1. **Solution: a)**


2. **Solution: d)**

ITER is an experimental Fusion Reactor being constructed presently in France for future production of electricity from fusion energy. ITER is expected to produce at least ten times more energy than the energy required to operate it. In future demo or commercial reactors based on fusion, this energy can be converted to electricity. Nuclear energy based on fusion may end energy crisis of the world and would revolutionize the energy scenario.

3. **Solution: b)**

MAVEN is the first spacecraft that will focus primarily on the state of the upper atmosphere, the processes that control it, and the overall atmospheric loss that is currently occurring. Specifically, MAVEN will explore the processes through which the top of the Martian atmosphere can be lost to space. Scientists think that this loss could be important in explaining the changes in the climate of Mars that have occurred over the last four billion years.

MAVEN's data is specialized and of interest to smaller groups of researchers, but the project fits one of NASA's "Big Questions" - specifically understanding how life developed on Earth. Studying the atmosphere of Mars should provide insights to researchers interested in the evolution of Earth's atmosphere.

4. **Solution: d)**

- Compulsory licensing is when a government allows someone else to produce the patented product or process without the consent of the patent owner. It is one of the flexibilities on patent protection included in the WTO's agreement on intellectual property — the TRIPS (Trade-Related Aspects of Intellectual Property Rights) Agreement.

- The mechanism of CL is essentially about balancing patent rights with access to medicine. The words “social and economic welfare,” “public health,” “national emergency” and “public health problems/crises” used in the Act are all pointers to the CL provisions being centred around access to medicine.

5. **Solution: d)**

- Integrated Pest Management (IPM) is an ecosystem approach to crop production and protection that combines different management strategies and practices to grow healthy crops and minimize the use of pesticides.

- Integrated pest management (IPM) is a broad based approach that integrates a range of practices for control of pests.
Significance

- IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment.
- This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.
- IPM is used in agriculture, horticulture, human habitations, and preventive conservation.
- Globalization and increased mobility open allow increasing numbers of invasive species to cross national borders. IPM poses the least risks while maximizing benefits and reducing costs.

6. **Solution: a)**

**Primate**, in zoology, any mammal of the group that includes the lemurs, lorises, tarsiers, monkeys, apes, and humans. The order Primates, with its 300 or more species, is the third most diverse order of mammals, after rodents (Rodentia) and bats (Chiroptera). Although there are some notable variations between some primate groups, they share several anatomic and functional characteristics reflective of their common ancestry. When compared with body weight, the primate brain is larger than that of other terrestrial mammals, and it has a fissure unique to primates (the Calcarine sulcus) that separates the first and second visual areas on each side of the brain. Whereas all other mammals have claws or hooves on their digits, only primates have flat nails. Some primates do have claws, but even among these there is a flat nail on the big toe (hallux). In all primates except humans, the hallux diverges from the other toes and together with them forms a pincer capable of grasping objects such as branches. Not all primates have similarly dextrous hands; only the catarrhines (Old World monkeys, apes, and humans) and a few of the lemurs and lorises have an opposable thumb.

7. **Solution: a)**

Trap crops are grown to attract insects or other organisms to protect main crops from pest attack. Protection may be achieved either by preventing the pests from reaching the crop or by concentrating them in certain parts of the field where they can be destroyed.

The principle of trap cropping rests on the fact that virtually all pests show a distinct preference to a certain crop stage.

They are used in Integrated Pest Management.

8. **Solution: d)**

Pentavalent vaccine was launched recently under the National Immunisation Programme. This one single vaccine shot will provide protection to infants from five life-threatening
ailments, including Diphtheria, Pertussis, Tetanus (DPT), Hepatitis B and Hib (Haemophilus influenza type b).

- This is the most significant step in entire vaccination history in India.
- It would ensure that all children are being provided with immunization for all five lethal diseases in single vaccination and that too more conveniently.

9. **Solution: d)**

- Digital India is a *Programme to prepare India for a knowledge future*.
- It is an Umbrella Programme – covering many departments.
  - It weaves together a large number of ideas and thoughts into a single, comprehensive vision so that each of them is seen as part of a larger goal.
  - Each individual element stands on its own. But is also part of the larger picture.
  - It is coordinated by DeitY, implemented by the entire government.
  - The weaving together makes the Mission transformative in totality.

**DIGITAL INDIA**

**Nine Pillars of Digital India**

- 1. Broadband Highways
- 2. Universal Access to Phones
- 3. Public Internet Access Programme
- 4. E-Governance—Reforming government through Technology
- 5. eKranti—Electronic delivery of services
- 6. Information for All
- 7. Electronics Manufacturing—Target NET ZERO Imports
- 8. IT for Jobs
- 9. Early Harvest Programmes

10. **Solution: d)**

**What is green shield?**

- Mangroves are called green shield as they buffer the coastline against sea erosion and devastating effects of cyclones and tsunami.

- Since estuarine areas are highly populated areas, the slightest ecological imbalance will take a heavy toll. They play a vital role in stabilizing these areas.

**Importance of Mangroves:**

- Mangroves are buffers between the land and the sea. Coastlines throughout the world are facing serious problems of coastal erosion and threat of rising sea levels due to global warming has increased the threats by several folds. To control such...
assault of the sea on land the nature has provided what is called as Mangroves, a tropical littoral ecosystem which is more dynamic than the sea itself.

- Mangroves not only help in preventing soil erosion but also act as a catalyst in reclaiming land from seas. This is a very unique phenomenon, since there is a general tendency of water to engulf land.

- Mangrove forests and estuaries are the breeding and nursery grounds for a number of marine organisms including the commercially important shrimp, crab and fish species. Hence, loss of mangroves not only affects us indirectly but there are direct economic repercussions through loss of fishing industry.

- In many coastal areas including Gulf of Kutch, mangroves are a substitute for fodder. Thus mangroves reduce pressures from the scarce pasturelands.

- Above all, Mangroves are now looked after by scientists as saviors in the today’s scenario of global warming. We all know that most of the coastal areas throughout the world are going to be affected by sea level rise due to global warming. The effects of which are already visible. Therefore, when most of the coastal areas will be flooded, mangroves can possibly provide a gene bank for cultivating salt tolerant species of crops that could be our future resource.

11. Solution: a)

- Drought declaration has various socio-economic impacts in India. Indian Meteorological Department (IMD) is entrusted with the task of drought declaration. Despite of having a number of socio-economic fallouts, however, it is still a purely geo-technical decision in India and IMD is the only authority in this regard.
- IMD defines a drought year as one with more than 10% deficient rainfall for a long period average and more than 20% of agricultural area being hit. **Meteorological Drought**: Occurs when the seasonal rainfall is deficient more than 10% for long period average.
- **Moderate Drought**: Rainfall deficit is in the range 25-50 %
- **Severe Drought**: Rainfall deficit exceeds 50% of the normal rainfall.
- However, for policy making purposes, only following two types of droughts are concerned.
- **Agricultural Drought**: Agricultural drought is the most significant drought category about which policymakers and farmers concerned most. When a period of four consecutive weeks with rainfall deficiency more than 50% or weekly rainfall less than 5mm from mid-May to mid-October, a period when more than 80% of Kharif crops are sown, are occurred, ‘agricultural drought’ year is declared by IMD.
- **Hydrological Drought**: it is defined as deficiencies in surface and sub-surface water supplies leading to lack of water for normal and specific water needs.

12. Solution: d)

Wi-Fi backsetter technology is a novel invention in the field of Information Technology (IT) that enables battery free devices to connect a network through existing wi-fi signals.
It essentially solves the power problem for battery less devices regarding to connecting a network.

Backsetter Wi-Fi technique has been seen as the first revolutionary step towards realization of ‘Internet of Things (IoT)’. This technique will not only be helpful to take off the network of things but will broaden the base of such networks, as the billions battery-less devices could also be connected to a network through a optional source of power. This is indeed very first of its kind.

13. **Solution: c)**

Two lines of evidence suggest an African origin for hominids. First, it is the group of African apes that are most closely related to hominids. Second, the earliest hominid fossils, which belong to the genus Australopithecus, have been found in East Africa and date back to about 5.6 mya. In contrast, fossils found outside Africa are no older than 1.8 million years.

14. **Solution: d)**

A **supercomputer** is a computer with great speed and memory. This kind of computer can do jobs faster than any other computer of its generation. They are usually thousands of times faster than ordinary personal computers made at that time. Supercomputers can do arithmetic jobs very fast, so they are used for weather forecasting, code-breaking, genetic analysis and other jobs that need many calculations.

- India has always strived to be technologically advanced in all aspects. Building of supercomputers is no exception. PARAM, PARAMYUVA-2 etc are some of the examples of supercomputers built by India for various purposes, like -
  - Precise weather forecasting, especially in times where frequent occurrence of natural hazards is devastating.
  - Tapping of natural resources, like the KG basin sea fields.
  - Designing of complicated drugs.
  - Quantum mechanics and modeling etc

15. **Solution: c)**


See introduction Only.

**About India’s ICBM Programme**

- The Indian Ballistic Missile Defence Programme is an initiative to develop and deploy a multi-layered ballistic missile defense system to protect India from ballistic missile attacks.
• Introduced in light of the ballistic missile threat from Pakistan and China, it is a double-tiered system consisting of two interceptor missiles, namely the Prithvi Air Defence (PAD) missile for high altitude interception, and the Advanced Air Defence (AAD) Missile for lower altitude interception.

16. **Solution: d)**

RFID (radio frequency identification) has likewise been around for decades. However, RFID tends to require more technological hand-holding. RFID involves applying RFID tags to items or boxes or pallets. Tags vary greatly in size, shape and capabilities, but one example is pictured below. The tag with its small antenna emits a radio frequency signal that is picked up and read by a special wireless RFID reader, conveying information from the tag about the item it is affixed to.

**Uses**

• RFID is adaptable to many of the same uses that barcodes are good for. But RFID is especially useful in situations where vast quantities of goods must be moved or tracked, or where tracking of item-specific information is necessary.

• RFID has been mandated by some customers, such as Wal-Mart and the Department of Defense, to track the vast quantities of items they require in their supply chains and to supply much more detailed information. In such situations, RFID may be able to do it more quickly, effectively and efficiently than barcodes.

• RFID tags will enable the Motor Vehicles Department and the other law-enforcers to easily trace the location of a vehicle, its expected time of arrival, locate vehicles during incidents like theft and to enable hassle-free movement through the check posts.

17. **Solution: a)**

A hologram is a physical structure that diffracts light into an image. The term ‘hologram’ can refer to both the encoded material and the resulting image.

A holographic image can be seen by looking into an illuminated holographic print or by shining a laser through a hologram and projecting the image onto a screen.

Holography is a two stage process. The first stage is recording of hologram in the form of interference pattern and in the second stage, the hologram acts as a diffraction grating for the reconstruction beam and the image of the object is reconstructed for the hologram.

To understand the process check the sub-heading “How holography works” http://holocenter.org/what-is-holography

18. **Solution: d)**
Meghraj is the name given to the initiative of Government of India for its new program which is going to take advantage of the Cloud Computing. Meghraj is just a name coined for the purpose (Megh=Cloud, Raj=Rule i.e. Rule of Cloud Computing)

Another name for Meghraj is the GI Cloud Initiative.

- It will enable the government to leverage cloud computing for effective delivery of e-services.

Components of Governments Cloud Computing:-

- Five essential characteristics (viz. on-demand self service, ubiquitous network access, metered use, elasticity and resource pooling)
- Three service models (infrastructure as a service, platform as a service and software as a service)
- Four deployment models (public cloud, private cloud, community cloud and hybrid cloud)

19. Solution: b)

Olduvai Gorge or Oldupai Gorge in Tanzania is one of the most important paleoanthropological sites in the world and has been instrumental in furthering the understanding of early human evolution. This site was occupied by Homo habilis approximately 1.9 million years ago, Paranthropus boisei 1.8 million years ago, and Homo erectus 1.2 million years ago. Homo sapiens is dated to have occupied the site 17,000 years ago. Olduvai Gorge is a steep-sided ravine in the Great Rift Valley that stretches through eastern Africa. It is in the eastern Serengeti Plains in Arusha Region, Tanzania and is about 48 km (30 mi) long. It is located 45 km (28 mi) from the Laetoli archaeological site.

This site is significant in showing increased developmental and social complexities in hominins. Evidence of this is shown in the production and use of stone tools, which indicates the increase in cognitive capacities. Evidence also indicates the practices of both scavenging and hunting, which are highlighted by the evidence of gnaw marks predating cut marks, and comparisons on percentages of meat versus plant in the early hominid diet. Furthermore, the collection of tools and animal remains in a central area is evidence of increases in social interaction and communal activity.

20. Solution: d)

- Near Field Communications (NFC) is a short-range wireless connectivity technology that provides intuitive, simple and safe communication between electronic devices. Communication occurs when two NFC-compatible devices are brought within four centimetres of each other.
- NFC operates at 13.56 Mhz and transfers data at up to 424 Kbits/second. Because the transmission range is short, the transactions are inherently secure.
• NFC is an upgrade of the existing proximity card standard (RFID) that combines the interface of a smartcard and a reader into a single device. It allows users to seamlessly share content between digital devices, pay bills wirelessly or even use their cellphone as an electronic traveling ticket on existing contactless infrastructure already in use for public transportation.

• In India too, an NFC-enabled payment App was announced at the launch of Blackberry’s new Z10 mobile phone in February. PVR Cinemas launched what is arguably the first commercial NFC-enabled payment App for the Blackberry10 platform that enables Z10 users to pay for their tickets across 15 of its theatre complexes after topping up their Apps with their credit card accounts.

• Recently SBI and Mother Dairy launched ‘SmartChange Card’ that works on Near Field Communication.

• E-commerce and E-payment systems in India are gaining ground with the proliferation of NFC networks.

21. Solution: a)

• **Pusa Hydrogel** is a product for increasing agricultural productivity primarily through improvement in use efficiency of water. The technology includes bench scale process for its production along with the concomitant use package under diverse agricultural situations.

• It is a granular product developed by IARI Delhi currently promoted by Ministry of Agriculture. During irrigation the gel absorbs water like a sponge and during dry periods releases it to the soil for plants.

**Significance**

• Effective in soil for a minimum period of one crop season
• Improves physical properties of soils and the soil less media
• Improves seed germination and the rate of seedling emergence
• Reduces leaching of agro-inputs such as herbicides and fertilizers
• Reduces irrigation and fertigation requirements of crops
• Reduces nursery establishment period
• Helps plants withstand extended moisture stress

22. Solution: a)

• A **bioreactor** may refer to any manufactured or engineered device or system that supports a biologically active environment. In one case, a bioreactor is a vessel in which a chemical process is carried out which
involves organisms or biochemically active substances derived from such organisms. This process can either be aerobic or anaerobic. These bioreactors are commonly cylindrical, ranging in size from litres to cubic metres, and are often made of stainless steel.

- There are a number of types of bioreactors, and they are used for a variety of purposes, from processing solid waste to manufacturing pharmaceuticals.

### Advantages

- Bioreactors are also used to promote growth, as for example in the production of tissue cultures, or the cultivation of specific fungi utilized in pharmaceuticals.
- Bioreactors could potentially be used to produce energy, or to grow tissue and bone grafts.
- Conversion of organic waste such as compost or solid waste is a common application for bioreactors.
- Chemical production can rely heavily on bioreactors, depending on the compounds being manufactured, as can large-scale processing of compost and yard waste for municipalities.
- Recently scientists have developed a new kind of photobioreactor called as Environmental Photobioreactor [ePBR]
- The system produces oil [alternative energy source] by using algae.

23. **Solution: b)**

Homo is a Latin word, meaning ‘man’, although there were women as well! Scientists distinguish amongst several types of Homo. The names assigned to these species are derived from what are regarded as their typical characteristics. So fossils are classified as Homo habilis (the tool maker), Homo erectus (the upright man), and Homo sapiens (the wise or thinking man). Fossils of Homo habilis have been discovered at Omo in Ethiopia and at Olduvai Gorge in Tanzania.

The earliest fossils of Homo erectus have been found both in Africa and Asia: Koobi Fora, and west Turkana, Kenya, Modjokerto and Sangiran, Java. As the finds in Asia belong to a later date than those in Africa, it is likely that hominids migrated from East Africa to southern and northern Africa, to southern and north-eastern Asia, and perhaps to Europe, some time between 2 and 1.5 mya. This species survived for nearly a million years.

24. **Solution: c)**

As many as 12 women died because of rat poisoning when state run sterilization program failed in Chattisgarh. This raises a social issue where, as part of family planning program,
India is resorting to forced sterilization method that is mostly targeted against poor women barring men, because sterilization of men is a socially unacceptable thing in India.

Read the Gist only http://en.wikipedia.org/wiki/Sterilization_%28medicine%29

25. Solution: d)

There are five criteria’s for the Special Category States

- Terrain = Difficult/Hilly
- Population density = Low or tribal population= High
- National Security due to strategic concern Like J& K / bordering strategic international borders
- Economic & Infrastructural Backwardness
- Financial Situation= Non viable

- Till now, eleven states have been awarded SCS and six are demanding it as Bihar.
- Granted by National Development Council

Why given?

- The main reason behind this categorization is the development of that particular state where there are many problems due to hilly terrains, international borders and strategic interests. Overall social and economic development cannot be done just as other states.

What are the benefits?

- Tax benefits, Corporate Tax Waiver, Excise Duty Waiver
- 90% funding for all Centrally sponsored schemes
- Devolved funds under National Central assistance

26. Solution: b)

Developing the oil and gas sector needs huge investment. Therefore, the government invites private companies under PPP to invest in oil and gas blocks along with providing technology; and reap benefits.

There are two models that are followed worldwide -

a. Production-sharing model
b. Revenue Sharing Model
India has recently shifted from a to b model on the recommendations of the Rangarajan panel in New gas and exploration policy.

**Production Sharing model**

- As per the model, OEGCs will first develop oil and gas fields. They will then first recover their investment and operating expenditure. Then they will share profits with the government.

**Revenue Sharing model**

- OEGCs will develop the oil and gas fields.
- But the revenue will be shared between the government and OEGCs from the first batch of production of the oil and gas itself (irrespective of cost recovery or not). It will be on the basis of level of output in the block, not on the level of investment.

**Positives of the model**

- More transparent and less intervention of CAG and the government.
- OEGCs will not be able to hoard or tamper with the production of oil and gas. So cost recovery will be easier.
- If the price of oil or gas increases, it will lead to a gain for both the OEGCs and the government.
- Therefore, Kelkar committee was of the view that the RSC should be followed only for shallow and on-land blocks which have less risk. For deep-sea explorations, PSC should be followed.

27. **Solution: a)**

http://pib.nic.in/newsite/PrintRelease.aspx?relid=112034

28. **Solution: a)**

India’s leading hydro power generator National Hydro Power Corporation (NHPC) is planning to set up a 50 MW solar photovoltaic project over the water bodies in the southern state of Kerala.

**Beneficial due to:**

- Saves land
- More yield
- Saves water

The ecology of the water body is not likely to be affected much and it will also reduce evaporation, thus helping preserve water levels during extreme summer. Solar panels
installed on land, face reduction of yield as the ground heats up. When such panels are
installed on a floating platform, the heating problem is solved to a great extent.

29. Solution: d)

**GreenSeeker**

- is a handheld gadget that works as a crop sensor.
- The sensor emits brief bursts of red and infrared light.
- By measuring the amount of each type of light that is reflected back from the plant,
  the device can calculate and display the health of the crop.
- Also, the farmer can use it to assess how much nitrogen the soil needs in each section
  of land.

30. Solution: c)

The **Hadza**, or **Hadzabe**, are an ethnic group in north-central Tanzania, living around Lake
Eyasi in the central Rift Valley and in the neighboring Serengeti Plateau. The Hadza number
just under 1,000. Some 300–400 Hadza live as hunter-gatherers, much as their ancestors have
for thousands or even tens of thousands of years; they are the last full-time hunter-gatherers
in Africa.

31. Solution: a)

**IndARC**

- Scientists predict that melting of the Arctic glaciers will trigger changes in weather
  patterns and ocean currents that could affect other parts of the world. The interaction
  between the Arctic ice shelf and the deep sea and its influence on climate shift requires
detailed studies over an annual seasonal cycle.

- Therefore, IndARC, the country’s first underwater moored observatory, has been
deployed in the Kongsfjorden fjord, half way between Norway and the North Pole.

- It will collect real-time data on seawater temperature, salinity, ocean currents and other
  vital parameters of the fjord.

- So, it is expected that it will help scientists understand the Arctic climate process and its
  influence on the Indian monsoon system.

- It represents a major milestone in India’s scientific endeavours in the Arctic region.

32. Solution: a)

IISc has developed a molecular "sniffer dog" to detect explosives.

- They have created a highly sensitive fluorescent polymer that scouts out a class of
  commonly used explosives.
• TNT and other nitroaromatic compounds, which are used in a cocktail of chemicals in landmines and plastic explosive devices, release vapours that ‘quench’ the polymers, reducing their glow.

• While the drop in fluorescence is not visible to the naked eye, it is visually sensed and interpreted by a high resolution spectrometer.

33. **Solution: a)**

*Cosmic inflation* refers to the idea that the cosmos experienced an exponential growth spurt in its first trillionth, of a trillionth of a trillionth of a second. This theory holds that this would have taken the infant universe from something unimaginably small to something about the size of a marble. Space has continued to expand for the nearly 14 billion years since.

Inflation was first proposed in the early 1980s to explain some aspects of the Big Bang Theory that appeared to not quite add up, such as why deep space looks broadly the same on all sides of the sky.

The theory came with a very specific prediction - that it would be associated with waves of gravitational energy, and that these ripples in the fabric of space would leave an indelible mark on the oldest light in the sky - the famous **Cosmic Microwave Background**.

The theory is in news because of the **recent findings of BICEP2**, which announced the detection of a distinct signature of cosmic gravitational waves, possibly originating during an explosive phase of expansion dubbed inflation, occurring at the earliest moments after the big bang.

**Discovery of gravitational waves, it is significant for two reasons.**

First, this opens up a whole new way of studying the Universe, allowing scientists to infer the processes at work that produced the waves.

Second, it proves a **hypothesis called inflation**. This can be used to give us information about the origin of the universe, known as the **big bang**.

Gravitation waves are nothing but the waves that carry energy across the Universe.

34. **Solution: d)**

**REITS:**

• Just as mutual funds do with equity and debt, REITs will pool money from investors and invest them in income-generating (rental assets) and infrastructure offering them a way to diversify their portfolios by investing in property.
This will help establish a new asset class, and being a quasi debt-equity instrument, be attractive for risk-averse investors get the twin benefits of yield as well as capital appreciation.

For developers, it would improve property market transparency, smoothen volatile property cycles, and potentially lower the cost of capital.

For small investors and institutions, REITs provides an opportunity to invest in largescale commercial real estate projects which would have otherwise been only possible for HNIs and wealthy individuals.

Further, tax concessions ensure that dividend payouts are healthy and less impacted by changes in central tax laws.

35. Solution: b)
The Dutch East India Company was a chartered company established in 1602, when the States General of the Netherlands granted it a 21-year monopoly to carry out trade activities in Asia. It is often considered to have been the first multinational corporation in the world and it was the first company to issue stock. It was a powerful company, possessing quasi-governmental powers, including the ability to wage war, imprison and execute convicts, negotiate treaties, strike its own coins, and establish colonies.

36. Solution: d)
Regulation of E-waste in India

Under the "Hazardous waste management rules 1989."

Article 243W - allows state legislatures to make laws on waste management - based on this Municipal Solid Waste rules framed.

E-waste management rules 2011 - extended producer responsibility; registration of e-waste recyclers - checking parameters; technology; safe handling

Introduced "take back" mechanism for companies to collect e-waste from consumers. The rationale is the recycling of e-waste.

37. Solution: d)
E-waste related Issues

Some studies estimate that annually 4 lakh tonnes of e-waste is generated in India.

The issue is not just the volume of wastes, but more their toxicity as they contain mercury, lead, arsenic, cadmium and a blend of plastics that are difficult to remove from the environment. Plus handling them. - nontoxic; carcinogenic; mutagenic; corrosive; genotoxic effects.

Problem increased due to improper recycling
• The present capacity in India can handle only 10% of the e-waste produced today. Mostly done by unorganised sector. e.g. Mayapuri incident Delhi - Cobalt 60 radiation

• SPCBs do not have mechanisms and capacity to tackle the problem of increasing e-waste. Lack of Integration among agencies.

• Leads to Groundwater pollution; esterification of soil; steriles the soil - impotent; biodiversity; damage to heart liver and splee; astahmtic bronchtis by bio-accumulation

38. **Solution: b)**

The earliest cities in Mesopotamia date back to the bronze age, c.3000 BCE. Bronze is an alloy of copper and tin. Using bronze meant procuring these metals, often from great distances. Metal tools were necessary for accurate carpentry, drilling beads, carving stone seals, cutting shell for inlaid furniture, etc. Mesopotamian weapons were also of bronze.

39. **Solution: c)**

**Reverse SEZs**

The proposed reverse SEZs basically involve setting up industries in places where feedstock (like for chemical industries) is available rather than importing it to India for e.g. Iran and Myanmar.

It is based on the idea of SEZs only. But the difference is that it will be located abroad.

**Benefits to India**

• As of now, it will be limited to the chemicals and fertilizers sector only.

• Already, India is a leading player in the chemicals and fertiliser sector. The vision is to make it amongst the largest and best to create employment and boost GDP growth in India.

• The industries located in reverse SEZs will be able to source their raw material without import duty etc. and process it there itself. So, from this the Indian chemical industry can source its material in a cost-effective manner.

• The government has already set up specially delineated investment regions in the form of PCPIRs (petroleum, chemicals & petrochemicals investment regions) at Dahej, Gujarat, Visakhapatnam and Kakinada in Andhra Pradesh, Paradip in Orissa and Cuddalore and Nagapattinam in Tamil Nadu.

• It will also reduce pollution in India.

• It will strengthen economic and diplomatic ties with the nations where reverse SEZs will be established.
40. Solution: a)

Following are some of the findings and recommendations contained in the **Report of the National Transport Development Policy Committee**

- Integrated development of ports, roads, rails etc - Integrated Transport Strategy - Road, rail, port, aviation, NE transport, Urban transport
- Optimal Model Mix
- Develop Small ports - with 5-6 mega ports
- **Corporatization of Mega port authorities**
- Focus deep Inland waterways development, especially in NE
- Expand PMGSY universally
- Provide safety and traffic management as recommended by Sundar committee (road committee)
- International transport communication for NE region
- Increase investment in railways 0.8% of GDP in the 12th Plan
- Capacity expansion for both freight and passenger traffic
- Present thinking is project centric - it should be integrated, developing human resources; people-centric; with emphasis on NE region.
- National level office for transport strategy
- With respect to the movement of liquids and gases via pipeline, a **National Pipeline Grid** could be established along the lines of the National Electricity Grid
- Statutorily and financially empowered Metropolitan Urban Transport Authorities (MUTAs) to be established at the metropolitan city level.
- Bharat IV fuel quality standard should be implemented nationwide by the middle of this decade, with a target to reach Bharat VI by 2020.
- **Single unified Ministry to deliver multi-modal transport**
- Independent regulatory authority with functional and financial autonomy
- Legal structure in transport sector must be simplified

41. Solution: d)

FPOs cover organizations from lower tiers of formal cooperative structures in credit, marketing, dairy and fishery, extending to self-help groups (SHGs), farmer clubs, joint liability groups (JLGs) and, more recently, to producer companies.

**Role in agriculture and poverty alleviation**

- Small and marginal farmers face several problems:
  - shrinking land holdings
  - Getting formal credit;
  - Difficulty in accessing critical inputs for agriculture such as quality seeds and timely technical assistance.
FPOs can help them in the following way:

- It is a congregation of small and marginal farmers willing to pool resources and share risks.
- FPOs leave land titles with individual producers and use the strength of collective planning for production, procurement and marketing.
- It adds value to members’ produce through pooled resources of land and labour, shared storage space, transportation and marketing facilities.
- These improve bargaining power of small farmers.
- Most importantly, transacting with a bank in a group like FPO can reduce transactions costs of banks and buyers to deal them. Moreover, the group acts like collateral for its members. So it’s easier to get a loan.

42. Solution: c)

43. Solution: d)

The Asian Infrastructure Investment Bank (AIIB) is an international financial institution proposed by China. The purpose of the multilateral development bank is to provide finance to infrastructure projects in the Asia Pacific region. AIIB is regarded by some as a rival for the IMF, the World Bank and the Asian Development Bank (ADB), which the AIIB says are dominated by developed countries like the United States and Japan.
Recently the US pressurized its close allies like Japan, Indonesia and Australia not to join the AIIB. Owing to it, these nations stayed out of the membership.

44. **Solution: c)**

**Bachpan Bachao Andolan**

**Success**

- The organization has rescued more than 80,000 children from bondage, trafficking and exploitative labour
- The BBA's Child Friendly Village program (in Hindi, Bal Mitra Gram, or BMG), has been accepted as a best practice model for development and elimination of child labour and trafficking.
- It has established a immediate rehabilitation centre for rescued children - Mukti Ashram in Delhi.
- It has fought successfully several PILs in the SC.

**Recent Campaigns**

- Child Labour Free India Campaign for total abolition on child labour till the age of 14 yrs
- Right to Education Campaign in 2001
- Child Domestic Labour campaign
- Mukti Caravan (campaign against child trafficking for forced labour)
- Missing Children Campaign: biggest ever research undertaken on missing children, resulting in Supreme Court issuing notice to all states and union territories on missing children

45. **Solution: c)**

In Islamic jurisprudence, *qiyās* is the process of deductive analogy in which the teachings of the Hadith are compared and contrasted with those of the Qur'an, in order to apply a known injunction (nass) to a new circumstance and create a new injunction. Here the ruling of the Sunnah and the Qur'an may be used as a means to solve or provide a response to a new problem that may arise.

**Hadith** in Muslim religious use is often translated as prophetic 'traditions', meaning the corpus of the reports of the teachings, deeds and sayings of the Islamic prophet Muhammad. The hadith literature was compiled from oral reports that were in circulation in society around the time of their compilation long after the death of Muhammad. Bukhari's
collection is considered the most reliable by many traditional religious scholars who are Sunnis. The Shi‘as believe in an entirely separate body of Hadith.

46. Solution: d)

The Newton-Bhabha Fund is a programme which aims to build up strong interdisciplinary dimension that will further strategise the science, research and innovation cooperation between the UK and India. For this programme UK will provide 50 million pounds over 5 year’s period and India will provide similar matched efforts.

Key Features: Newton-Bhabha programme

- **Joint PhD student mobility programme**: It aims to pave the way for the next generation of researchers in the UK and India to interact with each other and build long-term R&D linkages and collaborations. This mobility programme will be administered by British Council India and the Department of Science and Technology. It will start from March 2015 to sponsor UK and Indian PhD students to spend a period of their study (3 to 6 months) in Premier Indian and UK higher education institutions.

- **New research projects in Mental Health and Substance Abuse**: These new projects will be joint initiative of Medical Research Council (MRC) of UK and Indian Council of Medical Research (ICMR). ICMR will fund the Indian component for this project while UK will provide up to 2 million pounds.

- **Setting up Centres for research in Renewable Energy**: These centres will be jointly co-funded by RCUK Energy programme and Department of Science and Technology (DST) of India. UK and the Department of Science & Technology of India will provide support to business-led research and development aimed at tackling societal challenges.

- **Centre Partnerships in Cancer Biology, Translational Regenerative Medicines in Neuroscience and Antimicrobial Resistance**: It will be funded jointly up to 7 million pounds by Medical Research Council (MRC) of UK and Department of Biotechnology (DBT), India.

47. Solution: d)

The previous KVP was discontinued in 2011. The scheme was very popular among the investors and the percentage share of gross collections secured in KVP after its launch in 1988 was in the range of 9-29 per cent against the total collections received under all National Savings Schemes in the country.

Key Features of KVP

- **Liquidity**: Kisan Vikas Patra scheme has unique liquidity feature, where an investor can encash his certificates after the lock-in period of 2 years and 6 months and thereafter in any block of six months on pre-determined maturity value.
- **Investment feature:** The KVP will be available to the investors in the denomination of 1000, 5000, 10000 and 50000 rupees with no upper ceiling on investment. The scheme will provide facility of unlimited investment by way of purchase of certificate from post office in various denominations.

- **KVP certificates:** The certificates can also be issued in single or joint names and can be transferred from one person to any other person. The investment made in the certificate will double in 100 months. The facility of transfer from one post office to another anywhere in India and of nomination will also be available under the scheme.

- **Maturity period:** With a maturity period of 8 years 4 months, the collections under the scheme will be available with the Union Government for a fairly long period to be utilized in financing developmental plans of the Centre and State Governments.

48. **Solution: d)**

Finance Ministry has declared States of Kerala and Goa, union territories of Chandigarh, Puducherry and Lakshadweep and three districts of Gujarat- Porbandar, Mehasana, Gandhinagar as 100 per cent saturated in terms of coverage of all households with at least one bank account.

**According to Finance Ministry**

- PMJDY so far managed to bring over 5000 crore rupees into the normal banking system as account holders have started depositing cash. A large chunk of this money would have been kept at home in the absence of accounts, with little or no productive use.

- According to the initial results, on an average about 80% of the households surveyed have now got at least one bank account.

49. **Solution: d)**

In 2000, the process of regional cooperation in energy sector began between SAARC Member States with the establishment of a Technical Committee on Energy.

**Key facts of SAARC Framework Agreement for Energy Cooperation (Electricity)**

- It will enable greater cooperation in the power sector among SAARC countries.

- It is expected to improve the power availability in the entire SAARC region.

- It would facilitate integrated operation of the regional power grid among member States.

**Implications of this framework**
This agreement will boost the implementation of common power grid between SAARC members. Thus help them to share the hydroelectric power generated in North East India to Bangladesh, Nepal and other countries.

Excess electricity from India and Pakistan can be supplied to electricity deficient Afghanistan.

Offshore wind projects could be set up in Sri Lanka’s coastal borders to power southern part of India and Sri Lanka.

50. **Solution: d)**

LRSAM is called Barak 8 missile in Israel. Barak is the Hebrew word for Lightning.

It is designed to counter a wide variety of air-borne threats such as anti-ship missiles, aircraft, UAVs and drones as well as supersonic cruise missiles.

Barak 8 is an advanced, long-range missile defence and air defence system with main features being:

- Long Range
- Active Radar Seeker Missile
- Vertical Launch
- Multiple Simultaneous Engagements.

**Importance of LRSAM**

- LRSAM will be deployed on the newly commissioned INS Kolkata, which had to be inducted without the weapon system due to delays in testing.
- It would also be deployed on other naval ships including recently commissioned INS Kamrota.

The successful test marked a milestone in bilateral cooperation of the two countries in developing advanced weapon systems.

51. **Solution: a)**

**Argument 1**

India, Pakistan and China have many similarities in their developmental strategies. All the three nations have started towards their developmental path at the same time.

While India and Pakistan became independent nations in 1947, People’s Republic of China was established in 1949.

So Argument 1 is NOT valid.
Argument 2

India and Pakistan adopted similar strategies such as creating a large public sector and raising public expenditure on social development.

Till the 1980s, all the three countries had similar growth rates and per capita incomes.

However, China liberalised in 1979 and India did in 1991. From the data in the Economic survey, it is found that presently India is at the same positions as China was two decades ago. So the lag correlates with the liberalisation gap. So Argument 2 can possibly explain the disparity.

52. Solution: a)

After the establishment of People’s Republic of China under one party rule, all the critical sectors of the economy, enterprises and lands owned and operated by individuals were brought under government control.

The Great Leap Forward (GLF) campaign initiated in 1958 aimed at industrialising the country on a massive scale. People were encouraged to set up industries in their backyards.

In rural areas, communes were started. Under the Commune system, people collectively cultivated lands. In 1958, there were 26,000 communes covering almost all the farm population.

53. Solution: d)

The present-day fast industrial growth in China can be traced back to the reforms introduced in 1978.

China introduced reforms in phases. In the initial phase, reforms were initiated in agriculture, foreign trade and investment sectors.

In agriculture, for instance, commune lands were divided into small plots which were allocated (for use not ownership) to individual households. They were allowed to keep all income from the land after paying stipulated taxes. In the later phase, reforms were initiated in the industrial sector. Private sector firms, in general, and township and village enterprises, i.e. those enterprises which were owned and operated by local collectives, in particular, were allowed to produce goods. At this stage, enterprises owned by government (known as State Owned Enterprises—SOEs), which we, in India, call public sector enterprises, were made to face competition.

The reform process also involved dual pricing. This means fixing the prices in two ways; farmers and industrial units were required to buy and sell fixed quantities of inputs and outputs on the basis of prices fixed by the government and the rest were purchased and sold at market prices. Over the years, as production increased, the proportion of goods or inputs transacted in the market also increased. In order to attract foreign investors, special economic zones were set up.
54. **Solution: a)**

The proportion of workforce engaged in manufacturing in India and Pakistan were low at 19 and 20 per cent respectively. The contribution of industries to GDP is also just equal to or marginally higher than the output from agriculture. In India and Pakistan, the shift is taking place directly to the service sector.

Thus, in both India and Pakistan, the service sector is emerging as a major player of development. It contributes more to GDP and, at the same time, emerges as a prospective employer.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Contribution to GDP</th>
<th>Distribution of Workforce</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>India</td>
<td>China</td>
</tr>
<tr>
<td>Agriculture</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>Industry</td>
<td>26</td>
<td>47</td>
</tr>
<tr>
<td>Service</td>
<td>55</td>
<td>43</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

55. **Solution: d)**

**Balance of Payments (BOP):** It is a statistical statement summarising all the external transactions (receipts and payments) on current and capital account in which a country is involved over a period of time, say, a year. As the BOP shows the total assets and obligations over a time-period, it always balances.

56. **Solution: b)**

The fiscal deficit is the difference between the government's total expenditure and its total receipts (excluding borrowing).

The elements of the fiscal deficit are (a) the revenue deficit, which is the difference between the government’s current (or revenue) expenditure and total current receipts (that is, excluding borrowing) and (b) capital expenditure. The fiscal deficit can be financed by borrowing from the Reserve Bank of India (which is also called deficit financing or money creation) and market borrowing (from the money market, that is mainly from banks).

**Budget deficit:** A financial situation that occurs when an entity has more money going out than coming in. The term "budget deficit" is most commonly used to refer to government spending rather than business or individual spending. When it refers to federal government spending, a budget deficit is also known as the "national debt." The opposite of a budget deficit is a budget surplus, and when inflows are equal to outflows, the budget is said to be balanced.

57. **Solution: a)**
Cascading Effect: When tax imposition leads to a disproportionate rise in prices, i.e. by an extent more than the rise in the tax, it is known as cascading effect.


http://www.thehindu.com/business/Economy/gst-will-remove-cascading-effect-of-levies-pranab/article3446952.ece

58. Solution: d)

Invisibles: Various items enter in the current account of the balance of payments, some of which are not visible goods. Invisibles are mainly services, like tourism, transport by shipping or by airways, and financial services such as insurance and banking. They also include gifts sent abroad or received from abroad and private transfer of funds, government grants and interests, profits and dividends.

59. Solution: a)

Merchant Bankers: Banks or financial institutions, also known as investment bankers, that specialise in advising the companies and managing their equity and debt requirement (often referred to as portfolio management) through floatation and sale/purchase of stocks and bonds.

60. Solution: d)

A macroeconomic strategy enacted by governments and central banks to keep economic growth stable, along with price levels and unemployment. Ongoing stabilization policy includes monitoring the business cycle and adjusting benchmark interest rates to control aggregate demand in the economy. The goal is to avoid erratic changes in total output, as measured by Gross Domestic Product (GDP) and large changes in inflation; stabilization of these factors generally leads to moderate changes in the employment rate as well.

In essence, Fiscal and monetary measures adopted to control fluctuations in the balance of payments and high rate of inflation come under stabilization measures.

61. Solution: a)

Long-term measures like liberalisation, deregulation and privatisation aimed to improve the efficiency and competitiveness of the economy are termed as ‘Structural Reform Policies’.

For e.g. the 1991 reforms were one of the largest such measures undertaken in the economy.

Even the new government is taking a large number of structural reform measures like opening up sectors e.g. FDI in defence; FDI in insurance to 49% etc.

62. Solution: a)
63. **Solution: a)**

In a market economy, also called capitalism, only those consumer goods will be produced that are in demand, i.e., goods that can be sold profitably either in the domestic or in the foreign markets. If cars are in demand, cars will be produced and if bicycles are in demand, bicycles will be produced. If labour is cheaper than capital, more labour-intensive methods of production will be used and vice-versa. In a capitalist society, the goods produced are distributed among people not on the basis of what people need but on the basis of Purchasing Power—the ability to buy goods and services.

64. **Solution: d)**

In a socialist society, the government decides what goods are to be produced in accordance with the needs of society. It is assumed that the government knows what is good for the people of the country and so the desires of individual consumers are not given much importance. The government decides how goods are to be produced and how they should be distributed. In principle, distribution under socialism is supposed to be based on what people need and not on what they can afford to purchase.

Unlike under capitalism, for example, a socialist nation provides free health care to all its citizens. Strictly, a socialist society has no private property since everything is owned by the state. In Cuba and China, for example, most of the economic activities are governed by the socialistic principles.

65. **Solution: a)**

At the time of independence, ownership of land was concentrated in the hands of a few. This led to the exploitation of the farmers and was a major hindrance towards the socio-economic development of the rural population. Equal distribution of land was therefore an area of focus of Independent India’s government, and land reforms were seen as an important pillar of a strong and prosperous country.

It did not include state purchase and distribution of land. Instead, the surplus land (above ceiling) was taken from the big landlords and distributed to the poor. It has a limited success.


66. **Solution: d)**

Agriculture is a state subject.

APMC act is implemented by the state governments.

67. **Solution: d)**

Some economists point out that subsidies do not allow prices to indicate the supply of a good. When electricity and water are provided at a subsidised rate or free, they will be used wastefully without any concern for their scarcity. Farmers will cultivate water intensive crops if water is supplied free, although the water resources in that region may be scarce and such crops will further deplete the already scarce resources. If water is priced to reflect scarcity, farmers will cultivate crops suitable to the region. Fertiliser and pesticide subsidies result in overuse of resources which can be harmful to the environment.

68. **Solution: d)**

**Import substitution** is aimed at replacing or substituting imports with domestic production. For example, instead of importing vehicles made in a foreign country, industries would be encouraged to produce them in India itself. In this policy the government protected the domestic industries from foreign competition. Protection from imports took two forms: tariffs and quotas. Tariffs are a tax on imported goods; they make imported goods more expensive and discourage their use. Quotas specify the quantity of goods which can be imported. The effect of tariffs and quotas is that they restrict imports and, therefore, protect the domestic firms from foreign competition.

The policy of protection is based on the notion that industries of developing countries are not in a position to compete against the goods produced by more developed economies. It is assumed that if the domestic industries are protected they will learn to compete in the course of time. Our planners also feared the possibility of foreign exchange being spent on import of luxury goods if no restrictions were placed on imports. Nor was any serious thought given to promote exports until the mid-1980s.

69. **Solution: d)**

In 1991, India met with an economic crisis relating to its external debt — the government was not able to make repayments on its borrowings from abroad; **foreign exchange reserves**, which we generally maintain to import petrol and other important items, dropped to levels that were not sufficient for even a fortnight.

Check the BACKGROUND section in Chapter 3 – Indian Economy NCERT 11th.

70. **Solution: d)**

These reforms were part of the Liberalisation policy undertaken in 1991. For a detailed discussion on these reforms, refer to Section 3.3 Liberalisation 11th NCERT Indian Economy

71. **Solution: d)**

**Reforms in Agriculture:** Reforms have not been able to benefit agriculture, where the growth rate has been decelerating (till the 10th FYP).

Public investment in agriculture sector especially in infrastructure, which includes irrigation, power, roads, market linkages and research and extension (which played a crucial
role in the Green Revolution), has been reduced in the reform period. Further, the removal of fertiliser subsidy has led to increase in the cost of production, which has severely affected the small and marginal farmers.

This sector has been experiencing a number of policy changes such as reduction in import duties on agricultural products, removal of minimum support price and lifting of quantitative restrictions on agricultural products; these have adversely affected Indian farmers as they now have to face increased international competition.

Moreover, because of export-oriented policy strategies in agriculture, there has been a shift from production for the domestic market towards production for the export market focusing on cash crops in lieu of production of food grains. This puts pressure on prices of food grains.

72. **Solution: d)**

**Financial Sector Reforms**

Financial sector includes financial institutions such as commercial banks, investment banks, stock exchange operations and foreign exchange market. The financial sector in India is controlled by the Reserve Bank of India (RBI). All the banks and other financial institutions in India are controlled through various norms and regulations of the RBI. The RBI decides the amount of money that the banks can keep with themselves, fixes interest rates, nature of lending to various sectors etc.

One of the major aims of financial sector reforms is to reduce the role of RBI from regulator to facilitator of financial sector. This means that the financial sector may be allowed to take decisions on many matters without consulting the RBI.

The reform policies led to the establishment of private sector banks, Indian as well as foreign.

Foreign investment limit in banks was raised to around 50 per cent.

Those banks which fulfil certain conditions have been given freedom to set up new branches without the approval of the RBI and rationalise their existing branch networks.

Though banks have been given permission to generate resources from India and abroad, certain managerial aspects have been retained with the RBI to safeguard the interests of the accountholders and the nation. **Foreign Institutional Investors (FII)** such as merchant bankers, mutual funds and pension funds are now allowed to invest in Indian financial markets.

73. **Solution: c)**

Migration is a consequence, not a reason.

Underemployment is a problem of urban areas. This results in getting underpaid – not causing poverty.
Seasonal unemployment in agriculture threatens livelihood security.

74. **Solution: d)**

**Problems in determining a uniform poverty line:**

Poverty is a state of mind, a situation that people want to escape.

1. **Seasonality of poverty**
2. **Non-distinction b/w antyodaya (poorest of the poor) and the just-above poor. In other aspects, differentiating between chronic and transient poverty.**
3. **Many other factors like drinking water, sanitation etc also need to be taken into account and their prices vary across states and regions**
4. **Factoring social indicators which lead to poverty**
5. **Change in the consumption basket over time and increase in prices beyond the levels of inflation suggest**

75. **Solution: d)**

**Basis of methodology of Rangarajan panel on poverty**

It adopted different yardsticks to measure poverty to reflect the changes in the Indian economy

- **Consumption expenditure - food (calorie based); essential non-food like education, health, clothing, conveyance, house rent etc.**
- **Household's ability to save**
- **Behaviorally determined expenditure for non-food items**
  - It also introduced the concept of "relative poverty" by picking up for e.g. the bottom quintile of population or using media consumption expenditure.

**Difference from Tendulkar Committee**

- Stated that poverty in India was greater than suggested by Tendulkar Committee (22.5%) in 2011-12 from 29.8% in 2009-10
- Included fats and proteins too in food items to reflect present dietary habits. Tendulkar - only calorie
- Minimum basket separate for urban and rural areas. Tendulkar had only one basket.
- Non-food consumption items were also included for the first time.

76. **Solution: a)**
A very detailed and very useful discussion is given in Chapter 4 – Poverty – 11th NCERT – Economy under the section 4.6 - POLICIES AND PROGRAMMES TOWARDS POVERTY ALLEVIATION. Please refer to it for a detailed understanding of the evolution of these approaches.

77. **Solution: d)**

Just as a country can turn physical resources like land into physical capital like factories, similarly, it can also turn human resources like students into human capital like engineers and doctors.

Investment in education is considered as one of the main sources of human capital. There are several other sources as well. Investments in health, on-the-job training, migration and information are the other sources of human capital formation.

Freedom of thought and expression is one of the most fundamental factors in quality human capital creation. It is the foundation of a nation’s intellect.

78. **Solution: d)**

The Indian software industry has been showing an impressive record over the past decade. Entrepreneurs, bureaucrats and politicians are now advancing views about how India can transform itself into a knowledge-based economy by using information technology (IT). There have been some instances of villagers using e-mail which are cited as examples of such transformation. Likewise, e-governance is being projected as the way of the future. The value of IT depends greatly on the existing level of economic development.

Also refer to basics here:


79. **Solution: c)**

Elementary education takes a major share of total education expenditure and the share of the higher/tertiary education (institutions of higher learning like colleges, polytechnics and universities) is the least. Though, on an average, the government spends less on tertiary education, ‘expenditure per student’ in tertiary education is higher than that of elementary. This does not mean that financial resources should be transferred from tertiary education to elementary education. As we expand school education, we need more teachers who are trained in the higher educational institutions; therefore, expenditure on all levels of education should be increased.

80. **Solution: d)**

The Green Revolution was a harbinger of major changes in the credit system as it led to the diversification of the portfolio of rural credit towards production oriented lending. The institutional structure of rural banking today consists of a set of multi-agency institutions, namely, commercial banks, regional rural banks (RRBs), cooperatives and land development banks. They are expected to dispense adequate credit at cheaperrates. Recently, Self-Help
Groups (henceforth SHGs) have emerged to fill the gap in the formal credit system because the formal credit delivery mechanism has not only proven inadequate but has also not been fully integrated into the overall rural social and community development.

81. Solution: a)

Recently, Self-Help Groups (henceforth SHGs) have emerged to fill the gap in the formal credit system because the formal credit delivery mechanism has not only proven inadequate but has also not been fully integrated into the overall rural social and community development. Since some kind of collateral is required, vast proportion of poor rural households were automatically out of the credit network. The SHGs promote thrift in small proportions by a minimum contribution from each member. From the pooled money, credit is given to the needy members to be repayable in small instalments at reasonable interest rates.

Such credit provisions are generally referred to as micro-credit programmes. SHGs have helped in the empowerment of women. It is alleged that the borrowings are mainly confined to consumption purposes.

82. Solution: a)

In India, after progressive increase in budgetary allocations and introduction of new technologies in fisheries and aquaculture, the development of fisheries has come a long way. Presently, fish production from inland sources contributes about 61 per cent to the total fish production and the balance 39 per cent comes from the marine sector (sea and oceans). Today total fish production accounts for 0.7 per cent of the total GDP. Among states, Kerala, Gujarat, Maharashtra and Tamil Nadu are the major producers of marine products.

A large share of fishworker families are poor. Rampant underemployment, low per capita earnings, absence of mobility of labour to other sectors and a high rate of illiteracy and indebtedness are some of the major problems fishing community face today.

83. Solution: d)

Organic agriculture offers a means to substitute costlier agricultural inputs (such as HYV seeds, chemical fertilisers, pesticides etc.) with locally produced organic inputs that are cheaper and thereby generate good returns on investment.

Organic agriculture also generates income through exports as the demand for organically grown crops is on a rise. Studies across countries have shown that organically grown food has more nutritional value than chemical farming thus providing us with healthy foods. Since organic farming requires more labour input than conventional farming, India will find organic farming an attractive proposition. Finally, the produce is pesticide-free and produced in an environmentally sustainable way.

84. Solution: c)
Blessed with a varying climate and soil conditions, India has adopted growing of diverse horticultural crops such as fruits, vegetables, tuber crops, flowers, medicinal and aromatic plants, spices and plantation crops.

These crops play a vital role in providing food and nutrition, besides addressing employment concerns. The period between 1991-2003 is also called an effort to heralding a ‘Golden Revolution’ because during this period, the planned investment in horticulture became highly productive and the sector emerged as a sustainable livelihood option. India has emerged as a world leader in producing a variety of fruits like mangoes, bananas, coconuts, cashew nuts and a number of spices and is the second largest producer of fruits and vegetables.

Flower harvesting, nursery maintenance, hybrid seed production and tissue culture, propagation of fruits and flowers and food processing are highly remunerative employment options for women in rural areas.

85. Solution: d)

Casualization of the workforce occurs whenever workers are employed in a casual, temporary, or otherwise non-permanent and non-full-time capacity. In recent years, casualization has become an increasingly visible problem, and those workers affected are often subject to lower pay, barred from their right to join a union, and denied medical and other benefits. Companies will often hire several part-time workers instead of one or two full-time workers to avoid their obligation to provide benefits, to divide the workforce, and to dissuade unionizing efforts.

In India the unorganised sector accounts for 90% of the total workforce and economic activity.

86. Solution: d)

We classify workforce into two categories: workers in formal and informal sectors, which are also referred to as organised and unorganised sectors.

All the public sector establishments and those private sector establishments which employ 10 hired workers or more are called formal sector establishments and those who work in such establishments are formal sector workers.

All other enterprises and workers working in those enterprises form the informal sector. Thus, informal sector includes millions of farmers, agricultural labourers, owners of small enterprises and people working in those enterprises as also the self-employed who do not have any hired workers. It also includes all non-farm casual wage labourers who work for more than one employer such as construction workers and headload workers.

87. Solution: a)

Disguised unemployment is a situation where more labourers are working in a particular economic activity than would be normally required.
High population can be understood as excess of labour supply. More labour will be unable to find jobs from rural area. So they shift to family or other farms.

Seasonal nature of agricultural work means even the well-off farmers can not employ full tie labourers. This may contribute to unemployment, not disguised unemployment.

Small land holding size means the farmer can not deploy adequate technology. So labourers have to be deployed (either from the family or outside). An incorrect estimation of work based on scientific principles may result in more labourers than what may be required.

88. Solution: d)

A group of religious-minded people in medieval Islam, known as Sufis, sought a deeper and more personal knowledge of God through asceticism (rahbaniya) and mysticism. The more society gave itself up to material pursuits and pleasures, the more the Sufis sought to renounce the world (zuhd) and rely on God alone (tawakkul). In the eighth and ninth centuries, ascetic inclinations were elevated to the higher stage of mysticism (tasawwuf) by the ideas of pantheism and love. Pantheism is the idea of oneness of God and His creation which implies that the human soul must be united with its Maker. Unity with God can be achieved through an intense love for God (ishq), which the woman-saint Rabia of Basra (d. 891) preached in her poems. Bayazid Bistami (d. 874), an Iranian Sufi, was the first to teach the importance of submerging the self (fana) in God. Sufis used musical concerts (sama) to induce ecstasy and stimulate emotions of love and passion.

89. Solution: a)

Faxian visited India in the early fifth century AD. He is said to have walked all the way from China across icy desert and rugged mountain passes. He entered India from the north-west and reached Pataliputra. He took back with him Buddhist texts and images sacred to Buddhism.

Faxian's visit to India occurred during the reign of Chandragupta II. He is also renowned for his pilgrimage to Lumbini, the birthplace of Gautama Buddha in modern Nepal. Faxian claimed that demons and dragons were the original inhabitants of Ceylon (Sri Lanka).

90. Solution: d)

Nalanda was an acclaimed Mahāvihāra, a large Buddhist monastery in ancient Magadha (modern-day Bihar), India. The site is located about 95 kilometres southeast of Patna, and was a religious centre of learning from the fifth century CE to c. 1197 CE. Historians often characterize Nalanda as a university.

Nalanda flourished under the patronage of the Gupta Empire as well as emperors like Harsha and later, the rulers of the Pala Empire. At its peak, the school attracted scholars and students from as far away as Tibet, China, Korea, and Central Asia. It was ransacked and destroyed by an army of the Muslim Mamluk Dynasty under Bakhtiyar Khilji in c. 1197 CE.
The Tang Dynasty Chinese pilgrim Xuanzang left detailed accounts of the school in the 7th century. He described how the regularly laid-out towers, forest of pavilions, harmikas and temples seemed to "soar above the mists in the sky" so that from their cells the monks "might witness the birth of the winds and clouds." The pilgrim states: "An azure pool winds around the monasteries, adorned with the full-blown cups of the blue lotus; the dazzling red flowers of the lovely kanaka hang here and there, and outside groves of mango trees offer the inhabitants their dense and protective shade."

91. **Solution: b)**

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92. **Solution: c)**

**Zahir-ud-din Muhammad Babur** was a conqueror from Central Asia who, following a series of setbacks, finally succeeded in laying the basis for the Mughal dynasty in the Indian Subcontinent and became the first Mughal emperor. He was a direct descendant of Timur, from the Barlas clan, through his father, and also a descendant of Genghis Khan through his mother. Culturally, he was greatly influenced by the Persian culture and this affected both...
his own actions and those of his successors, giving rise to a significant expansion of the Persianate ethos in the Indian subcontinent.

93. Solution: b)
Christopher Columbus (1451-1506) was a self-taught man who sought adventure and glory. Believing in prophecies, he was convinced that his destiny lay in discovering a route to the East (the ‘Indies’) by sailing westwards. He was inspired by reading Imago Mundi (a work on astronomy and geography) by Cardinal Pierre d’Ailly written in 1410. He submitted his plans to the Portuguese Crown, only to have them turned down. He had better luck with the Spanish authorities who sanctioned a modest expedition that set sail from the port of Palos on 3 August 1492. Nothing, however, prepared Columbus and his crew for the long Atlantic crossing that they embarked upon, or for the destination that awaited them.

The fleet was small, consisting of a small nao called Santa Maria, and two caravels (small light ships) named Pinta and Nina. Columbus himself commanded the Santa Maria along with 40 capable sailors. The outward journey enjoyed fair trade winds but was long. For 33 days, the fleet sailed without sight of anything but sea and sky. By this time, the crew became restive and some of them demanded that they turn back.

On 12 October 1492, they sighted land; they had reached what Columbus thought was India, but which was the island of Guanahani in the Bahamas. (It is said that this name was given by Columbus, who described the Islands as surrounded by shallow seas, baja mar in Spanish.) They were welcomed by the Arawaks, who were happy to share their food and provisions; in fact, their generosity made a deep impression upon Columbus. As he wrote in his log-book, ‘They are so ingenuous and free with all they have, that no one would believe it who has not seen of it, anything they possess, if it be asked of them, they never say no, on the contrary, they invite you to share it and show as much love as if their hearts went with it’.

94. Solution: d)
http://en.wikipedia.org/wiki/Aryabhata#Astronomy

95. Solution: b)
The Portuguese occupation of Brazil occurred by accident. In 1500, a grand procession of ships set out from Portugal for India, headed by Pedro Alvares Cabral. To avoid stormy seas, he made a wide loop around West Africa, and found to his surprise that he had reached the coast of present-day Brazil. As it happened, this eastern part of South America was within the section assigned on the map to Portugal by the Pope, so they regarded it as indisputably theirs.

The Portuguese were more eager to increase their trade with western India than with Brazil, which did not promise any gold. But there was one natural resource there which they exploited: timber. The brazilwood tree, after which the Europeans named the region, produced a beautiful red dye. The natives readily agreed to cut the trees and carry the logs
to the ships in exchange for iron knives and saws, which they regarded as marvels. (‘For one sickle, knife or comb [they] would bring loads of hens, monkeys, parrots, honey, wax, cotton thread and whatever else these poor people had’.)

96. Solution: c)

The Meiji Restoration also known as the Meiji Ishin, Renovation, Revolution, Reform, or Renewal, was a chain of events that restored practical imperial rule to Japan in 1868 under Emperor Meiji. Although there were emperors of Japan before the Meiji Restoration, the restoration established the practical abilities and consolidated the political system under the Emperor of Japan. The goals of the restored government were expressed by the new emperor in the Charter Oath. The Restoration led to enormous changes in Japan's political and social structure, and spanned both the late Edo period (often called Late Tokugawa shogunate) and the beginning of the Meiji period. The period spanned from 1868 to 1912 and was responsible for the emergence of Japan as a modernized nation in the early twentieth century.

97. Solution: c)


http://en.wikipedia.org/wiki/Prahaar_(missile)

98. Solution: a)

The Government has revived the Varishta Pension Bima Yojana (VPBY) scheme for the benefit of senior citizens aged 60 years and above. The scheme is being administered through Life Insurance Corporation of India (LIC) and will remain open for a period of one year from 15th August, 2014 to 14th August, 2015.

Under the scheme, all those who will subscribe to the VPBY during this period, will receive a pension linked to an assured guaranteed return of 9% on the lump sum contribution under the Yojana. The Salient features of the scheme are as under:

· The scheme provides pension in the form of immediate annuity during the lifetime of the pensioner with return of purchase price to the family/nominee on his/her death.

· The mode of payment of pension can be monthly, quarterly, half-yearly or yearly.

· The pension payment shall be through ECS or NEFT.

· The minimum pension that can be subscribed to will be Rs. 500/- per month, Rs. 1500/- per quarter, Rs. 3000/- per half-year or Rs. 6000/- per year.

· The maximum pension that can be subscribed to will be Rs. 5,000/- per month, Rs. 15,000/- per quarter, Rs. 30,000/- per half-year or Rs. 60,000/- per year.
A lump sum purchase price for the desired pension shall be paid by the subscriber under the scheme. The minimum and maximum purchase price for different modes of pension corresponding to the maximum/minimum pensions given above will be as under:

99. Solution: c)

http://pib.nic.in/newsite/PrintRelease.aspx?relid=111998

100. Solution: a)

Opium was first introduced to China by Turkish and Arab traders in the late 6th or early 7th century. Taken orally to relieve tension and pain, the drug was used in limited quantities until the 17th century, when the practice of smoking tobacco spread from North America to China. The smoking of opium soon became popular throughout China; opium addiction increased, and opium importations grew rapidly. By 1729 it had become such a problem that the Yung-cheng emperor (ruled 1722–35) prohibited the sale and smoking of opium. This failed to hamper the trade, and in 1796 the Chia-ch’ing emperor outlawed opium importation and cultivation. In spite of such decrees, however, the opium trade continued to flourish.

Early in the 18th century the Portuguese found that they could import opium from India and sell it in China at a considerable profit. By 1773 the British had discovered the trade, and that year they became the leading suppliers of the Chinese market. The British East India Company established a monopoly on opium cultivation in the Indian province of Bengal, where they developed a method of growing opium poppies cheaply and abundantly. Other Western nations also joined in the trade, including the United States, which dealt in Turkish as well as Indian opium.

Britain and other European nations undertook the opium trade because of their chronic trade imbalance with China. There was tremendous demand in Europe for Chinese tea, silks, and porcelain pottery, but there was correspondingly little demand in China for Europe’s manufactured goods and other trade items. Consequently, Europeans had to pay for Chinese products with gold or silver. The opium trade, which created a steady demand among Chinese addicts for opium imported by the West, solved this chronic trade imbalance.

The East India Company did not carry the opium itself but, because of the Chinese ban, farmed it out to “country traders” — i.e., private traders licensed by the company to take goods from India to China. The country traders sold the opium to smugglers along the Chinese coast. The gold and silver the traders received from these sales were then turned over to the East India Company. In China the company used the gold and silver it received to purchase goods that could be sold profitably in England.

The amount of opium imported into China increased from around 200 chests a year in 1729 to about 1,000 chests in 1767 and to around 10,000 a year between 1820 and 1830. By 1838 the amount had grown to some 40,000 chests imported into China annually. The balance of payments for the first time began to run against China and in favour of Britain.