with myriad manifestations of Vedic gods.

Southern India:

The constructions were not merely for religious purposes or as a political symbol, but rather symbols of cultural hegemony over another dynasty. **E.g Nataraja sculpture – Chola Dynasty.**

- **Prominence of Jewellery:** The Bronze sculptures of the Chola era have a fixed pattern of head-dresses and jewellery that were used to drape the icons deities of the Hindu Gods and Goddess.
- **Influence of Bhakti:** The base of the main temple in Darasuram is notable for its stone frieze of panels containing inscriptions of the stories associated with the 63 nayanmars (Shiva saints), and a number of these also depict women in yoga postures, and other scenes from everyday life.
- **Story telling:** The intricate sculptures at the Belur and Halebidu temples in Karnataka's Hassan district are often described as poetry in stone. A thing to marvel at is the intricate detailing and the visual elements depict gods and goddesses, familiar scenes from the Ramayana, the Mahabharata, and the Srimad Bhagavatam , wars and victories, dance and music, hunting, games, processions, dress, and jewellery.
- **Religious life:** Many of the splendid sculptures that survive were cast in bronze and more modest in scale by comparison with the larger sculptures that were venerated in temples, designed instead to be portable, to enable the deity to be paraded away from the temple sanctuary both for the god's pleasure and the spiritual benefit of worshippers.
- **Clothing and artistic freedom:** Sculpture often portrayed deities without clothing on their upper torso, especially females, whose breasts were often large and symbolized motherhood. Women in real life would have been covered, but in sculpture, artists were allowed to take more liberties when portraying the female form.

Conclusion:

The sculptures are tangible evidence of the life and culture of a bygone era and it tells us a lot about how the people in those days valued art, religion, and valour and artistic expressions of an individual.

2. **Why did the armies of the British East India Company – mostly comprising of Indian soldiers – win consistently against the more numerous and better equipped armies of the Indian rulers? Give reasons. (Answer in 150 words) 10**

Introduction:

Sepoys were Indian soldiers employed within British military garrisons to provide the much-needed manpower for the defence of British power in India.

Body

How did the British army become mostly made of Indians?

- **French precedence:** The first battalion of sepoy was formed by the French in 1744. These sepoy, led by the French, defeated the untrained Indian soldiers in the British army and briefly captured Madras.
- **Drawing from Indian groups:** After this defeat, the British adopted the French model by raising their own sepoy companies and grouping them into battalions that were based in Bengal and Madras. Till 1858, the recruits in the Bengal Native Infantry were primarily from Bengal, Punjab and other northwestern regions in India. The British believed that these men made better soldiers because of their taller stature.
- **Outnumbering:** The British army was made up of three territorial divisions, and based in Madras, Bombay and Bengal. By 1856, sepoy outnumbered European troops in the EIC at a ratio of 10 to 1.

These sepoy fought valiantly for the British cause and defeated larger Indian armies. For instance, Siraj-ud-Daulah's army with about 50,000 soldiers, 40 cannons and 10 war elephants was defeated by 3,000 soldiers of Col. Robert Clive

How did this happen:

Weaknesses within the Indian armies:

- **Superior Arms, Military, and Strategy:** The firearms used by the English, which included muskets and cannons, were better than the Indian arms both in speed of firing and in range. On realising this, many Indian rulers imported European arms and employed European officers to train their troops, but, unfortunately, the Indian military officers and the ranks could never match the English officers and English armies; in the absence of originality, the military officers and armies of Indian rulers became mere imitators.
- **Better Military Discipline and Regular Salary:** by which the English Company ensured that the officers and the troops were loyal. On their part, most of the Indian rulers did not have enough money to pay salaries regularly. The Marathas at times diverted their military campaigns to collect revenue so as to pay their troops. Also, the Indian rulers were dependent on personal retinues or a rabble of mercenary elements who were not amenable to discipline and could turn rebellious or join the opponents when the going was not good.
- **Civil Discipline and Fair Selection System** The Company officers and troops were given charge on the basis of their reliability and skill and **not on hereditary or caste and clan ties**. They themselves were subject to strict discipline and were aware of the objectives of their campaigns. In contrast, the Indian administrators and military officers were appointed on the basis of caste and personal relations, often disregarding merit and ability.
 - **Battle of Bhima Koregoan:** was the part of third and final Maratha-Anglo war and after this war Maratha empire got disintegrated and territories were involved in British India. The British East India Army consisted **834 men, mostly Mahars(dalits)** where the Maratha army of Peshwa faction had roughly 2,000 soldiers, mostly upper caste Brahmins and Marathas.
- **Brilliant Leadership and Support of Second-Line Leaders:** Clive, Warren Hastings, Elphinstone, Munro, Marquess of Dalhousie, etc., displayed rare qualities of leadership. The English also had the advantage of a long list of secondary leaders like Sir Eyre Coote, Lord Lake, and Arthur Wellesley, who fought not for the leader but for the cause.
 - The Indian side too had brilliant leaders like Tipu Sultan, Chin Qilich Khan, Madhu Rao Scindia, but they often lacked a team of second-line trained personnel. The victory in the Battle of Plassey for the British was made possible by the defection of Mir Jafar, who was Nawab Siraj-ud-Daulah's commander in chief.
- **Indian leaders did not fight for a united cause: They were as much fighting against one another as against the British.** The spirit of fighting for a united cause was not their motivation. Thus, they often supported the British against neighbouring rulers. The consciousness of '**India**' was lacking.
 - The English were again helped by the Marathas and the Nizam in the fourth Anglo-Mysore war.
- **Strong Financial Backup:** The income of the Company was adequate enough to pay its shareholders handsome dividends as also to finance the English wars in India. Furthermore, England was earning fabulous profits from its trade with the rest of the world. This vast amount of resources in money, materials, and men was available to the British in times of need, thanks to their superiority in sea power.
- **Nationalist Pride:** An economically thriving British people believing in material advancement and proud of their national glory faced the '**weak, divided-amongst-themselves Indians**' bereft of a sense of **unified political nationalism**.

Conclusion

The lack of political vision and firm commitment to drive out the British was a major reason for the failure of the huge armies of the Indian rulers.

3. Why was there a sudden spurt in famines in colonial India since the mid-eighteenth century? Give reasons. (Answer in 150 words) 10

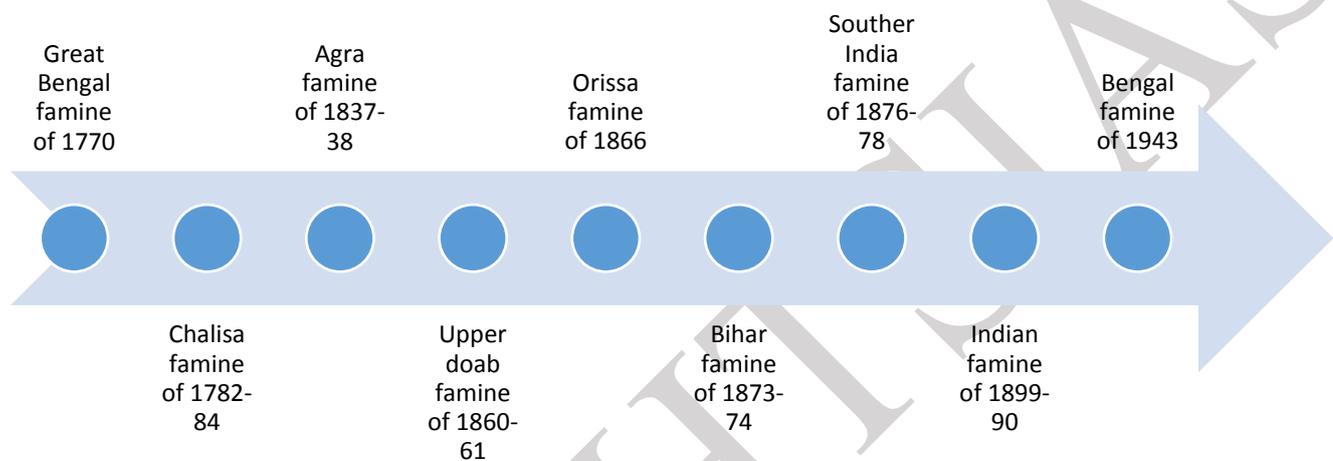
Introduction

Famine means an extreme scarcity of food which results in mass mortalities within a short duration time. India was hit by recurrent famine from 1760 AD to till 1943 AD. As per British sources, there were more than 85 million Indians died in these famines.

Body

The first of these famines was in 1770 and was ghastly brutal. It killed approximately 10 million people, millions more than the Jews incarcerated during the Second World War.

Timeline of major famines since the mid-eighteenth century:



Reasons for the sudden spurt in famines:

- **A consequence of monsoonal failures and delays:** The Chalisa famine of 1783–84 in the Indian subcontinent followed unusual El Niño events that began in 1780 and caused a failure of monsoon and led to droughts throughout the region.
- **Burden of taxes:** The peasants were paying about one-tenth of their produce as tax to the Mughal emperor. With the transfer of Diwani rights, the British East India Company increased the tax to 50%. In Bengal, they collected land tax as well as tariffs on trade. This led to lack enough resources with the peasants for investments in agriculture.
- **Failure of land revenue settlements:** Permanent settlement Act was introduced in 1793 in which the land revenue collection rights were auctioned to the zamindar, who had to pay the 10/11 of the collected revenue to the Britishers within the stipulated time. The sole aim of Zamindar was to collect taxes, without any need for investment in agriculture, this system eventually destroyed Indian agriculture.
- **Most of the Zamindars used to sublet the land to middlemen and would relocate to big cities like Calcutta to live a luxurious life which created absentee landlordism.**
- **Failure of safety nets:** Partial failure of crops was quite a regular occurrence in the Indian peasant’s life. That is why the surplus stock, which remained after paying the tributes, was so important to their livelihood. But with the increased taxation, this surplus deteriorated rapidly. When partial failure of crops came in 1768, this safety net was no longer in place.

- **Commercialisation of agriculture:** In addition to this, the peasants were forced to cultivate cash crops such as indigo, and poppy which yielded high profits to the British East India Company. This reduced the production of edible crops to a large extent.
- **Apathy of colonial rulers:** Prior to mid-eighteenth century, whenever the possibility of a famine had emerged, the Indian rulers would waive their taxes and see compensatory measures, such as irrigation, instituted to provide as much relief as possible to the stricken farmers.
 - The colonial rulers continued to ignore any warnings. In 1772, the Company raised the land tax to 60 percent in order to recompense themselves for the lost lives of so many peasants. Fewer peasants resulted in fewer crops, which in turn meant less revenue. Hence the ones who had not yet succumbed to the famine had to pay even greater taxes so as to ensure that the British treasury did not suffer any losses.
- **Diversion of supplies:** In 1943, the British government diverted the supplies of medical aid and food that was being dispatched to the starving victims to the already well supplied soldiers of Europe.

Conclusion

The natural causes that had contributed to the drought were commonplace. It was the single-minded motive for profit that wrought such devastating consequences. Famines were the tragic consequences of the British rule in India and they occurred every decade. The last of which was the great Bengal famine of 1943.

4. Describe the characteristics and types of primary rocks. 10 M

Introduction:

A primary rock is a rock whose constituents are newly formed and have never been part of some other rock or formed through replacement and alterations. Igneous rocks are also called primary rocks as other rocks are basically formed out of igneous rocks. **Eg: Granite, Basalt, Pumice.**

Body:

Characteristics of these rocks include:

- **Resistant to erosion:** Since igneous rocks are formed due to the cooling and solidification of the magma, these rocks are hard and resistant to erosion.
- **Not affected by weathering:** Water seeps in only through cracks and joints in the rocks. Thus these rocks are mostly not affected by chemical weathering. These usually do not react with acids.
- **Composition:** Most igneous forms include more than one mineral deposit. They can be either glassy or coarse. These rocks are usually fine-grained with smooth texture or may have large crystals with coarse texture.
 - **Granite and diorite** have a coarse texture with large mineral grains, indicating that they spent thousands or millions of years cooling down inside the earth, a time course that allowed large mineral crystals to grow.
 - Rocks like basalt and obsidian have very small grains and a relatively fine texture. Obsidian cools into volcanic glass so quickly when ejected that the grains are impossible to see with the naked eye.
- **Lack of fossils:** Since these rocks are formed due to the cooling and solidification of the magma (lava), fossils are not found in these rocks. If there are any chances of fossil deep inside the crust, it erupts out of the Earth's surface and gets destroyed due to the sheer heat these rocks produce.

Igneous rocks can be **classified into extrusive igneous rocks or intrusive igneous rocks (on basis of location).**

- **Intrusive igneous rocks (Plutonic rocks):** If magma cools slowly at great depths, mineral grains formed in the rocks may be very large. **E.g. Granite.**

- **Extrusive igneous rocks (Lava or Volcanic rocks):** Sudden cooling of magma just below the surface or lava above the surface results in small and smooth grains in rocks as rapid cooling prevents crystallisation, as a result, such rocks are fine-grained. **E.g. Basalt.** The Deccan traps in the Indian peninsular region are of basaltic origin.
 - Basic rocks contain a greater proportion of basic oxides, e.g. of iron, aluminium or magnesium, and are thus denser and darker in colour.

On the basis of amount of silica, primary rock can be divided into:

- **Acidic Igneous Rock:** have high silica content and are lighter **e.g. Quartz and rhyolite**
- **Basic Igneous rocks:** low silica content and are dark in colour **e.g. gabbro, dolerite.**

Further on the basis of mineral composition, primary rock is classified as- Mafic, Felsic and Pegmatitic.

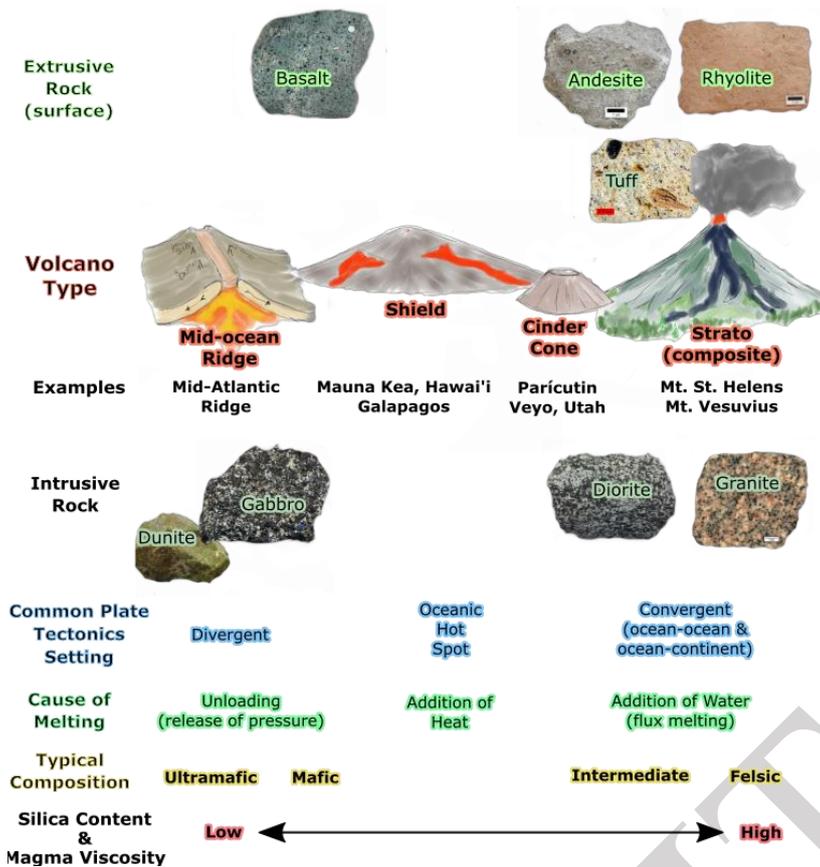
Significance of Primary Rock: Since magma is the chief source of metal ores, many of them are associated with igneous rocks.

- The minerals of great economic value found in primary rocks are magnetic iron, nickel, copper, lead, zinc, chromite, manganese, gold, diamond and platinum.
- Many igneous rocks like granite are used as building materials as they come in beautiful shades.

Conclusion

Primary rocks are important because their mineral and chemical makeup can be used to learn about the composition, temperature and pressure that exist within the Earth's mantle. They can also tell us much about the tectonic environment, given that they are closely linked to the convection of tectonic plates.

Additional Infographic for better understanding



5. Discuss the meaning of colour-coded weather warnings for cyclone prone areas given by India Meteorological department. (Answer in 150 words) 10

Introduction

The Meteorological department has **four colour-coded warnings** that it flashes depending on how intense or violent a weather system is at a given point in time.

Body

What are cyclones?

Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation. Cyclones are usually accompanied by violent storms and bad weather.

Why a warning is needed?

- **Large area:** The Indian subcontinent is one of the worst affected regions in the world. The subcontinent with a long coastline of 8041 kilometres is exposed to nearly 10 per cent of the world's tropical cyclones.
- **High frequency:** On average, five to six tropical cyclones form every year, of which two or three could be severe. Cyclones occur frequently on both the coasts (the West coast - Arabian Sea; and the East coast - Bay of Bengal).
- **Huge destruction:** Very strong winds may damage installations, dwellings, communication systems, trees, etc. resulting in loss of life and property. Heavy and prolonged rains due to cyclones may cause river floods and submergence of low-lying areas causing loss of life and property.

Weather warnings:

The top weather body in India, the Indian Meteorology Department's (IMD) is tasked with identifying and issuing warnings for adverse weather events, relying on a system of colour-coded weather warnings to do so.

The IMD's four colour codes are:

	<p>NO SEVERE WEATHER EXPECTED</p> <p>Keep up to date with latest forecast</p>
	<p>BE AWARE</p> <p>Remain alert and keep up to date with latest forecast</p>
	<p>BE PREPARED</p> <p>Remain vigilant, keep up to date with latest forecast and take precautions where possible</p>
	<p>TAKE ACTION</p> <p>Remain extra vigilant, keep up to date with latest forecast. Follow orders and any advice given by authorities and be prepared for extraordinary measures</p>

- **Green (pre-cyclone watch):** This code means that “all is well”, there is no likelihood of any adverse weather-related and there are no advisories issued.
- **Yellow (cyclone alert):** The colour yellow signals authorities to “be aware” or on their guard, with the likelihood of severely bad weather that could last several days at a stretch, while also suggesting that the weather could take a turn for the worse and upset daily activities.
- **Orange (Cyclone warning):** Meaning “Be prepared”, the IMD issues the orange alert as a warning for extremely bad weather, electricity blackouts and the possibility of communication disruptions, including road and rail closures.
- **Red (during or post-landfall outlook):** The IMD issues the highest level of warning—indicating authorities should “take action”—only when it is guaranteed that bad weather is going to upend travel and power and pose a significant risk to life.

These warnings are based on ‘the probability of occurrences’ and ‘impact assessment’.

The point of the exercise is to give authorities and people likely to be impacted **enough forewarning to be prepared to meet harsh or hazardous weather** that has the potential to wreak severe damage, disrupt daily life or cause loss of life. The warnings are updated daily.

Conclusion:

These alerts are universal and are not used exclusively for cyclones but for a range of natural calamities including floods, heavy rainfall, snowstorms and other dangerous weather events.

6. Discuss the natural resource potentials of ‘Deccan trap’. 10M

Introduction

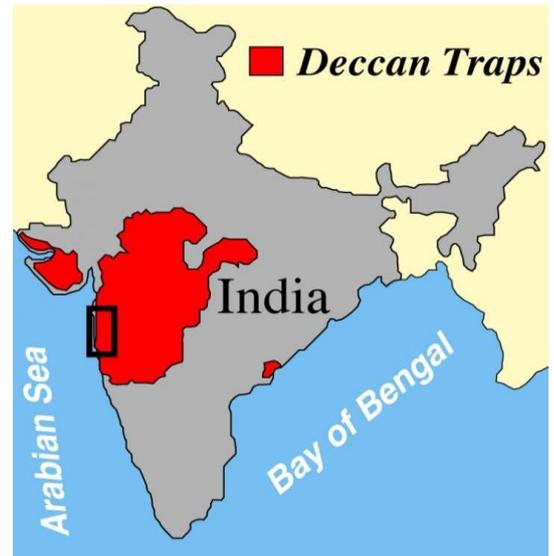
The Deccan Traps is a **large igneous province of west-central India**. It is basalt and one of the largest volcanic features on Earth and crops out over 500,000 sq. km of the west-central Indian subcontinent.

Body

Deccan traps are formed by the **outpouring of lava from many linear fissures** developed in the earth's crust about 66 mn years ago.

The natural resource potential of 'Deccan Trap'.

- **Oil deposits** – Deccan traps are stated to have massive oil deposits, estimated at **around 30 Billion tonnes**. E.g. Ankleswar and Halisa oilfields.
- **Geothermal resources** –Studies suggest the presence of two potential geothermal reservoirs at Unhavare (Khed) and one each at Tural and Aravali.
- **Black soil** – Black soil is made up of lava flows and continuous weathering and erosion of igneous rocks formed by the black soil. It is important for the cultivation of cotton, millets, maize etc.
- **Minerals:** Major mineral constituents of tholeiitic basalt (in the Deccan Traps) are olivine, pyroxenes, and plagioclase, as well as certain Fe-Ti-rich oxides. These Basalt rocks are used as road metal.
 - Also, the deccan trap is rich in metallic and non-metallic minerals such as Iron, Magnesium, Copper etc.
- **High-grade bauxite** – It is rich enough in alumina to be high-grade bauxite. Bauxite is useful in Petroleum filtration and the manufacture of aluminium and alumina cement.
- **Zeolites** – The Cavities are a storehouse of Zeolite minerals which is used for ornamental purposes.
- **Source of Underground water** – The vesicular parts of bedded lavas make good aquifers and yield fair supplies of underground water.
- **Wind and Solar energy:** E.g. Sahayadri hills for wind energy



However, despite this potential, full utilization of resources is constrained by the depletion of resources (water, forest), Environmental Issues (e.g. eco-sensitive zones), non-availability of technologies and backwardness of the reason (e.g. Marathwada and Vidarbha)

Conclusion

Deccan trap is one of the important formations in Indian Stratigraphy. It is one of the important sources of important mineral resources for India, making India 'Atmanirbhar' in many of the natural resources like zeolites, Quartz Aluminium bauxite etc.

7. Examine the potential of wind energy in India and explain the reasons for their limited spatial spread. 10M

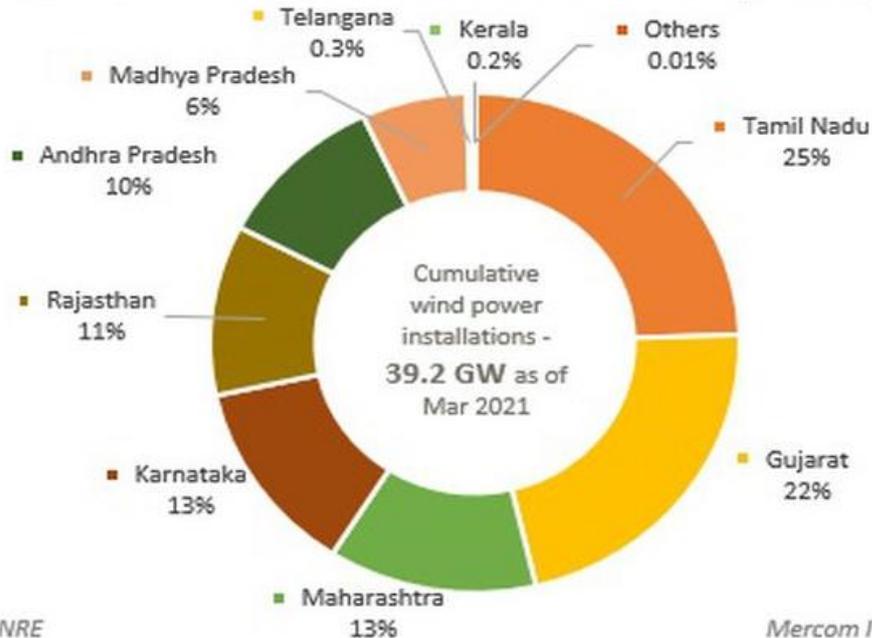
Introduction

India is the world's **fourth** largest country in terms of total wind installations after China, the USA and Germany. Wind power has become one of the key renewable energy sources for power generation in India and can play an important role in the coming decade to bring a clean and indigenous source of power to the people.

Body

As per MNRE data, as of 31 December 2021, the total installed capacity for renewable energy in India is **151.4 GW** of which **wind energy comprises 40 GW**.

India - Cumulative Wind Power Installations by States (%)



Potential of wind energy in India.

Onshore Potential: 302 GW at 100mtrs of height and 695GW at 120mtrs.

Offshore Potential : 127 GW along continental shelf.

- **Favourable location for India:** E.g. From June to September India will be under **SW monsoon** and the **Western Ghats** provide a region for potential wind energy.
- **Potential Target:** The wind power target set by GOI is **60 GW out of 175 GW** target of installed renewable energy (RE) capacity by 2022 and **140 GW out of 450 GW RE target by 2030.**
- **Potential states:** **Tamil Nadu, Gujarat, Maharashtra, Karnataka and Rajasthan** are the top 5 wind-energy potential states in India (As of March 2021, MNRE).
- **Potential in off-shore wind power:** India is a country having around **7,600 km long coastline** and in all of its exclusive economic zones, it has enough opportunity to harness offshore wind energy.
 - India can **explore wind energy on the western side (less cyclone prone).**
 - India has a potential of **174 GW of offshore wind resources**, according to an estimate by the **Global Wind Energy Council**, almost all of it concentrated off the Gujarat and Tamil Nadu coasts.

Initiatives related to Wind Energy

- National Wind-Solar Hybrid Policy.
- National Offshore Wind Energy Policy
- Inter-state transmission charges have been waived off for wind projects to be commissioned by June 2025 to facilitate the inter-state sale of wind power.
- The National Institute of Solar Energy has assessed the country's solar potential of about **748 GW** assuming around **3 per cent of wasteland** area to be covered by solar PV modules.

Reasons for their limited spatial spread

- **Topography** – The Topography of India varies from region to region. Ideal location Wind farms are not available everywhere in the country.
- **Concentrated at few pockets** – Issue with the evacuation of the power due to clustered nature of installations (Eg Tamilnadu and Gujarat)Wind energy policy.
 - **More than 95%** of commercially exploitable resources are located in **seven states:** Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu.

- **Coastal vulnerability due to cyclones** – Western coast is preferred, but the eastern coast is significantly more prone to cyclones as compared to the western coast.
- **Challenges in land acquisition** – In fertile areas land acquisition for wind farms establishment is an issue.
- **Issues with off-shore wind power:** too complex and costly.
- **Lack of technology and minerals:** e.g. India lacks the processing of rare earth minerals used in wind power.
- **Higher cost,** challenges in grid connectivity.
- **The wind energy policy has been much delayed.**

Conclusion

Governments need to tackle issues such as planning barriers and grid connection challenges and to sustain and increase growth in wind-based generation capacity, policymakers need to streamline the procedures to grant permits, including land allocation and grid connection projects.

8. Explore and evaluate the impact of 'Work From Home' on family relationships. (Answer in 150 words) 10

Introduction

When an employee can perform his role from home using company approved assets and contribute in similar manner from office, it is referred as **work from home**. Many workplaces are adopting work-from-home (WFH) arrangements, especially since the COVID-19 pandemic. WFH causes changes to both work and life environments, impacting family relationships.

Body

Positive impacts of Work from home.

- **Stronger Family bonds** – While working from home a person spends more time with the family. This makes family bonds stronger. Re-integration of family.
- **Better work life balance:** Spending more time with family members like Parents, Spouses, Children etc is good for their relationships.
- **Weakening the relationship of class:** Previously people involved in jobs/paid employment didn't had sufficient time to invest on the family.
- **Caring for children** – Men and women more or less equally played an important role in caring for children.
- **Sensitization** – More sensitization about women and their work by the men reduced the influence of Patriarchal dominance in the family. This made men appreciate women.
- **Impacting education and health** – More Savings made people focus on health, education of children and health of elders.

Negative Impacts of work from home

- **Increased Domestic violence**– Domestic violence has increased especially against women.
- **Pressure on women** – Pressure on women increased especially on homemakers because WFH made women take care of men along with children as in the case earlier.
- **Overparenting** – Overparenting increased when both parents stayed at home in caring for children. This restricted independence of children.
- As work stress and family are in the same place, it became easy to **vent out work stress to women** and children.
- Sometimes Working from home creates **irritation** because of the lack of required work infrastructure and background disturbances. This impacts stress on individuals and their families.
- **Loss of work efficiency and growth:** Loss of growth at workplace can have negative impact in the family relationship.

Conclusion

Thus there is need to mitigate the issues arising out of WFH, by better managing stress, limiting the time of WFH and

creating awareness about the mental health issues.

9. How is the growth of Tier 2 cities related to the rise of a new middle class with an emphasis on the culture of consumption? (Answer in 150 words) 10

Introduction

Consumption culture describes a lifestyle focused on spending money to buy material goods in a capitalist economy. It is generally attributed to have come from western countries.

In recent years, **growth in the tier 2 cities** have been exponential e.g. over **40%** economic growth in cities such as Jaipur, Vadodara, Coimbatore, Pune, Banaras etc. This can be very much attributed to culture of consumption by the new middle class.

Body

New Middle Class are marked by the **individual's capacity** to consume more global products and better lifestyle.

Growth of tier 2 cities have been led by New middle class:

- **More disposable Income of new middle class** leading to increased purchasing capacity and quest for better life-styles
- **Emerging new class of entrepreneurs:** – As per the economic survey of 2018-19, of over 16500 recognised start-ups, nearly half of them are in tier 2 and tier 3 cities.
 - Tier 2 cities like Jaipur, Patna, Indore and Surat have recorded an economic growth rate of **over 40%**, making them attractive options for larger firms as well.
- **Urbanization:** Pull factor of tier 2 and 3 cities to act has better avenues than rural areas or cheaper location than metro cities has led to growth of tier 2 cities.
- **Work from Home** - Shifting the location of jobs to houses in tier 2 and tier 3 cities.
- **Tourism potential** of Tier 2 cities like Kannur.

Consumption culture leading to growth of tier 2 cities:

- **Food consumption** -- Mcdonaldization of tier 2 cities with mushrooming of malls, food courts, and fast food centres influenced the changing dietary pattern of people.
- **Rise of e-commerce** – This has led to an increase in market access to the middle-class tier 2 population.
- **Walmartisation** – Emergence of big retailers vis a vis the unorganised local shops. Thus affecting economic change due to consumerist culture.
- **Skyrocketing of the real estate sector** – With the higher purchasing power and demand in tier 2 cities.
- **Promoting capitalism over welfare problems** – This argument is also supported by the economic survey in its theory of consumerism. It says that middle-income families due to consumerism culture are left with little disposable income which may affect important areas like education, and health.

Some challenges existed

- Lack of robust infrastructure and limited access.
- The stable utility is one of the main concerns even though these markets are ripe with opportunities.
- Adaptability is slow in these cities.

Way forward

- Budget 2022 focused on a **greater push to tier 1 and tier 2 cities** with a greater thrust on urbanization and infrastructure.
- This should be combined with the focus **on traditional modes of consumption.**
- **Sustainable development of tier 2 cities.** Eg - the Indore model of waste management can be implemented in other cities to manage the rise in consumerism.

Conclusion

Considering the present scenario of tier 2 demography of middle-class families with a high

culture of consumerism it must be considered as a "**cradle of innovation**" and a "**driver of economic growth**" with sustainability.

10. Given the diversities among the tribal communities in India, in which specific contexts should they be considered as a single category? (Answer in 150 words) 10

Introduction

The tribal population in India constitutes around **8.6% of the population** which is the largest tribal population in the world. These people's way of life, cultures, religious beliefs, traditions, rituals, dress, food and languages are so varied that they represent an anthropological wealth of heritage.

Body

Diversities among Tribal communities.

- The **level of Development** in comparison to other sections of society and within themselves also varied. For e.g. Meena in Rajasthan have been able to move up in developmental aspects while tribals in Andaman and Nicobar have not been able to come out of seclusion.
- **Social customs** – Marriage customs, dining habits etc are varied in tribal communities.
- **Religious Diversity** – The tribes of the Northeast have adopted Christianity while tribals in Jharkhand, and Chattisgarh follow the practice of Nature of worship, While few in Rajasthan like meenas etc have moved towards acceptance of Hindu Norms.
- **Geographical Diversity** – The tribals are distributed in various regions like forests and hills, in around 10 states while there are states with No tribal population e.g. in Punjab, Haryana, Delhi, and Puducherry. While 94% of the total population in Mizoram and Lakshadweep belong to Scheduled Tribes.

Singularity among the tribes in India

Though there are many differences among the tribal population, they can be considered as a single category in the following ways.

- **Multi-dimensional poverty:** Most of the STs face similar problem of poverty, with over 65mn tribals living in Multi-dimensional poverty
- **Lack of education** – As per the census 2011, the literacy rate of **STs was 59%**. The common factors which inhibit tribals from taking education are superstitions and prejudices, extreme poverty etc.
- **Problems of Health and Nutrition** – Because of economic Backwardness disease is prevalent, problems associated with malnutrition like iron deficiency and anaemia, and high infant mortality rates.
- **Gender issues** – The destruction of forests and rapidly shrinking resource base have had an impact on the status and livelihood of women who were dependent upon those resources.
- **The practice of Hunting, Fishing and Gathering** – The main tribes which practice these professions are Raji in Uttar Pradesh; Khariya, Pariha and Borgias in Jharkhand etc
- **Shifting cultivation and lumbering** – It is called Jhum in North-East India, Kumari in western Ghats, and Watra in Southeast Rajasthan.
- **Loss or control over Natural resources** – With the advent of industrialization in India, developmental projects have resulted in the loss of ownership rights over land, owing to chronic indebtedness.
- **Development led displacement:** Tribals constitute over **40%** of the displaced people.
- **Loss of cultural preservation:** Traditional knowledge lacks documentation and preservation.

Conclusion

There is some homogeneity among the tribal communities despite all the diversities. All the tribal communities need to be linked to the mainstream (as also conveyed in **the tribal Panchsheel**). The state must aim to ensure that all sections of society must have shared in the economic and social development.

11. The political and administrative reorganization of states and territories has been a continuous ongoing process since the mid-nineteenth century. Discuss with examples. (Answer in 250 words) 15

Introduction

The reorganization of states is an ongoing process since the mid-nineteenth century following the Indian Rebellion of 1857 when the company's remaining powers were transferred to the Crown.

Body

The reorganization during the mid-nineteenth century largely benefitted the colonial aspirations and goals. After Independence, the reorganization largely reflected the demands of the people.

Under the British Raj (1858–1947)

- **Presidency model:** The British Raj began with the idea of the presidencies as the centres of government. The British Raj began with the idea of the presidencies as the centres of government. Until 1834, any territory or province that was added by conquest or treaty to a presidency came under the corresponding presidency.
- **Non-regulation provinces:** However, in the case of provinces that were acquired but were not annexed to any of the three presidencies, their official staff could be provided as the governor-general pleased. These included: North-East Frontier (Assam), Cooch Behar, South-West Frontier (Chota Nagpur), Jhansi Province etc.
 - There were changes within these, for instance, Assam separated from Bengal in 1874 as the North-East Frontier non-regulation province. Incorporated into the new province of Eastern Bengal and Assam in 1905. Re-established as a province in 1912.
- **Changes under the crown: Newer provinces were created after the Crown took over in 1858.**

1861

•Central Provinces: from Nagpur Province and the Saugor and Nerbudda Territories. Berar was added to the province in 1903, and was renamed the Central Provinces and Berar in 1936

1875

•Andaman and Nicobar Islands established as a province.

1901

•North-West Frontier Province created from the north-western districts of Punjab Province.

1905

•Partition of Bengal in the disguise of improving administrative to divide the unity among Hindu and muslims. Annulled in 1911 in response to the Swadeshi movement's riots in protest against the policy.

1912

•Bihar and Orissa separated from Bengal in 1912, With a population of 78.5 million in Bengal, it created difficulties for effective management
•Delhi separated from Punjab, when it became the capital of British India.

1936

•Orissa: Separate province by carving out certain portions from the Bihar-Orissa Province and the Madras Province.

After Independence:

Mainly linguistic, ethnic or administrative purposes. Reorganizing states on the basis of language would not only help in ease of administration but also the development of vernacular languages which was ignored by the British. At the

time of independence in 1947, British India had 17 provinces and 570 disjointed princely states.

- In **1953, the first linguistic state of Andhra**: for Telugu-speaking people was born. After a prolonged agitation and the death of Potti Sriramulu after a 56-day hunger strike. Consequently, there were similar demands for creation of states on linguistic basis from other parts of the country. The government formed state reorganization committee (SRC) under Fazal Ali to consider these new demands.
- **1956**: The new States formed as a result of the reorganisation of States in 1956 are Andhra Pradesh, Bombay Kerala, Madhya Pradesh, Madras, Mysore, Punjab and Rajasthan.
- **1960**: The language agitation continued, The Samyukta Maharashtra Andolan and Mahagujarat Andolan protests led to the split of the Bombay state in 1960 into two parts: Maharashtra and Gujarat.
- **1963**: Even cultural affiliations were taken into account, for example, Nagaland was created taking into account tribal affiliations.
- **1966**: The Akali Dal led the Punjabi Suba movement, which led to the creation of a Punjabi-speaking and Sikh-dominated Punjab state, and the Hindi-speaking and Hindu-dominated state of Haryana in 1966.
- **1970s**: witnessed several changes in state boundaries along the north-eastern frontier, often to douse the fires of militancy and violence. Manipur and Tripura were granted statehood and the state of Meghalaya and Union territory Mizoram were carved out of Assam in 1972.
 - The '80s saw the birth of two more north-eastern states when Manipur and Arunachal Pradesh were granted statehood in 1987 (they were UTs earlier).
- **2000: Better development**: Uttaranchal, Jharkhand and Chhattisgarh carved out of Uttar Pradesh, Bihar, and Madhya Pradesh, respectively, were created for better economic development in the respective regions.
- **Addressing regional political demands**: and inequalities in regional development. Telangana was formed on the basis of such demands in 2014.
- **Change in boundaries**: Apart from the loss of territory to Pakistan in 1947 and to China in 1963, India's external boundaries has changed only three times—when Goa was subsumed into the Indian Union in 1961, Pondicherry in 1962 and Sikkim in 1975.

The latest change to Jammu and Kashmir where the state was bifurcated and made into union territories of J&K and Ladakh has been justified on the grounds of development.

Conclusion:

This may not be the last of the changes in India's internal boundaries. Several regions across India aspire for full statehood, although the intensity of demand varies across regions, and over time. The development boards (established under Section 371 to promote equitable development) in states such as Maharashtra, Gujarat and Karnataka, and territorial councils in the northeast could be the potential contenders for statehood in the future.

12. Discuss the main contributions of Gupta period and Chola period to Indian heritage and culture . (Answer in 250 words) 15

Introduction

Two phases in Indian history can be truly defined as the 'Golden Age of India', was an era between the 3rd century and 6th century CE of ancient India during the Gupta Empire and the other one was the period between the 10th and 11th century CE of medieval India during the Chola Dynasty in South India.

Body

During the rule of the Gupta Empire, India had made lots of contributions in various sectors like mathematics, science, astronomy, religion, etc and during the Chola Dynasty, there was much development in architecture, Tamil literature, and bronze work.

The Guptas:

Under royal patronage, this period became India's classical age of literature, theater, and visual art.

- **Literature**: The greatest writer of the time was Kalidasa created such epics as Abhijnanasakuntalam, Malavikagnimitram, Raghuvansha, and Kumarsambhava. Sudraka wrote Mricchakatika, Vishakhadatta created Mudrarakshasa and Vishnusharma penned Panchatantra.

- **Science and technology:** Varahamihira wrote Brihatsamhita and also contributed to the fields of astronomy and astrology. Genius mathematician and astronomer Aryabhata wrote Surya Siddhanta which covered several aspects of geometry, trigonometry, and cosmology. Shanku devoted himself to creating texts about Geography.
- **Medicine:** Dhanvantri's discoveries helped the Indian medicinal system of Ayurveda become more refined and efficient. Doctors were skilled in surgical practices and inoculation against contagious diseases was performed.
 - In the field of medicine the great medical trio of ancient India; Vagbhata, Charaka, and Susruta belonged to this period.
- **Revival of Sanskrit:** the renovation of Brahmanism the use and influence of Sanskrit grew in pace, the Puranas in their present form were composed during this period. The epics Mahabharata and Ramayana were given final touches.
- **Education:** The Nalanda University founded by Kumaragupta I became the most celebrated Buddhist educational centre in North India.
- **Music and dance:** practicing vocal music, dance and seven types of musical instruments including veena (an Indian musical stringed instrument), flute, and mridangam (drum) were a norm rather than an exception.
- **Paintings:** The art of painting reached its height of glory and splendour. The fresco paintings noticed in the caves at Bagh and the paintings found in the Ajanta caves are the products of the Gupta period.
- **Architecture:** The Gupta Dynasty in North Central India saw the first purpose-built Hindu (and also Buddhist) temples which evolved from the earlier tradition of rock-cut shrines. Temple remains at Deogadh (Jhansi district) contains fine pieces of sculpture on the panels of the walls
- The craftsmen of the Gupta age were experts in working metals. This is evident from the discovery of several colossal copper statues of the Buddha and an iron pillar at Mehrauli near Delhi

The Cholas:

- **Temple building** received great impetus from the conquests and the genius of Rajaraja Chola and his son Rajendra Chola I. The Brihadisvara Temple at Tanjavur (the largest and tallest of all Indian temples of its time) , the temple of Gangaikondacholisvaram, and the Airavatesvara Temple at Darasuram are referred to as the Great living Chola temples.
- **The bronze casting technique** and the making of bronze images of traditional icons reached a high stage of development. The well-known dancing figure of Shiva as Nataraja was evolved and fully developed during the Chola Period and since then many variations of this complex bronze image have been modelled.
- **Literature:** The Imperial Chola era was the golden age of Tamil culture, marked by the importance of literature. Chola records cite many works, including the Rajarajesvara Natakam, Viranukkaviyam, and Kannivana Puranam.
 - Also particular significant for the development of Telugu literature in which the great Telugu poets Tikkana, Ketana, Marana, and Somana enriched the literature with their contributions
- **Cultural centers:** Chola rulers took an active interest in the development of temple centers and used the temples to widen the sphere of their royal authority. They established educational institutions and hospitals around the temple and enhanced the beneficial aspects of the role of the temple.
- **Cultural influences:** During the Chola period, Indian languages like Sanskrit, Pali, and Tamil had a considerable long-term impact on the linguistic and intellectual cultures of south East Asia.
- **Paintings:** flourished, and figures were painted with realism. In Brihadeswara temple, the paintings were executed on the walls of the narrow passage surrounding the shrine. Two layers of paints were found when they were discovered.

- **Dance:** During the Chola period, two types of dances were performed: Bharatanatyam and Kathakali. Lord Siva was depicted as a performer of the Karana dance. Dance-dramas were also performed on stages during festival times. Chola kings established endowments to promote the art of dancing.

Conclusion

Many of the traditions and cultural art forms introduced by these dynasties flourish till today. Notable collections of sculptures from these eras fill museums across the world and it's our duty to protect and carry on the traditions of art and culture.

13. Discuss the significance of the lion and bull figures in Indian mythology, art and architecture. (Answer in 250 words) 15

Introduction

In ancient India, knowledge of the animals, or pasu vidya was considered an important subject of study. Animals occupy an important place in Indic religions and the same is reflected in their art and architecture.

Body

However, not all animals enjoy the same status in Hinduism. A few of them such as the bull and lion are considered sacred and spiritually evolved.

Significance in Indian Mythology:

Bull or Nandi:

- The bull has a special significance in **Shaivism and Hindu Tantra**. Lord Shiva is known as Vrishabhanath, lord of the bulls. Nandi appears in Hindu mythology as the primary vehicle and the principal gana (follower) of Shiva. The images of Nandi are invariably found in every Shiva temple.
- In **Rig Veda**, the bull represented masculinity, virility, strength, aggression, and fighting power. The Vedas describe Indra as a Vrsabha - a strong bull of manliness and mighty strength. Indra was often praised as a Bull, with bull being an icon of power and virile strength.
- Rishabhanatha, (Sanskrit: "Lord Bull") the first of the 24 Jain Tirthankaras. His name comes from the series of 14 auspicious dreams that his mother had, in which a bull (rishabha) appeared, before his birth.
- The birth Symbol of Lord Buddha is the Bull.

Lion

Lions enjoy an exalted status in Hinduism as symbols of royalty, strength, and ferocity.

- **Narasimha:** One of the ten incarnations of Vishnu, who has the head and shoulders of a lion, but the torso of a human. Narasimha is one of the fiercest forms of Vishnu in his aspect of Kala, or Death.
- **Shaktism:** Many Shaktis have either a lion or a tiger, or both as their vehicles, suggesting that from a symbolic perspective they represent the same qualities and energies. Lions are mentioned in the Vedas and the Puranas. Goddess Durga, a fierce form of Parvathi or Shakti, has a golden lion as her vehicle.
- In Buddhism, lions are symbolic of the Bodhisattvas. In Buddhist architecture, lion motifs or figures were used as protectors of Dharma and therefore support the throne of the Buddha and Bodhisattvas.
- Sikhism: Word "Singh" represents lion i.e Bravery and Courage.

Art and architecture:

- **Ashokan pillars:**
 - **Lion capital from Sarnath:** four majestic lions, roaring and facing the four cardinal directions. They represent power, courage, pride, and confidence. The Mauryan symbolism of the lions indicates "the power of a universal emperor (chakravarti) who dedicated all his resources to the victory of dharma".

- **Bull Capital from rampurva:** Rashtrapati Bhavan houses the magnificent third century B.C. sandstone capital of the Ashokan Pillar known as the Rampurva Bull. The Bull Capital at Rampurva signified the strength of the Mauryan Empire.
- **Architecture:** There are also some famous temples in India which are exclusively dedicated to Nandi. Eg: The Big Bull temple, Bengaluru.
- **Sculptures:** of Nandi adore many Indian temples. Lepakshi Nandi in Andhra Pradesh is one such spectacular Nandi which is one of the biggest monolithic Nandi in India made of a single granite stone.
- **Art:** Lions form an important part of Hindu religious art.
 - The face of the lion (simha-mukha) is used in **images and sculpture** in many Hindu temples to decorate the doors, walls, arches, and windows. Their fierce form, bloodshot eyes, and large teeth, represent Kala, the devourer.
 - A similar form is used in the masks, kirti mukhas, which are worn by actors in traditional Hindu dance dramas to enact ancient legends and stories from the Puranas and the epics. Eg: Ramman-ritualistic theatre of Garhwal region of Uttarakhand. People of the Bhandari caste wear a lion mask symbolizing Narasimha (half-man and half lion).
- **Folk dances:** Animal dances are part of many folk dances in India, such as Kaalai Attam (bull dance) in Tamil Nadu and Kerala.
- **Numismatics:** Most of the **Satavahana** coins had on one side, the figure of an elephant, horse, lion or Chaitya. Lion figures were part of Gupta and Pallava coins. Gupta kings were shown as hunting these majestic animals.
 - Bulls appear on seals from the Indus Valley civilization. Rajput kings of Gandhara introduced the other type of silver coins that had a seated bull.
- **Bronze figures:** The Harappan civilisation saw a wide scale practise of bronze casting of animals. Eg: bronze bull of Kalibangan.
- **Cave sculptures:** The Udayagiri located in Vidisha, Madhya Pradesh. The caves have one of the earliest Hindu sculptures. It also has caves dedicated to Shiva, Narasimha (half lion, half-man).

Conclusion

It is said that when Brahma created the animals, he hid a specific secret in each of them to signify their spiritual importance to humans. It is also said that Shiva imparted to each of them specific states of yogic awareness. Thus animals assume a lot of symbolic significance in Indian art and architecture.

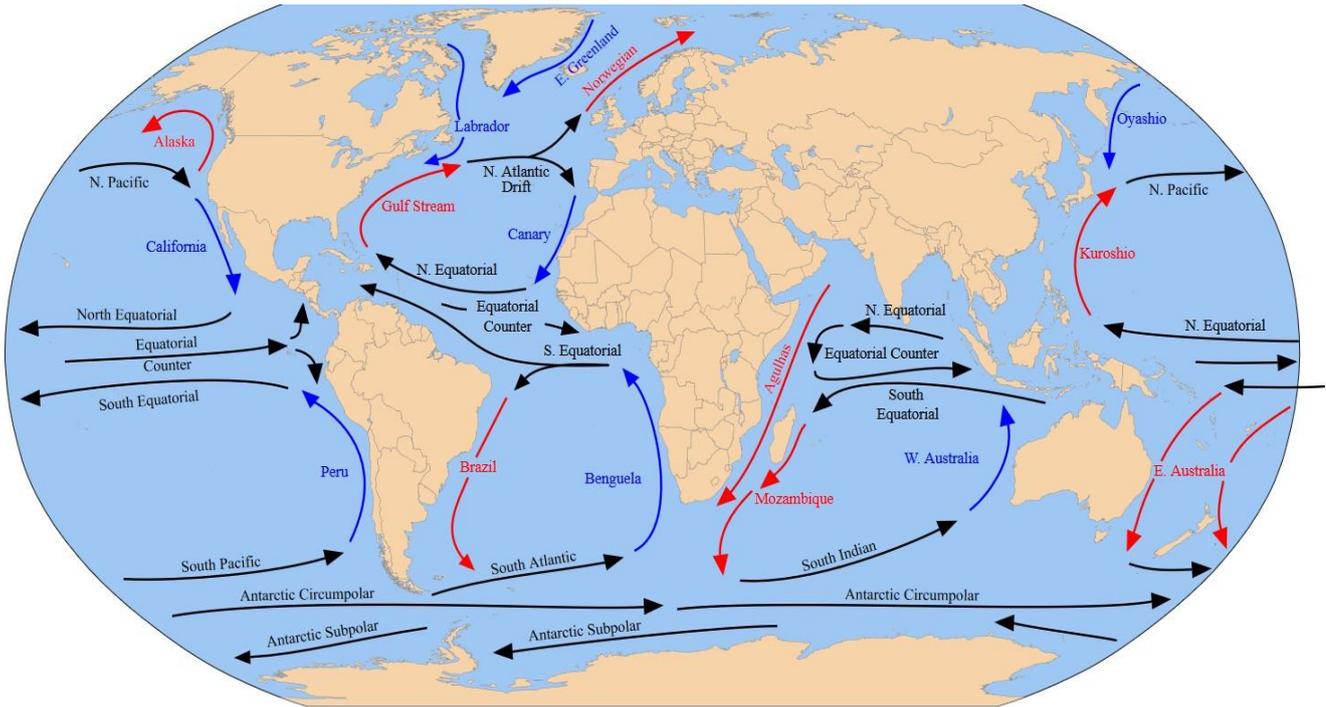
14. What are the forces that influence ocean currents? Describe their role in fishing industry of the world. (Answer in 250 words) 15

Introduction

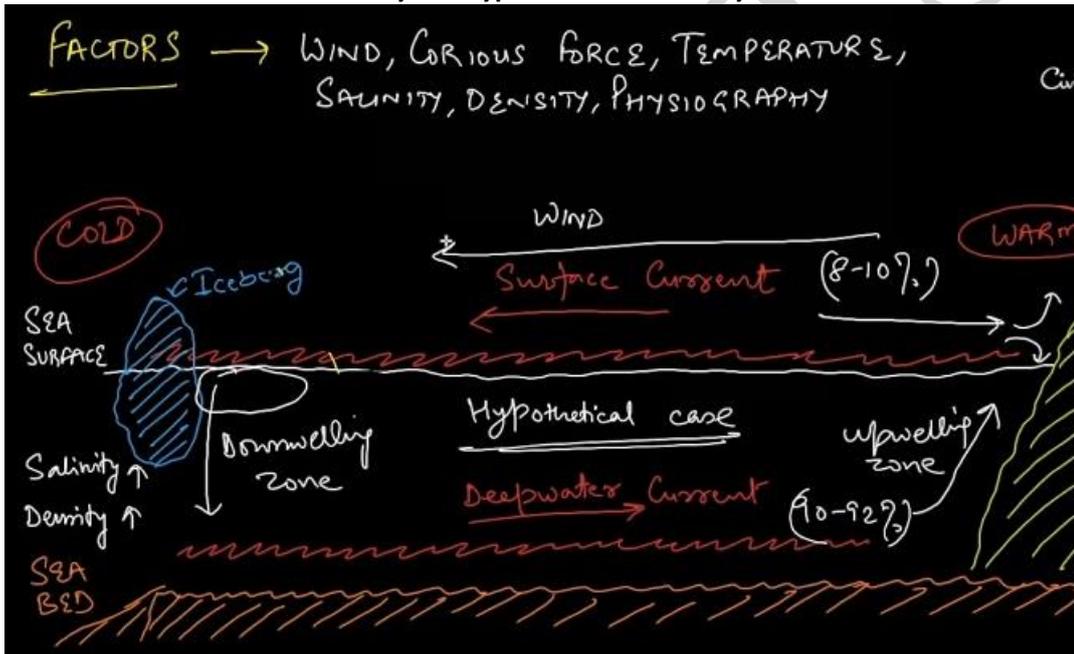
Ocean currents are the continuous, predictable, directional movement of seawater. It is a massive movement of ocean water that is caused and influenced by various forces. They are like river flows in oceans.

Body

Distribution of ocean current:



Ocean currents are influenced by two types of forces namely:



1. Primary forces that initiate the movement of water;

- **Influence of insolation and gravity:** Near the equator, the ocean water is about **8 cm higher** in level than in the middle latitudes. This causes a **very slight gradient** and water tends to flow down the slope. The flow is normally from east to west.
- **Influence of wind (atmospheric circulation):** Wind blowing on the surface of the ocean pushes the water to move. The oceanic circulation pattern roughly corresponds to the earth's atmospheric circulation pattern.
 - **Example:** Monsoon winds are responsible for the seasonal reversal of ocean currents in the Indian Ocean.
- **Influence of gravity:** Gravity tends to pull the water down to pile and create gradient variation.

- **Influence of Coriolis force:** The Coriolis force intervenes and causes the water to move to the right in the northern hemisphere and to the left in the southern hemisphere.
 - The large accumulations of water and the flow around them are called **Gyres**. These **produce large circular currents** in all the ocean basins. One such circular current is the Sargasso Sea.

2. Secondary forces that influence the currents to flow:

- **Differences in water density:** It affects the vertical mobility of ocean currents. Water with high salinity is denser than water with low salinity and in the same way cold water is denser than warm water. Denser water tends to sink, while relatively lighter water tends to rise.
- **Temperature of water:** Cold-water ocean currents occur when the cold water at the poles sinks and slowly moves towards the equator. Warm-water currents travel out from the equator along the surface, flowing towards the poles to replace the sinking cold water.

Role of ocean currents in the fishing industry of the world:

- **Distribution of nutrients and food:** They carry nutrients and food to organisms that live permanently attached to one place and carry reproductive cells and ocean life to new places.
- **Growth of Planktons:** Ocean currents are important in the fishing industry as they affect the growth of plankton which provides fish food.
 - Cold ocean water currents flowing from polar and sub-polar regions bring in a lot of plankton that are crucial to the continued survival of several key sea creature species in marine ecosystems. Since planktons are the food of fish, abundant fish populations often live where these currents prevail.
- **Mixing of waters:** The best fishing grounds of the world exist mainly in these mixing zones giving rise to rich fishing grounds. Example: Grand Banks around Newfoundland, Canada and North-Eastern Coast of Japan.
- **Determine fish movements:** Ocean currents also determine fish movements along coastal areas of Southern Africa.
 - **Sardines** from the Benguela current system in the west coast of South Africa, are trapped in the cold water off the southern tip of Africa.
- **Salinity balancing:** A too salty location will not allow fishes to thrive.
- **Disperse nutrients:** Ocean currents also disperse nutrients in sea surface waters, which are brought from inland by rivers and streams.

Ocean currents act much like a **conveyor belt, transporting warm water and precipitation** from the equator toward the poles and cold water from the poles back to the tropics. Thus, ocean currents regulate global climate, helping to counteract the uneven distribution of solar radiation reaching Earth's surface.

Conclusion

Without currents in the ocean, regional temperatures would be more extreme — super hot at the equator and frigid toward the poles — and much less of Earth's land would be habitable.

15. Describing the distribution of rubber producing countries, indicate the major environmental issues faced by them. (Answer in 250 words) 15

Introduction

Natural rubber is produced from plants and is classified as a polymer. Thailand, Malaysia, and Indonesia are three of the leading rubber producers. Rubber latex is extracted from rubber trees.

Body:

Factors favouring rubber production:

- **Soil requirements:** well-drained, weathered soil consisting of lateritic and sedimentary types, non lateritic red or alluvial soils.

- **Climatic conditions:** Rainfall of around 250 centimetres evenly distributed. Atmospheric humidity of around 80%. About 2,000 hours of sunshine per year at the rate of six hours per day throughout the year. Absence of strong winds.

As a consequence of these requirements, growing areas are limited. Southeast Asia is particularly well situated for rubber culture; so too are parts of South Asia and West Africa.

- **South-east Asia:**
 - **Thailand** is top producer of rubber (31% of global total)
 - **Indonesia:** Contain huge plantations of rubber in Java, Sumatra and Borneo Island.
 - **Malaysia**
- **India:** 75% of rubber is produced in Kerela. Other areas are: Tamil Nadu, Karnataka and Andaman and Nicobar Island.
- **Africa:** Liberia is the largest producer
- **Other countreis are:** China, Philippines, Vietnam, and Sri Lanka and the West African states of Nigeria, Côte d'Ivoire, and Cameroon.

(see infographic after conclusion for map)

Major environmental issues faced by rubber plantations:

- **Deforestation:** The Mekong region—which comprises Thailand, Cambodia, Vietnam, Laos and Myanmar—is facing deforestation.
 - A 2019 study from the University of Copenhagen shows that **23.5% of the forest cover** in Cambodia was destroyed between 2001 and 2015. Almost a quarter of the deforested area, including “protected” areas, was used for rubber plantations.
- **Soil erosion:** Natural forests are being replaced by these rubber plantations, leading to soil erosion in rubber plantations which are situated on undulating to steep terrain with high intensity of rainfall, especially during the early years after planting.
- **Biodiversity loss:** increasing demand of natural rubber has led to rubber monoculture on more than 2 million hectares of land, mostly in Asia, during the last decade.
- **Man-animal conflicts:** Massive deforestation and increase in rubber plantations in Tripura have emerged as the major causes of change in the habitat of non-human primates as well as cases of monkey-human conflict in certain parts of Tripura, according to a study.
- **Chemical smells and pollution:** High concentration of ammonia and nitrogen compounds in the latex concentrate effluent posed another serious threat to the environment and to nearby river or canals leading to a water pollution problem.
 - **Sulphates** released from latex processing factories
- **Water loss:** rubber plants require 60-80 per cent more water in comparison to other plants in a forest, which not only depletes ground water but also take away from the share of other plants.

Climate change and disease also threaten the **growth of natural rubber**. Further conversion of forests into rubber plantations needed to be regulated. Therefore, we could grow diverse, organic crops including rice, tubers and cash crops, besides deriving building materials such as bamboo from regenerating forests, and earn by selling them.

Conclusion:

Rubber could be combined with other crops such as banana, coffee and agar to support livelihood and to minimise environmental stress. Also, there is need of proper storage, processing and management of wastes from rubber processing. Reuse of scrap rubber must also be emphasized.

Rubber

Natural rubber is a polymer of isoprene, an organic compound and obtained from the latex of a number of tropical trees of which Para Rubber tree (**Hevea brasiliensis**) is the most important.

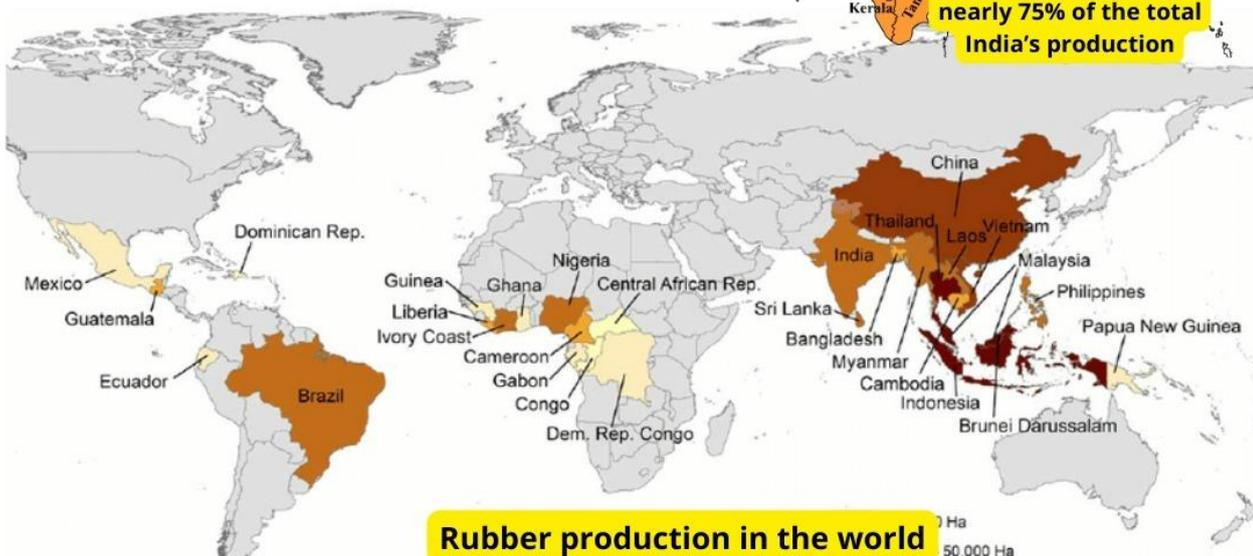
Age: around 32 years in plantations.

Soil: Well-drained and well-weathered soils e.g., Lateritic type, alluvial, sedimentary types

Precipitation and Temperature: An evenly distributed rainfall with at least 100 rainy days a year and a temperature range of about 20 to 34°C.

A humidity of **around 80%**, 2000 hours of sunshine, and absence of strong winds are also necessary for the best results.

Uses: Natural rubber is preferred over synthetic rubber due to its high tensile strength and vibration dampening properties, along with tear resistance.



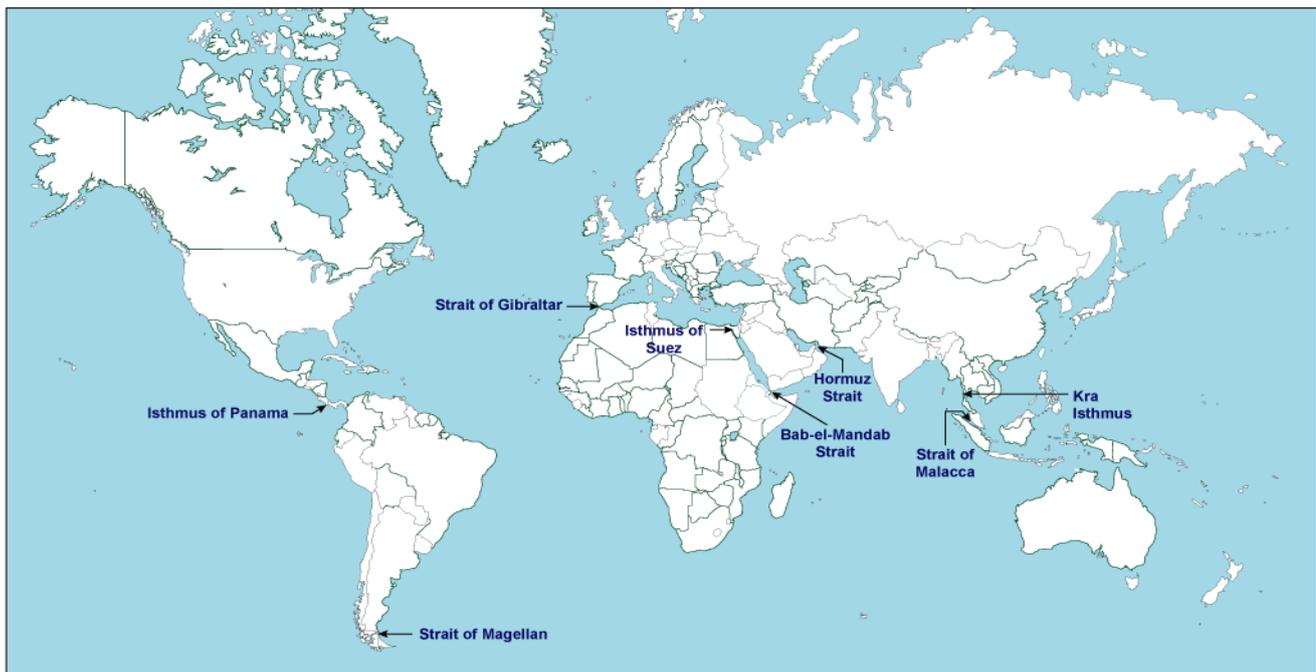
16. Mention the significance of straits and isthmus in international trade. (Answer in 250 words) 15

Introduction

A **strait** is a narrow body of water that connects two larger bodies of water. Ex - **The Strait of Gibraltar** is the only link between the Mediterranean Sea and the Atlantic Ocean.

An **isthmus** is a narrow strip of land that connects two larger land masses and separates two bodies of water. Ex - The **Isthmus of Panama** links the continents of North and South America and separates the Pacific and Atlantic Oceans.

Body



Significance of straits in international trade.

- **Large scale volume of world trade** – E.g. The Malacca Strait is currently a vital transport hub for Asian trade, with more than 60,000 vessels passing through it every year (40% of world trade).
- **Oil trade** – The Strait of Hormuz connects the Persian Gulf and a part of the Arabian Sea called the Gulf of Oman.
 - As much as **18 million barrels** of oil pass through the Strait of Hormuz every day, accounting for **one-third of the global oil trade**.
- **Strategic importance** – Straits have had great strategic importance. Whoever controls a strait is likely to control the sea and shipping routes of the entire region. For instance, The Strait of Hormuz is jointly controlled by Oman, the United Arab Emirates, and Iran.
- **Port Cities at the Straits** – There are five major international ports around Malacca Strait namely Singapore, Port Klang (Kuala Lumpur), Johore, Penang and Belawan (Medan).
 - Major ports are important hubs of world shipping, the minor ports support local trade and labour migration.

Significance of isthmus in international trade.

- **Efficient transportation of goods** – The Panama Canal stretches across the isthmus of Panama allowing cargo ships to travel from eastern North America to western North America without having to go around South America.
 - Thus allowing for faster and more efficient transportation of goods and people and shortening the sailing time by several days.
- **Oil Trade** – The Suez Canal facilitated trade and travel in the 19th century, and continues to define the oil trade today.
- It enables the transfer of an estimated **7-10% of the world's oil and 8% of liquefied natural gas**.
- **Alternative maritime route** – The **Kra Isthmus canal** is expected to ease overcrowding over the strait of Malacca by offering an alternative maritime trade route, while also avoiding a standstill in global trade if the Malacca Strait were to be blockaded.

- **Reducing risks** – The Kra Isthmus canal would reduce risks for shipping, as the Malacca Strait has a relatively high risk of shipwrecks and piracy compared with other sea transport hubs such as the Panama Canal.
- **Connects the continents** – The Isthmus of Suez in eastern Egypt connects the continents of Africa and Asia. The Isthmus of Panama Panama links the continents of North and South America.
- **Natural sites for Ports** – They are natural sites for ports and canals linking terrestrial and aquatic trade routes.
- **Facilitates Communication** – Isthmuses are also key sites for communications and cultural exchange, as well as military outposts.

Conclusion

Straits and isthmus have played a role in international trade by providing shorter navigable waterways which **boost globalisation and make trade fast and profitable**. In the future also due to global warming, straits and isthmus in the Arctic ocean are going to play a major role in international trade.

17. Troposphere is a very significant atmospheric layer that determines weather processes. How? (Answer in 250 words) 15

Introduction

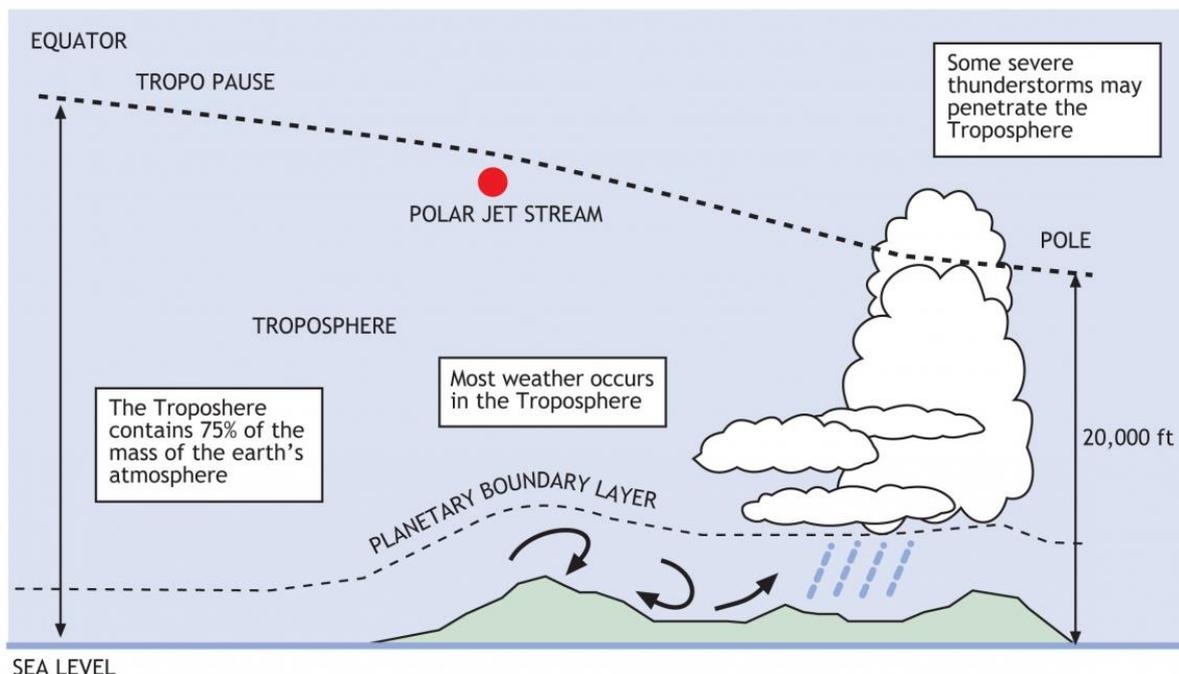
The atmosphere consists of different layers. Five layers of the atmosphere are Troposphere, Stratosphere, Mesosphere, Thermosphere and exosphere. Troposphere lies from earth's surface till tropopause (8-15 Km above).

Body

Troposphere:

Most of the mass (about 75-80%) of the atmosphere is in the troposphere. Most types of clouds are found in the troposphere, and almost all **weather occurs within this layer**. The layer immediately above the troposphere is called the stratosphere. The boundary between the troposphere and the stratosphere is called the "**tropopause**".

THE TROPOSPHERE



How does the troposphere determine the weathering process?

Weather is the state of the atmosphere, describing for example the degree to which it is **hot or cold, wet or dry, calm or stormy, clear or cloudy**. There are six main components, or parts, of weather. They are **temperature, atmospheric pressure, wind, humidity, precipitation, and cloudiness**.

- **Water vapour** – The troposphere contains **99% of the water vapour** in the atmosphere. They are greatest above the tropics, where they might be as high as 3% and decrease toward the Polar Regions.
 - Water vapour plays a major **role in regulating air temperature** because it absorbs solar energy and thermal radiation from the planet's surface.
- **Planetary winds** – The uneven heating of the regions of the troposphere by the sun causes convection currents, large-scale patterns of winds that move heat and moisture around the globe.
 - Creating belts of surface winds moving from east to west (**easterly winds**) in tropical and polar regions, the winds moving from west to east (**westerly winds**) in the middle latitudes.
- **Role of local winds** – Global circulation of winds is disrupted by the **circular wind patterns** of migrating high and low air pressure areas, plus **locally abrupt changes** in wind speed and direction known as turbulence.
- **Convection and Advection** – Convection is the mechanism responsible for the vertical transport of heat in the troposphere while horizontal heat transfer is accomplished through advection.
- **Clouds and precipitation** – As warm air rises, expands, and cools, water vapour condenses and clouds develop. Clouds cover large portions of the earth at any given time and vary from **fair weather cirrus to towering cumulus clouds**.
 - When liquid or solid water particles grow large enough in size, they fall toward the earth as precipitation. The type of precipitation that reaches the ground, be it **rain, snow, sleet, or freezing rain**, depends upon the temperature of the air through which it falls.
- **Role of atmospheric molecules in regulating temperature** – Carbon dioxide and water molecules absorb long-wave radiation energy that is remitted by the earth back into the atmosphere and emit much of it back towards the earth again. Thus they play a role in **determining global temperature**.
- **Formation of Cyclones and anticyclones** – Cyclones and anticyclones are regions of **relatively low and high pressure**, respectively. Transient cyclones and anticyclones are a fundamental component of the extra tropical climate system, causing day-to-day weather variations.
- **High and low-Pressure Zones** – High-pressure systems are rotating masses of cool, dry air. High-pressure systems keep moisture from rising into the atmosphere and forming clouds. Therefore, they are usually associated with **clear skies**.
 - On the other hand, low-pressure systems are rotating masses of warm, moist air. They usually bring **storms and high winds**.
- High-pressure and low-pressure systems **continually pass through the mid-latitudes, or areas of the Earth** about halfway between the Equator and the poles, so whether there is constantly changing.
- **Weather Fronts** – Moisture and differences in air pressure and temperature create weather fronts. A front exists at the boundary between two air masses. Many fronts cause weather events such as **rain, thunderstorms, gusty winds, and tornadoes**.

Conclusion

Thus the troposphere is perhaps the most geographically diverse and dynamic among the other atmospheric layers. It plays a crucial role in sustaining life on earth by maintaining heat balance.

18. Analyze the salience of 'sect' in Indian society vis-a-vis caste, region and religion. (Answer in 250 words) 15

Introduction

'Sect' is a group of people with **somewhat different beliefs** (typically regarded as heretical) from those of a larger group to which they belong. Sects are smaller parts of larger groups and follow a particular doctrine; **they have their own ideas and beliefs**.

They can be religious groups, for example, Hinduism is divided into Vaishnava and Shaiva sects; Christianity is divided into Baptism and Lutherans; Islam is divided into Sunni and Shia sects OR they can be non-religious such as the capitalists and communists in Economics and there are the Freudians and Jungians in Psychiatry.

Body

The salience of 'Sect' in Indian society vis a vis Caste

- The core of sects is the need for **change and reinterpretation** and they are characterized as new caste groups that depart from the orthodoxy of the dominant caste.
- Sects also typically encourage their members to work for a **common vision of brotherhood, equality and goals**. Sects frequently form when society is undergoing rapid transformation.
- Owing to the rising socio-economic status of sub-castes in India, they are **asserting dominance in political and social sectors** Eg-Gujjars, Jats and Patidar.
- Subcaste has emerged on the surface, demanding space in the political sphere by demanding reservations.
- Even Though the position of sub-sects has improved, the practice of homogeneity and culture is still prevailing which cannot be said to be modernizing with time.

The salience of 'Sect' in Indian society vis a vis Region.

- Sects can also emerge from **geographic aspects**. Eg hill tribes like gaddies and Shaik are Muslim communities found in the north Indian States. 4 sections are found in Shaik i.e, Siddiqi, farrow, usamani and abbasi.
- Various sects are emerged in Maharashtra due to the experience of inequality in the observance of religion on the part of the various sections of the society, the invasion of Muslims and political predominance acquired by the Muslim rulers over Hindu society.
- The prominent sects in Maharashtra are Nath, Datta, varkari and samartha sects

The salience of 'Sect' in Indian society vis a vis Religion.

- They are a sub-society of a similar, larger social structure but with key **differing beliefs**.
- Sects function as a **sheltering community** for the deviant beliefs associated with them.
- They tend to validate their deviant belief systems by claiming their beliefs are **authentic alternatives to the heretical beliefs** of the larger group with whom they are in tension.
- Because outside influences can threaten the belief system, members tend to **isolate themselves from other social structures**, including the larger structure from which they broke away as well as from family and friends outside the group.
- Sects may go through a process of **social mobility and routinization** and develop into denominations, accepting in one way or another secular society and its values.
- The sect may also institutionalize its oppositionist character and become an established sect.

Various Issues existed with Sects

- Acts of violence by followers of one religious group against followers and institutions of another religious group, often in the form of rioting especially among Hindus and Muslims.
- In Assam, three culturally disparate groups have been in collision: the Assamese, the Bengalis (both of which have segments of Hindus and Muslims) and the tribals, which are localized communities.
- Open sects have been used as a vote banking tool by the political parties.
- Absence of assimilation by tribal communities into the mainstream society.

Conclusion

What is unique and appreciable to the Sect is the fact that it has managed to adopt and accept various features while preserving the past.

19. Are tolerance, assimilation and pluralism the key elements in the making of an Indian form of secularism? Justify your answer. (Answer in 250 words) 15

Introduction

Secularism means the separation of religion from political, economic, social and cultural

aspects of life. Indian philosophy of secularism is related to “**Sarva Dharma Sambhava**” which means equal respect for all religions. This concept embraced and promoted by personalities like Vivekananda and Mahatma Gandhi is called ‘Positive secularism’ that reflects the dominant ethos of Indian culture.

Body

Tolerance is the key element in the making of an Indian form of secularism.

- Tolerance is respect, acceptance and appreciation of the rich diversity of other cultures, their forms of expression and ways of being human **that are different from one's own.**
- **Culture of peace** – Tolerance makes peace possible, contributes to the replacement of the culture of war with a culture of peace etc. Infightings between communities in Assam or between tribes in Northeastern states because of intolerance can be prevented by Tolerance.
- **Prevents Authoritarianism** – Tolerance in a democratic country like India means that the country belongs to minorities as much as it belongs to the majority community/religion. It ensures minority rights and prevents Authoritarianism or Majoritarianism.
- **Equality of religion** – Tolerance is required to uphold the equality of all religions. Tolerance is a necessity for India owing to its historical partition due to communal differences. The instances of various communal clashes including the Kashmiri Muslims and Pandits, Babri masjid demolition, Godhra and Muzaffarnagar riots bring in the consequences of intolerance
- **Tolerance within religions** – Further, secularism also entails tolerance within a religion. It prevents the instances of Dalit lynching, discrimination, and exploitation of women in the name of religion gives instances of intolerance threatening the secular fabric of the nation.
- **Tolerance as a means of development** – Intolerance takes the attention of society away from development. E.g. The communal environment in Eastern UP is one of the main reasons for the lack of industrialization.

Assimilation is the key element in the making of an Indian form of secularism.

- Assimilation is the process by which different cultural groups become more and more alike. In this sense, it is the **process whereby persons and groups acquire the culture of other groups.**
- The results of Assimilation have been based on the assimilation of races, languages and cultures.
- Government policies like Ek Bharat Shrestha Bharat help in the assimilation of various languages, cultures, religions and ethnicities.
- Leaders like J.Nehru and B.R.Ambedkar emphasised the assimilation of minorities and the downtrodden into the mainstream of Indian society.

Pluralism is the key element in the making of an Indian form of secularism.

- Pluralism is a social organization in which diversity of racial, religious, ethnic or cultural groups is tolerated , wherein smaller groups are able to maintain their unique cultural identities and it is accepted by the dominant culture.
- **Protecting interests of minorities** – Ours is a plural society and a culture imbued with considerable doses of syncretism. Our population of 1.3 billion comprises over 4,635 communities, 78 per cent of whom are not only linguistic and cultural but social categories. Religious minorities constitute 19.4 per cent of the total.
- **Uniformity** – Pluralism as a moral value seeks to ‘transpose social plurality to the level of politics and to suggest arrangements which articulate plurality with a single political order in which all duly constituted groups and all individuals are actors on an equal footing, reflected in the uniformity of legal capacity.
- **Unity in diversity** – Pluralism in this modern sense presupposes unity in diversity. For instance, Fairs and festivals are celebrated to promote Unity and participation of Hindus in Muslim's Moharam example.

Constraints to Tolerance, Assimilation and Pluralism in the making of an Indian form of secularism.

Tolerance

- Deep religious sentiments are prevailing among different religious communities. It limits the path to truly secular society in India.
- Increasing violence between people of different communities or religions For instance Delhi riots.

Assimilation

- The radicalization of youths to promote their religion. This poses a grave threat to the harmony and security of the nations.
- Dilution of native diverse culture. For eg promoting Hindi language.

Pluralism.

- Rituals like Bhoomi puja, breaking of coconuts on inaugural occasions, performing of 'aarti' and applying 'tilak' which are treated as Hindu traditions are performed even on state functions and therefore, create unnecessary misgivings about the neutrality of the State.
- During the time of elections, most political parties completely forget the noble ideal of secularism and woo the voters on communal or cast lines.
- Discriminate state intervention. Eg polygamy allowed in Islam but not in Hinduism.

Way forward

- Since secularism has been declared as a part of the basic structure of the Constitution, governments must be made accountable for implementing it.
- Define the word "minority". The concept of secularism is based on the recognition and protection of minorities. The two cannot be separated.
- Separation of religion from politics. It is of such urgency that no time should be wasted in bringing this about.
- In a secular state, religion is expected to be a purely personal and private matter and is not supposed to have anything to do with the governance of the country.

20. Elucidate the relationship between globalization and new technology in a world of scarce resources, with special reference to India. (Answer in 250 words) 15

Introduction

Globalization is the word used to describe the growing interdependence of the world's economies, cultures, and populations, brought about by cross-border trade in goods and services, technology, and flows of investment, people, and information.

Body

Relationship between globalization and new technology.

Positive contributions.

- **Globalization 4.0** – Globalization 4.0 is the latest stage of globalization which involves cutting-edge new technologies like artificial intelligence that power forward with the explosion of information technology. These technologies shrink distances, open up borders and minds and bring people all across the globe closer together.
- **Globalization enhances international competition**—including as a result of the rise of emerging market firms—and this strengthens firms' incentives to innovate and adopt foreign technologies.
- Information technology has led to the emergence of the global village. For example, the world wide web has reduced the barriers of time and place in business dealings.
- Now technology is easily transferable to developing countries where high-tech products can be combined with low wages.

Negative contributions.

- While technological globalization has allowed technologies to spread around the world faster, the **digital divide still exists between and within nations around the world.**
- New technologies have been implemented in factories to **replace workers in menial tasks.**
- The dominant media producers (namely, the United States and in particular Hollywood) spread their cultures around the world. This has led to people blaming globalization for the “Disneyfication of culture” while indigenous and local cultures become diluted.
- There are instances of fake news rising on YouTube, WhatsApp etc.

The role played by the emerging technologies in the context of globalization concerning India.

Social perspective –

- Digital technologies enabled India to develop more inclusive development.
- Improved accessibility to resources For instance Telemedicine, Ed-Tech.
- **Improved female literacy** due to digital technology.

Economic sphere –

- New technologies like Hydrogen fuel cells and e-Vehicles made India minimize dependency upon scarce non-renewable sources.
- The introduction of new-age technologies like Radio Frequency Identification (RFID) that complement barcode technology makes it easier to follow products in real time.
- Industry experts have forecasted that advancements like predictive resources optimization will reach unprecedented heights over the next few years and benefit supply chain stakeholders such as shippers, suppliers, carriers, and end-consumers.

Environmental perspective –

- ICT solutions such as the Internet of Things (IoT) could help reduce greenhouse gas emissions by up to 15% by 2030.
- Technology is a force for progress with advancements in renewable energy. Eg - floating solar cells, and multipurpose renewable energy parks.
- Technology is a solution to reduce dependency on the environment for food. Eg- Synthetic meat.

Science and Technology-

- AI technology for Vaccine : India’s Vaccine Maitri made effort for welfare of all.
- Medical research – Robotic surgeries.

Conclusion

Globalization and new technologies helped not only India but also the world by reducing the dependence on scarce resources and optimal utilization of existing resources. States need to be aware of threats arising from technology and need to take measures to avoid such threats.