

ANSWERS & EXPLANATIONS

GENERAL STUDIES (P) TEST – 3207 (2021)

Q 1.A

- Primary forests are forests of native tree species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed. **Hence statement 1 is correct.**
- Three countries – Brazil, Canada and the Russian Federation – host more than half (61 per cent) of the world's primary forests.
- The world still has at least 1.11 billion ha of primary forest compared to the total forest area of 4.06 billion hectares. **Roughly a quarter** of the total forest area is comprised of primary forests. **Hence statement 2 is not correct.**

Q 2.B

- **Dravidian architecture** is the Hindu temple architecture that emerged in the southern part of the Indian subcontinent. Unlike the nagara temple, the dravida temple is **enclosed within a compound wall**. The front wall has a **lofty entrance gateway** in its centre, which is known as a **gopuram**. The shape of the main temple tower known as vimana which is like a **stepped pyramid** that rises up geometrically rather than the curving shikhara of North India.
- At the entrance to the North Indian temple's garbhagriha, it is usual to find images such as mithunas and the river goddesses, Ganga and Yamuna. In the **south** one generally find sculptures of **fierce dvarapalas or the door-keepers** guarding the temple.
- The North Indian idea of multiple shikharas rising together as a cluster was not popular in South India.
- The subdivisions of dravida temples are based on five different shapes:
 - square, usually called kuta, and also caturasra;
 - rectangular or shala or ayatasra;
 - elliptical, called gaja-prishta or elephant-backed, or also called vrittayata, deriving from wagon vaulted shapes of apsidal chaityas with a horse-shoe shaped entrance facade usually called a nasi;
 - circular or vritta; and
 - octagonal or ashtasra.
- **Hence option (b) is the correct answer.**

Q 3.C

- The Revolt of 1857 brought about important changes in the British administration in India. The rule of the East India Company came to an end. The administration of India came under the direct control of the British Crown. These changes were announced in the Government of India Act of 1858. The 'Proclamation of Queen Victoria' read out by Lord Canning at **Allahabad Durbar** in November **1858** assured the Indians a **benevolent administration**. However, its only in the **Imperial Durbar of 1877 at Delhi**, the ambiguity of sovereignty was resolved by proclaiming **Queen Victoria as the Empress of India**. **Hence statement 1 is not correct.**
- The Indian Civil Service (ICS) was the steel frame of British rule in India. Initially, the ICS was an all-white affair, but the elder brother of Rabindranath Tagore, **Satyendranath Tagore**, became the first Indian to qualify for the ICS in **1863**. The ICS examination was held in London from 1855 to 1921 and from **1922** onwards the exams were held **both in Allahabad and London**. **Hence statement 2 is not correct.**
- The Charter Act of 1833 provided for the appointment of a Law Commission for enquiring fully into and reporting on the state of laws in force in British India and the administration of justice. Accordingly, in 1834 the **First Law Commission headed by Thomas Babington Macaulay** was constituted. During 1834-36, the Law Commission under T.B. Macaulay's supervision prepared the **Draft Penal Code** codifying uniform penal law for the whole of British India. **Hence statement 3 is correct.**

Q 4.D

- **Article 267 of the Indian constitution authorised the Parliament and state legislature** to establish a ‘Contingency Fund of India’ and ‘Contingency Fund of the State’ into which amounts determined by law are paid from time to time. **Hence statement 1 is correct.**
- As a result, **Parliament enacted The Contingency Fund of India Act, 1950** with a corpus of 50 crores (Currently it is raised to 500 crores) to facilitate the meeting of urgent unforeseen expenditure by the government.
- **Significant provisions of the Act are:**
 - The Contingency Fund of India shall be **held on behalf of the President by a Secretary to the Government of India in the Ministry of Finance. Hence statement 2 is correct.**
 - No advances shall be made out of such fund except for the purposes of meeting unforeseen expenditure pending authorisation of such expenditure by Parliament
 - Like the public account of India, it is also **operated by executive action. However, Any expenditure incurred from this fund requires subsequent approval from the Parliament. Hence statement 3 is correct.**

Q 5.A

- **Recent Context:** Due to non-compliance with the Financial Action Task Force (FATF) rules, it was recently decided to keep Pakistan in the grey list. Pakistan has been on the FATF grey list since June 2018 and has been asked to implement the FATF Action Plan. The decision by the FATF was taken in light of the country’s failure to fully comply with the 27-point action plan to combat terrorism.
- **The Financial Action Task Force (FATF) is an inter-governmental body decision-making body. It was established in 1989 during the G7 Summit in Paris to develop policies against money laundering.**
- It is a “**policy-making body**” that works to generate the political will to bring about national legislative and regulatory reforms in money laundering. **It has also started dealing with virtual currencies. The FATF Secretariat is located in Paris.**
- FATF sets standards and promotes effective implementation of:
 - legal, regulatory and operational measures for combating money laundering.
 - it works to identify national-level vulnerabilities with the aim of protecting the international financial system from misuse.
- FATF has 2 types of lists:
 - **Black List:** Countries known as Non-Cooperative Countries or Territories (NCCTs) are put in the blacklist. These countries support terror funding and money laundering activities. The FATF revises the blacklist regularly, adding or deleting entries.
 - **Grey List:** Countries that are considered safe haven for supporting terror funding and money laundering are put in the FATF grey list. This inclusion serves as a warning to the country that it may enter the blacklist.
- **FATF does not address at all issues related to low tax jurisdiction or tax competition. The FATF mandate focuses only on the fight against laundering of proceeds of crimes and the financing of terrorism. Hence, options 1 and 2 are correct and option 3 is not correct.**
- Consequences of being in the FATF grey list:
 - Economic sanctions from IMF, World Bank, ADB
 - Problem in getting loans from IMF, World Bank, ADB and other countries
 - Reduction in international trade
 - International boycott
- **India became an Observer at FATF in 2006. Since then, it had been working towards full-fledged membership. On June 25, 2010 India was taken in as the 34th country member of FATF.**

Q 6.A

- Green Term - Ahead Market (GTAM) in electricity launched by the Ministry of New and Renewable Energy, as a first step towards greening the Indian power market. **Hence statement 1 is correct.**
- GTAM is an alternative new model introduced for selling off the power by the renewable developers in the open market. The market is the first Exclusive product for the renewable energy (RE) sector in the world.
- It would lessen the burden on the RE-rich States and incentivize them to develop RE capacity beyond their own Renewable Purchase Obligations (RPO). RPO is a mandate that requires large power procurers to buy a predetermined fraction of their electricity from renewable sources.
- GTAM platform will lead to an increase in the number of participants in the renewable energy sector.

- It will benefit buyers of RE through competitive prices and transparent and flexible procurement.
- It will also benefit RE sellers by providing access to the pan-India market. **RE sellers will not get access to neighbouring countries energy market. Hence statement 2 is not correct.**
- **Key features of GTAM:**
 - Transactions through GTAM will be bilateral in nature with clear identification of corresponding buyers and sellers, there will not be any difficulty in accounting for Renewable Purchase Obligations (RPO) RPO is a mandate that requires large power procurers to buy a predetermined fraction of their electricity from renewable sources.
 - GTAM contracts will be segregated into Solar RPO & Non-Solar RPO.
 - Energy scheduled through GTAM contract shall be considered as deemed RPO compliance of the buyer.

Q 7.B

- **Kolleru Lake is one of the largest freshwater lakes in India** located in the state of Andhra Pradesh, 15 kilometres away from the city of Eluru. Kolleru is located between Krishna and Godavari deltas. Kolleru spans two districts - Krishna and West Godavari. The lake is fed directly by water from the seasonal Budameru and Tammileru streams and is connected to the Krishna and Godavari irrigation systems.
 - The lake was declared as a wildlife sanctuary in November 1999 under India's Wildlife Protection Act of 1972, and designated a wetland of international importance in November 2002 under the international Ramsar Convention.
 - Many birds migrate here in winters, such as Siberian crane, ibis, and painted storks
- **Wular Lake is the largest freshwater lake in India.** The lake basin was formed as a result of tectonic activity and is fed by the Jhelum River.
 - This lake also has a small island in its centre called the 'Zaina Lank'. This island was constructed by King Zainul-Abi-Din.
 - It is one of the 42 Indian wetlands designated as a Ramsar site.
 - The lake sustains a rich population of birds. Terrestrial birds observed around the lake include the black-eared kite, Eurasian sparrowhawk, short-toed eagle, Himalayan golden eagle, etc.
- **Lonar Lake is a saline lake located at Lonar in Buldhana district, Maharashtra. Lonar Lake was created by a meteorite collision impact during the Pleistocene Epoch.**
 - The lake was declared a protected Ramsar site in November 2020.
 - The chemical characteristics of the lake show two distinct regions that do not mix – an outer neutral (pH 7) and an inner alkaline (pH 11) each with its own flora and fauna. The lake is a haven for a wide range of plant and animal life.
- **Deepor Beel is a permanent freshwater lake located in the south-west of Guwahati city, Assam, India.** It is a wetland of international importance under the Ramsar Convention.
 - The lake is a natural habitat to many varieties of birds such as Spot-billed pelican, Lesser adjutant stork, Greater adjutant stork.
 - Siberian crane regularly migrates to this habitat during its annual journey.
 - Aquatic vegetation like Giant Water Lily, water hyacinth, aquatic grasses, water lilies, and other submerged, emergent, and floating vegetation are found in this lake.
- **Hence option (b) is the correct answer.**

Q 8.D

- The Green Gigaton Challenge is a new global effort to catalyze funds to reduce one gigaton of high-quality emissions reductions annually from forest-based natural climate solutions.
 - It will support forest countries to achieve their Nationally Determined Contributions (NDC) and increase ambition while helping companies complement their internal emissions reductions with high-quality carbon credits.
 - It brings together a coalition of public, private, and philanthropic partners to channel funds into efforts led by national and subnational governments to reduce emissions from deforestation and forest degradation (REDD+).
- **It is a combined initiative of five partners**
 - **Emergent - Forest Finance Accelerator:** It is a non-profit organization with the sole mission of accelerating the speed and scale of tropical forest conservation to combat the climate crisis.
 - **United Nations REDD Programme:** It is a collaborative programme of the Food and Agriculture Organization of the United Nations.
 - **Architecture for REDD+ Transactions:** It is a voluntary international initiative that seeks to reward countries for reduced emissions from deforestation and forest degradation, a process known as REDD+.

- **Forest Trends:** It is a non-profit organization founded in 1998 and based in Washington, DC that connects with economic tools and incentives for maintaining ecosystems. It protects critical ecosystems through creative environmental finance, markets, supply chains, and other incentive mechanisms. It builds diverse coalitions with governments, local and indigenous communities, and business to ensure that all stakeholders are engaged and benefit from conservation.
- **Environmental Defense Fund:** It is a United States-based nonprofit environmental advocacy group. The group is known for its work on issues including global warming, ecosystem restoration, oceans, and human health, and advocates using sound science, economics and law to find environmental solutions that work.
- **Hence, option (d) is the correct answer.**

Q 9.C

- **The Constitution does not specify the castes or tribes which are to be called the Scheduled caste (SCs) or Scheduled tribes (STs)**
- **It leaves to the President the power to specify as to what castes or tribes in each state and union territory are to be treated as the SCs and STs.** Therefore, the lists of the SCs or STs vary from state to state and union territory to union territory.
- **As a result, in the case of State, the President issue the notification after consulting the governor of the state concerned to include a certain group of people or tribes as Scheduled Castes (SCs) and Scheduled Tribes (STs). Hence statement 1 is correct.**
- **Scheduled castes are sub-communities within the framework of the Hindu caste system who have historically faced deprivation, oppression, and extreme social isolation in India on account of their perceived 'low status'. Only marginalised Hindu communities (including Sikhs and Buddhist) can be deemed Scheduled Castes in India, according to The Constitution (Scheduled Castes) Order, 1950. Hence statement 2 is not correct.**
- **But any inclusion or exclusion of any caste or tribe from Presidential notification can be done only by the Parliament and not by a subsequent Presidential notification.** Any amendment to the President's issued notification can be done by Parliament only. **Hence statement 3 is correct.**

Q 10.B

- **Article 262 of the Constitution provides for the adjudication of inter-state water disputes**
- **It makes two provisions**
 - **Parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution and control of waters of any inter-state river and river valley.**
 - **Parliament may also provide that neither the Supreme Court nor any other court is to exercise jurisdiction in respect of any such dispute or complaint. Hence option (a) is correct.**
- **Under this, the Parliament has enacted the Inter-State River Water Disputes (ISRWD) Act, 1956 for adjudication of disputes relating to waters of inter-State rivers and river valley thereof. ISRWD act empowers the Central government to set up an adhoc tribunal for the adjudication of a dispute between two or more states in relation to the waters of an inter-state river or river valley. Hence option (b) is not correct.**
- **The parliament enacted that the decision of the tribunal would be final and binding on the parties to the dispute. Neither the Supreme Court nor any other court is to have jurisdiction in respect of any water dispute which may be referred to such a tribunal under this Act. Hence option (c) is correct.**
- **Inter-State Water Dispute Tribunals Set-up So Far**
 - **Krishna Water Disputes Tribunal, 1969 (Maharashtra, Karnataka and Andhra Pradesh)**
 - **Godavari Water Disputes Tribunal 1969 (Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh and Orissa)**
 - **Narmada Water Disputes Tribunal, 1969 (Rajasthan, Gujarat, Madhya Pradesh and Maharashtra)**
 - **Ravi and Beas Water Disputes Tribunal, 1986 (Punjab and Haryana)**
 - **Cauvery Water Disputes Tribunal 1990 (Karnataka, Kerala, Tamil Nadu and Puducherry)**
 - **Second Krishna Water Disputes Tribunal 2004 (Maharashtra, Karnataka and Andhra Pradesh)**
 - **Vansadhara Water Disputes Tribunal 2010 (Odisha and Andhra Pradesh)**
 - **Mahadayi Water Disputes Tribunal. 2010 (Goa, Karnataka and Maharashtra)**
 - **Mahanadi Water Disputes Tribunal, 2018 (Odisha and Chhattisgarh) Hence option (d) is correct.**

Q 11.D

- **FUNGUS:** A fungus is any member of the group of eukaryotic organisms that includes microorganisms such as **yeasts and molds**, as well as the more familiar mushrooms. These organisms are classified as a kingdom, which is separate from the other eukaryotic life kingdoms of plants and animals. **Hence statement 2 is correct.**
- A characteristic that places fungi in a different kingdom from plants, bacteria, and some protists is chitin in their cell walls.
 - **Fungi, like animals, are heterotrophs; they acquire their food by absorbing dissolved molecules, typically by secreting digestive enzymes into their environment. Hence statement 1 is correct.**
 - Fungi **do not photosynthesize**. Growth is their means of mobility, except for spores (a few of which are flagellated), which may travel through the air or water.
 - Fungi are the **principal decomposers in ecological systems and have fundamental roles in nutrient cycling and exchange in the environment.**
 - These and other differences place fungi in a single group of related organisms, named the Eumycota (true fungi or Eumycetes), which share a common ancestor (from a monophyletic group), an interpretation that is also strongly supported by molecular phylogenetics. This fungal group is distinct from the structurally similar myxomycetes (slime molds) and oomycetes (water molds).
- **The discipline of biology devoted to the study of fungi is known as mycology** (from the Greek *μύκης* mykes, mushroom).
- Abundant worldwide, most fungi are inconspicuous because of the **small size of their structures**, and their cryptic lifestyles in soil or on dead matter.
- Fungi include symbionts of plants, animals, or other fungi and also parasites. They may become noticeable when fruiting, either as mushrooms or as molds.
- They have long been used as a direct source of human food, in the form of **mushrooms and truffles; as a leavening agent for bread;** and in the fermentation of various food products, such as wine, beer, and soy sauce. Since the 1940s, fungi have been used for the production of antibiotics, and, more recently, various enzymes produced by fungi are used industrially and in detergents.
- **Fungi are also used as biological pesticides to control weeds, plant diseases and insect pests. Many species produce bioactive compounds called mycotoxins, such as alkaloids and polyketides, that are toxic to animals including humans. Hence statement 3 is correct.**

Q 12.C

- **Colony Collapse Disorder (CCD) is the phenomenon that occurs when the majority of worker bees in a colony disappear and leave behind a queen, plenty of food and a few nurse bees to care for the remaining immature bees and the queen. Hence option (c) is the correct answer.**
- The winter of 2006/2007 witnessed large-scale losses of managed honey bee (*Apis mellifera* L.) colonies in the United States. In the U.S., a portion of the dead and dying colonies were characterized by post hoc by a common set of specific **symptoms**:
 - the rapid loss of adult worker bees from affected colonies as evidenced by weak or dead colonies with excess brood populations relative to adult bee populations;
 - a noticeable lack of dead worker bees both within and surrounding the affected hives; and
 - the delayed invasion of hive pests (e.g., small hive beetles and wax moths) and kleptoparasitism from neighbouring honey bee colonies. Subsequently, this syndrome has been termed Colony Collapse Disorder or CCD.
- There have been many theories about the **causes of CCD**, but **the researchers are now focused on the following factors**:
 - Increased losses due to the invasive varroa mite (a pest of honey bees).
 - New or emerging diseases such as the Israeli Acute Paralysis virus and the gut parasite Nosema.
 - Pesticide poisoning through exposure to pesticides applied to crops or for in-hive insect or mite control.
 - Stress bees experience due to management practices such as transportation to multiple locations across the country for providing pollination services.
 - Changes to the habitat where bees forage.
 - Inadequate forage/poor nutrition.
 - Potential immune-suppressing stress on bees caused by one or a combination of factors identified above.

Q 13.C

- In the federal structure of India, **the State Governments** are the owner of minerals located within the boundaries of the State concerned.
- Although mineral wealth vests with the State Govt., yet the subject of regulation of Mines and Minerals development is covered under 7th schedule of constitution of India.
- Rule making powers in respect of minor minerals have been delegated to the States under section 15 of this Act. **Hence statement 1 is correct.**
- **In accordance with Article 297 of the Constitution, the Central Government is the owner of the minerals underlying the ocean within the territorial waters or the Exclusive Economic Zone of India. Hence statement 2 is correct.**
- The Mineral Laws (Amendment) Bill, 2020 was introduced in Lok Sabha on March 2, 2020. The Bill amends the Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act) and the Coal Mines (Special Provisions) Act, 2015 (CMSP Act). As per this new act Companies will be allowed to carry on coal mining operation for own consumption, sale or for any other purposes, as may be specified by the central government.

Q 14.B

- Rubber is a coherent elastic solid obtained from the latex of a number of tropical trees of which **Hevea brasiliensis** is the most important.
- The first rubber plantation in India was set up in 1895 on the hill slopes of Kerala and its cultivation on a commercial scale was introduced in 1902.
- **Climatic condition for Rubber Farming:**
 - The rubber plantation requires a hot and humid climate i.e. heavy and well-distributed rainfall of 200 cm to 300 cm having a humidity of about 75%.
 - The rainfall should be best distributed throughout the year.
 - Dry spell and low temperatures are harmful.
 - Daily rainfall followed by the strong sun is very useful, at least 5 to 6 hours of sunlight daily. **Hence option 1 is correct.**
 - The best growing temperatures for the rubber plant is from **25 to 35°C**. Freezing temperatures will halt the growth of rubber plants and strong wind areas are not suitable for rubber farming. **Hence option 3 is not correct.**
- **Soil for Rubber Farming:**
 - Rubber Plants require highly deep weathered soils which consist of laterite and lateritic soils.
 - They grow best in well-drained porous soils with moderate acidic in nature. However, the rubber plant also thrives in red alluvial soils, if there is a good organic matter in the soil. The soil pH of 5.0 to 6.0 is best for rubber cultivation. **Hence option 2 is correct.**
 - For good aeration and root growth, the water table should be below at least 1-meter depth in the soil.
 - The yield decline at higher elevations and no rubber plantations are found above 700 m elevation, elevation ranging from 300 to 450 metres above sea level provide the best condition for its growth.
- **Planting Season:**
 - June to July is the best season for its plantation
 - Intercropping In rubber plantation will generate good revenue during the first two years of cultivation. The suitable intercrops in rubber plantation are ginger turmeric, tuber crops, vegetables, pineapple, banana and medicinal or herbal plants.
 - Intercropping like Leguminous crops will help in nitrogen fixation in the soil.
 - Cover cropping is helpful in sloppy regions to prevent soil erosion. This also helps in enhancing soil fertility and controls weed growth along with soil temperature.

Q 15.C

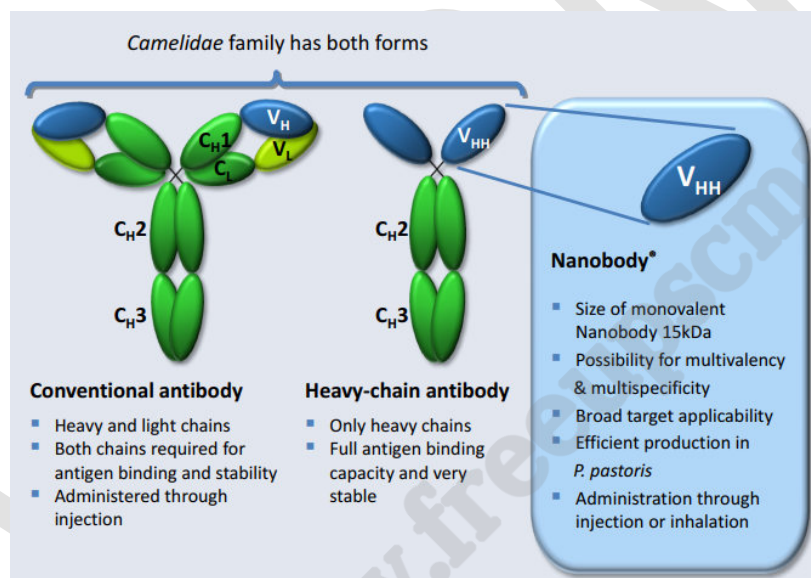
- The Ninth Schedule contains a list of central and state laws which cannot be challenged in courts. Currently, 284 such laws are shielded from judicial review. The Schedule became a part of the Constitution in 1951, when the document was amended for the first time. It was created by the new Article 31B, which along with 31A was brought in by the government to protect laws related to agrarian reform and for abolishing the Zamindari system. While A. 31A extends protection to 'classes' of laws, A. 31B shields specific laws or enactments. While most of the laws protected under the Schedule concern agriculture/land issues, the list includes other subjects, such as reservation. A Tamil Nadu law that provides 69 per cent reservation in the state is part of the Schedule.
- **The First Amendment added 13 laws to the Schedule. Subsequent amendments in 1955, 1964, 1971, 1974, 1975, 1976, 1984, 1990, 1994, and 1999 have taken the number of protected laws to 284.** Article

31B also has retrospective operation: meaning if laws are inserted in the Ninth Schedule after they are declared unconstitutional, they are considered to have been in the Schedule since their commencement, and thus valid. **Hence option (c) is the correct answer.**

- Although Article 31B excludes judicial review, the apex court has said in the past that even laws under the Ninth Schedule would be open to scrutiny if they violated fundamental rights or the basic structure of the Constitution.

Q 16.A

- Nanobodies Against SARS-CoV-2: They are produced along with normal antibodies.** On injection of the surface protein of the coronavirus into an alpaca and a llama, their immune system not only produced antibodies directed against the virus but also a simpler antibody variant that can serve as the basis of nanobodies.
- Nanobodies: Nanobodies are antibody fragments that are so simple that they can be produced by bacteria or yeast, which is less expensive. Hence option (a) is not correct.**
- These are antibodies with a single variable domain located on a heavy chain, also known as VHH antibodies. These are often seen as an alternative to conventional antibodies, and have significant differences in both production and use that influence their suitability. They are **much smaller than classic antibodies. So, they penetrate the tissue better and can be produced more easily in larger quantities.**
- Difference between Nanobodies and Conventional Antibodies:**
- Conventional antibodies have two variable domains, called VH and VL, which offer each other stability and binding specificity. Nanobodies have VHH domains and lack VL domains, but are still highly stable. Lacking the VL domain also means nanobodies have a **hydrophilic (having a tendency to dissolve in water) side.**
- The hydrophilic side means they do not have issues with solubility and aggregation otherwise associated with conventional antibodies. Nanobody production follows many of the same protocols as used in traditional antibody production. However, it also has distinct advantages not available with traditional antibodies, such as improved screening, improved isolation techniques, and no animal sacrifice.



- Antibodies:** Antibodies are an important weapon in the immune system's defence against infections. They bind to the surface structures of bacteria or viruses and prevent their replication. One strategy in the fight against disease is therefore to produce effective antibodies in large quantities and inject them into patients. However, producing antibodies is difficult and time-consuming; they are, therefore, probably not suitable for widespread use.

Q 17.D

- The Ghadar Movement was an early 20th century, international political movement founded by expatriate Indians to overthrow British rule in India. The early membership was composed mostly of Punjabi Indians who lived and worked on the **West Coast of the United States and Canada**, but the movement later spread to India and Indian diasporic communities around the world.
- The party was built around the weekly paper **The Ghadar**. Following the **Komagata Maru Incident in 1914**, a direct challenge to Canadian anti-Indian immigration laws, several thousand Indians resident in

the United States sold their business and homes ready to drive the British from India, bolstering the ranks of the Ghadar Party.

- Following the outbreak of World War I in 1914, some Ghadar party members returned to Punjab to incite armed revolution for Indian Independence. They were also successful in smuggling arms and inciting the Indian soldiers in the British Army to mutiny. This uprising, known as the **Ghadar Mutiny**, was unsuccessful, and 42 mutineers were executed following the Lahore Conspiracy Case trial.
- Key participants in the Ghadar Movement included Vishnu Ganesh Pingle, Sohan Singh Bhakna, **Bhagwan Singh, Har Dayal, Tarak Nath Das**, Bhagat Singh Thind, Kartar Singh Sarabha, Abdul Hafiz Mohamed Barakatullah, **Rashbehari Bose**, and Gulab Kaur, **Barkatullah**. Hence option (d) is the correct answer.

Q 18.C

- When Warren Hastings assumed the administration of Bengal in 1772, the judicial system was a storehouse of abuses. Warren Hastings felt the necessity of reorganizing the judicial system and the **Judicial Plan of 1772** as been formulated dealing with civil and criminal laws.
- **Each district was provided with a civil court** under the Collector and a criminal court under an Indian Judge. To hear appeals from the district courts two appellate courts, one for civil cases and another for criminal cases, were established at Calcutta. **Hence statement 1 is correct.**
- The highest civil court of appeal was called Sadar Diwani Adalat, which was to be presided over by the Governor and two judges recruited from among the members of his council. Similarly, the **highest appellate criminal court** was known as **Sadar Nizamat Adalat** which was to function under an Indian judge appointed by the Governor-in-Council. **Hence statement 3 is correct.**
- **Experts in Hindu and Muslim laws were provided to assist the judges.** A digest of Hindu law was prepared in Sanskrit by learned Pandits and it was translated into Persian. An English translation of it – **Code of Hindu Laws** – was prepared by Halhed. **Hence statement 2 is not correct.**

Q 19.C

- The **Pune-based** facility of the Defence Research and Development Organisation (**DRDO**) and the **Indian Army's Mhow-based Infantry School** have jointly developed India's **first indigenous 9mm machine pistol** named 'Asmi'. The pistol is likely to have a production cost lower than Rs 50,000 each and has export potential as well. **Hence option (c) is the correct answer.**
- Machine pistols are primarily self-loading versions of pistols that are either fully automatic or can also fire bursts of bullets. The Asmi machine pistol fires the in-service 9 mm ammunition and has an upper receiver made from aircraft-grade aluminium and a lower receiver from carbon fibre.
- The **3D printing technology has been used** in designing and prototyping various parts, including trigger components which have been made by metal 3D printing.
- DRDO's Pune-based facility Armament Research and Development Establishment (ARDE) and the Infantry School designed and developed this weapon utilising their respective areas of expertise in a record time of four months.
- The announcement of machine pistol development comes nearly a month after a **Carbine** jointly developed by the **ARDE and the Ordnance Factory Board (OFB)** completed the final phase of user trials by the Army and was ready for induction

Q 20.B

- **Recent Context: In the recent past, various eminent personalities returned their awards to protest against government policies. For example, former CM of Punjab, Parkash Singh Badal returned the Padma Vibhushan award "in protest" against the new farm laws. Some of the writers, poets, journalists etc. have expressed dissent for government policies by returning their awards.**
- The Padma Awards are one of the highest civilian honors of India announced annually on the eve of Republic Day. The Awards are given in three categories:
 - Padma Vibhushan (for exceptional and distinguished service)
 - Padma Bhushan (distinguished service of higher order)
 - Padma Shri (distinguished service).
- The award seeks to recognize works of distinction and is given for distinguished and exceptional achievements/service in all fields of activities/disciplines for example Art, Social work, Public Affairs, Science, Sports, Trade & Industry, etc.
- The award seeks to recognize achievements in all fields of activities or disciplines where an element of public service is involved.

- The Padma Awards are conferred on the recommendations made by the Padma Awards Committee, which is constituted by the Prime Minister every year. The nomination process is open to the public. Even self-nomination can be made.
- All nominations received for Padma Awards are placed before the Padma Awards Committee, which is constituted by the Prime Minister every year. **The Padma Awards Committee is headed by the Cabinet Secretary and includes Home Secretary, Secretary to the President and four to six eminent persons as members.** The recommendations of the committee are submitted to the Prime Minister and the President of India for approval. **Hence, statement 1 is not correct.**
- All persons without distinction of race, occupation, position or sex are eligible for these awards. However, **Government servants including those working with PSUs, except doctors and scientists, are not eligible for these awards. Hence, statement 2 is correct.**
- **The award does not amount to a title and cannot be used as a suffix or prefix to the awardees' name.** The award is normally not conferred posthumously. However, in highly deserving cases, the Government could consider giving an award posthumously. **Hence, statement 3 is correct.**

Q 21.C

- **The Constitution Bench of the Supreme Court has held that access to Justice is a Fundamental Right guaranteed to citizens by Article 14 and Article 21 of the Constitution of India.**
- The pandemic has presented a challenge to Citizens right to access Justice. The Courts are proactively adopting technology to ensure access to justice even without a physical courtroom.
- The Supreme Court in its 2018 judgment in Swapnil Tripathi v Supreme Court of India held that live streaming proceedings is part of the right to access justice under Article 21 of the Constitution.
- **Hence option (c) is the correct answer.**

Q 22.C

- **Gel electrophoresis:** Gel electrophoresis is a laboratory method **used to separate mixtures of DNA, RNA, or proteins** according to molecular size. **Hence statement 1 is correct.**
- In Gel electrophoresis, the **molecules to be separated are pushed by an electrical field** through a gel that contains small pores. The molecules travel through the pores in the gel at a speed that is inversely related to their lengths. This means that a small DNA molecule will travel a greater distance through the gel than will a larger DNA molecule. **Hence statement 2 is correct.**
- As previously mentioned, gel electrophoresis involves an electrical field; in particular, this field is applied such that one end of the gel has a positive charge and the other end has a negative charge.
- Because **DNA and RNA are negatively-charged molecules**, they will be pulled toward the positively charged end of the gel. **Proteins, however, are not negatively charged;** thus, when one wants to separate proteins using gel electrophoresis, they must first mix the proteins with a detergent called sodium dodecyl sulfate. This treatment makes the proteins unfold into a linear shape and coats them with a negative charge, which allows them to migrate toward the positive end of the gel and be separated.
- Finally, after the DNA, RNA, or protein molecules have been separated using gel electrophoresis, bands representing molecules of different sizes can be detected.

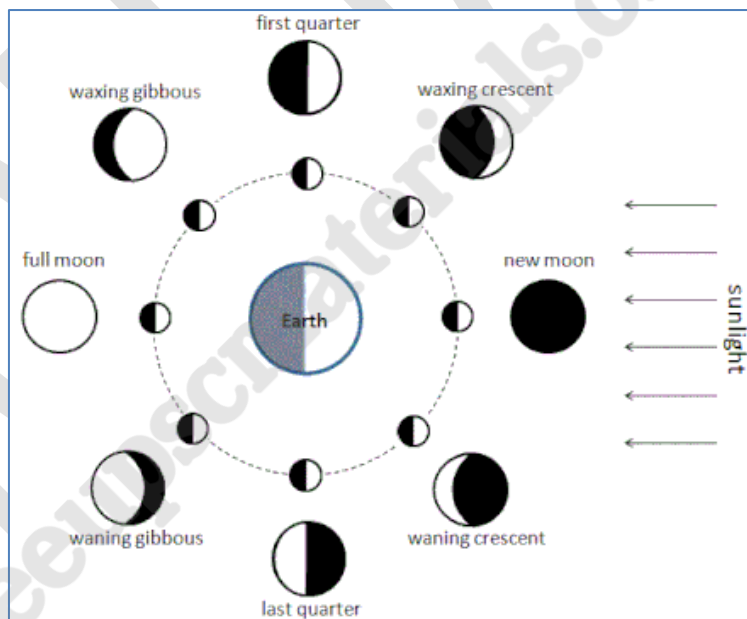
Q 23.D

- The Juvenile Justice (Care and Protection of Children) Act was introduced and passed in Parliament in 2015 to replace the Juvenile Delinquency Law and the Juvenile Justice (Care and Protection of Children Act) 2000. One of the main provisions of the new Act was allowing the trial of juveniles in conflict with the law in the age group of 16-18 years as adults, in cases where the crimes were to be determined. The nature of the crime, and whether the juvenile should be tried as a minor or a child, was to be determined by a Juvenile Justice Board. **It mandates the setting up of Juvenile Justice Boards and Child Welfare Committees in every district. Hence statement 1 is correct.**
- The second major provision was with regards to adoption, bringing a more universally acceptable adoption law instead of the Hindu Adoptions and Maintenance Act (1956) and Guardians of the ward Act (1890) which was for Muslims, although the Act did not replace these laws. **The Act streamlined adoption procedures for orphans abandoned and surrendered children and the existing Central Adoption Resource Authority (CARA) has been given the status of a statutory body to enable it to perform its function more effectively. Hence statement 2 is correct.**
- All child care institutions, whether run by State Government or by voluntary or non-governmental organisations, which are meant, either wholly or partially for housing children, regardless of whether they receive grants from the Government, are to be mandatorily registered under the Act within 6 months from the date of commencement of the Act. A stringent penalty is provided in the law in case of non-compliance. **Hence statement 3 is correct.**

- Several new offences committed against children, which are so far not adequately covered under any other law, are included in the Act. These include the sale and procurement of children for any purpose including illegal adoption, corporal punishment in child care institutions, use of child by militant groups, offences against disabled children and, kidnapping and abduction of children.

Q 24.B

- The Moon orbits Earth in an elliptical path, which means one side of the path is closer to the Earth than the other.
- The point in the Moon's orbit closest to **Earth is called perigee**, while the point in the orbit farthest from Earth is known as apogee.
- The Moon's phase and the date of its approach to its perigee or apogee are not synced.
- Supermoon and Micromoon:**
 - When a **full Moon or new Moon** occurs close to the **Moon's perigee (or perigee)**, it is known as a Supermoon. **Hence statement 1 is correct.**
 - A supermoon is widely recorded as being much larger and far brighter than the Moon on any other night.
 - Supermoons cast about 30% more light on the planet than when the Moon is at its dimmest. This is because as it is closer, more of the Sun's rays that reflect off the lunar surface make it to Earth.
 - Supermoons and Micromoons are not unusual. They occur as a regular part of the Moon's orbit of Earth.
 - As a supermoon rises and sets on the horizon, it will appear even larger. This is because of the well-known 'Moon illusion'.
 - A full Moon occurs once in each lunar cycle, which lasts 29.5 days. But not every full moon is a supermoon - there are only usually three or four supermoons in a year. Between 2020 and 2025, there will be four each year.
 - On rare occasions, a lunar eclipse occurs on the same night as a supermoon. Because the Moon looks red, it is known as a 'super blood Moon'. This was the case on 21 January 2019.
 - when a **Full Moon or New Moon** occurs close to the **apogee**, it is known as a **micro moon**. **Hence statement 2 is not correct.**
 - A micro-moon is the smallest full moon.
 - The difference in the apparent size between a Micro-moon and a Supermoon is barely noticeable to the naked eye.



Q 25.C

- Recent Context:** The Government of Karnataka recently announced that it will soon declassify 6.64 lakh hectares of 9.94 lakh hectares of deemed forests in the state. This is around 67% of the deemed forest land.
 - In the state of Karnataka, an expert committee classified deemed forests in the state in 2014.
- Deemed Forests are land tracts that appear to be forest but have not been notified as forest in historical records or government records. Hence, statement 1 is correct.**
- The deemed forests comprise 1% of forest land in India. Hence, statement 2 is not correct.**
- The States have full liberty in defining the deemed forest. Hence, statement 3 is correct.**
- In the 1996 **Godavarman case**, the **Supreme Court ordered the states to identify and classify deemed forests**. Since the judgment, the State Governments should obtain permission from the Supreme Court for implementing changes to land that are classified as deemed forests. The judgment was pronounced based on the fact that according to the Forest Conservation Act, 1980, the preservation of forest areas is continuously monitored by the Supreme Court of India.
- The Uttarakhand Government, in November 2019, defined deemed forests as the forest land with tracts of 10 hectares and having canopy density greater than 60%.

Q 26.A

- The doctrine of the eclipse is related to Article 13 (1) of the Indian Constitution. Article 13 states that any law which was made before the commencement of the constitution must be consistent with part III of the Indian Constitution. Hence option (a) is the correct answer.
- If any law is inconsistent with the provisions provided under part III of the Indian constitution such a statute shall become void. However, It is not totally dead but overshadowed by the fundamental right. The inconsistency (conflict) can be removed by the constitutional amendment. The amendment to the relevant fundamental right will remove the eclipse and the entire law becomes valid.
- This doctrine emerged **during the landmark case of Bhikhaji v. the State of M.P.** Elements of Doctrine of Eclipse include:
 - It should be a pre-constitutional law
 - Must be in conflict with a fundamental right.
 - the law doesn't become a dead letter but only inoperative.
 - if there is an amendment to the Fundamental Right in the future it will automatically make the impugned law operative.
- **The doctrine of Severability** according to which law becomes invalid only to the extent to which it is inconsistent with the fundamental rights. So only that part of the law will be declared invalid which is inconsistent, and the rest of the law will stand. **The doctrine of pith and substance** provides that if the center enters into the domain of the state, or vice versa while making a law, then this encroachment can be upheld given that this encroachment is incidental and not substantial. This doctrine provides a degree of flexibility to the otherwise rigid distribution of powers.

Q 27.A

- Recurrent famine and huge loss of life due to hunger led the British Government to come under pressure in England. The devastating effects of **1876-78 famine** compelled the British Government to do something substantial to check the recurrence of famines in India. Hence, they **formed three commissions** to evaluate the causes of the famines.
- **First Famine Commission:**
 - It was set up in **1878** under the Chairmanship of **Sir Richard Strachey**. The commission **recommended state interference in food trade** in the event of famine.
- **Second Famine Commission**
 - It was constituted in **1897** under the Chairmanship of **Sir James Lyall**. This commission recommended the development of irrigation facilities.
- **Third Famine Commission**
 - It was set up in **1900** under the **Chairmanship of Sir Anthony** (Later Lord) McDonnell. This Commission recommended that the official machinery dealing with a famine must work around the year so that the scarcity of food grains could be controlled well in time.
- Hence option (a) is the correct answer.

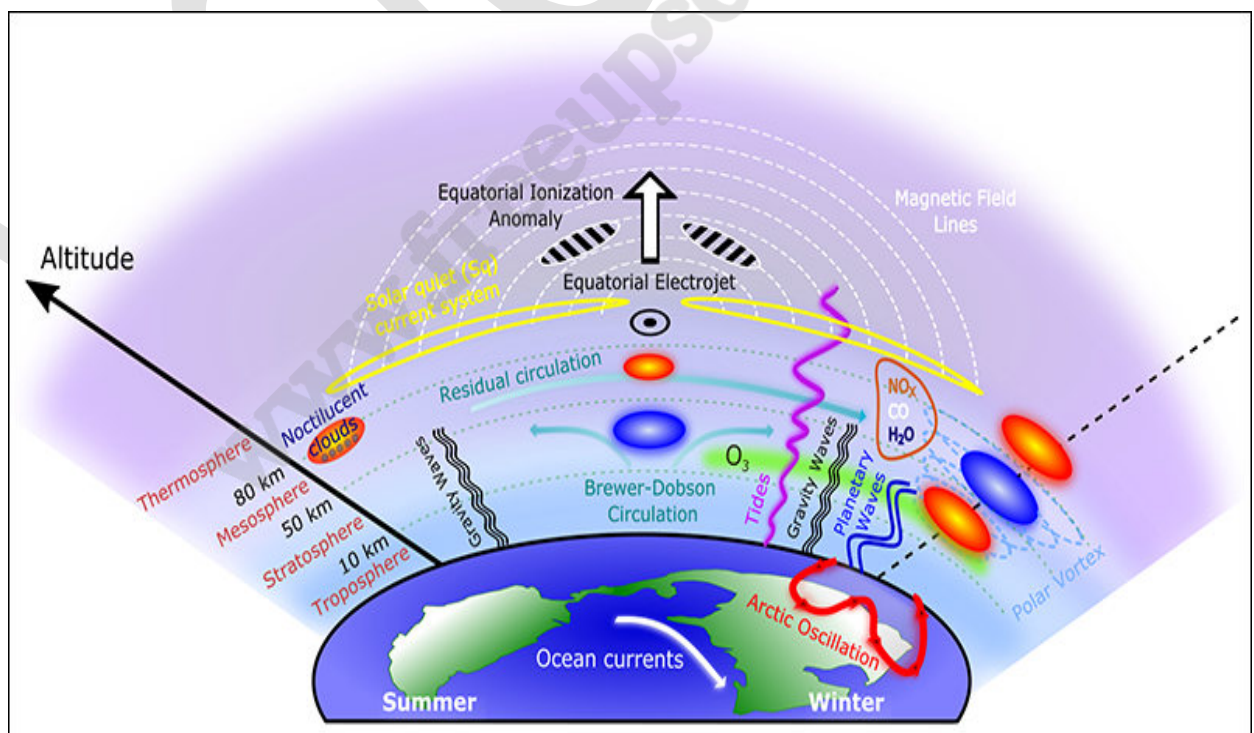
Q 28.A

- **Recent Context:** Recently, climate activists slammed the strategies adopted by central banks. It is alleged that the strategies being used to guide the transition to a carbon-neutral economy are biased toward temperatures that are too high and fossil-fuel phase-outs that are too slow.
 - In a recent report, Network for Greening the Financial System (NGFS) focused its analysis on limiting temperature increases to 2 degrees Celsius compared to the pre-industrial age. While the Paris Agreement calls on nations to hold the global average temperature increase to "well below 2 degrees" and preferably 1.5 degrees. The NGFS includes 1.5 degrees only as an "alternate" scenario.
- **The Network for Greening the Financial System was created in 2017.** It was established by eight Central Banks to strengthen the global response required to meet the goals of the Paris Agreement. **Hence statement 1 is correct and 2 is not correct.**
- **NGFS consists of 87 members and 13 observers. India is neither a founder member nor a member of the network. Hence statement 3 is not correct.**
- The NGFS system aims to promote Green Finance. It recommends the role of Central Banks in Climate Change. It supports best practices in the development of climate risk management in the financial sector.
- The purpose of the Network for Greening the Financial System is to define, contribute and promote the development of best practices that are to be implemented within and outside the membership of the network.
- It also conducts and commissions analytical work on Green Finance.
- The NGFS was announced at the One Planet Summit held at Paris in 2017.

- The NGFS organizes events in Climate Change. It is currently working on the following:
 - Workstream on Micro Prudential or Supervision
 - Workstream on Macro financial
 - Workstream on Scaling up Green Finance
 - Workstream on Bridging the Data Gaps
 - Workstream on Research

Q 29.D

- **General / normal condition:**
 - Every year in winter, strong westerly winds circle around the pole high up in the stratosphere. This is called the stratospheric polar vortex and it circulates around cold air high over the Arctic.
- **Sudden stratospheric warming (SSW)-**
 - During an SSW, in some years, the polar vortex breaks down / weakens temporarily or even reverse to flow from east to west.
 - The cold air then descends very rapidly in the polar vortex and this causes the temperature in the stratosphere to rise very rapidly (adiabatic heating), as much as 50°C over only a few days, hence the term sudden stratospheric warming. **Hence, statement 1 is not correct.**
 - This is so high up that we don't feel the 'warming' ourselves. However, usually, a few weeks later, we can start to see knock-on effects on the jet stream, which in turn affects our weather lower down (in the troposphere).
 - Roughly every 2 years in the Northern Hemisphere, the inactive vortex suddenly warms over a week or two, and the winds slow dramatically, resulting in easterly winds that are more similar to the summer.
- As the cold air from high up in the stratosphere disperses, it can affect the shape of the jet stream as the cold air sinks from the stratosphere into the troposphere. It is this change in the jet stream that causes our weather to change.
- SSWs are natural fluctuations in the atmosphere and are not caused by climate change. **Hence, statement 2 is not correct.**
- The SSW is not regular and it happens around six times a decade in the northern hemisphere, but only one has ever been observed in the southern hemisphere.
- **Adiabatic heating:**
 - When a parcel of air descends, the pressure on the parcel increases. Because of this increase in pressure, the parcel's volume decreases and its temperature increases as work is done on the parcel of air, thus increasing its internal energy, which manifests itself by a rise in the temperature of that mass of air.



Q 30.A

- Stakeholder capitalism is a system in which corporations are oriented to serve the interests of all their stakeholders. Among the key stakeholders are customers, suppliers, employees, shareholders and local communities.
- Under this system, **a company's purpose is to create long-term value and not to maximize profits** and enhance shareholder value at the cost of other stakeholder groups. **Hence option 3 is not correct.**
- Supporters of stakeholder capitalism believe that serving the interests of all stakeholders, as opposed to only shareholders, is essential to the long-term success and health of any business.
- Proponents of stakeholder capitalism, like economist Joseph Stiglitz, believe it should replace shareholder primacy as a principle of corporate governance. Shareholder primacy, or the idea that a corporation is only responsible for increasing shareholder value, was made popular in the 1970s.
- Stakeholder capitalism can either be an ideology adopted by leaders at individual companies or a model enforced by governments through laws and regulations. Some of the ways companies can independently demonstrate a commitment to stakeholder capitalism:
 - Paying fair wages
 - Reducing the CEO-worker pay ratio. Hence option 1 is correct.**
 - Ensuring safety in the workplace
 - Lobbying for higher tax rates and avoiding tax loopholes
 - Providing good customer service
 - Engaging in honest marketing practices
 - Investing in local communities. Hence option 2 is correct.**
 - Preventing environmental damage

Q 31.D

- Sericulture is an important labour-intensive and agro-based cottage industry.
- There are four major types of silk of commercial importance, obtained from different species of silkworms which in turn feed on a number of food plants. These are:
 - Mulberry
 - Oak Tasar & Tropical Tasar
 - Muga
 - Eri
- Except for mulberry, other non-mulberry varieties of silks are generally termed as Vanya silks/ wild silk.
- India has the unique distinction of producing all these commercial varieties of silk.
- India is the second-largest producer (China is the largest silk producer) and the largest consumer of silk in the world. **Hence statement 1 is not correct.**
- Among the five varieties of silk produced in India, Mulberry accounts for more than 70%, Tussar 8 %, Eri 19 % and Muga less than 1 % of total production. **Hence, statement 3 is correct.**
- Raw silk production in India:**
 - Mulberry silk:**
 - ✓ Mulberry silk comes from the silkworm, Bombyx mori L. which solely feeds on the leaves of the mulberry plant
 - ✓ In India, Mulberry silk is produced mainly in Karnataka, West Bengal, Jammu & Kashmir, Tamil Nadu and Andhra Pradesh.
 - ✓ These five major mulberry silk producing states collectively account for more than 80% of the total area under mulberry cultivation and 97% of raw silk production in the country.
 - Vanya (Non-mulberry) silk:**
 - ✓ **Tasar Silk –**
 - Tasar silk is generated by the silkworm, Antheraea mylitta, which mainly thrives on the food plants such as Asan and Arjun.
 - The rearings are conducted in natural conditions on the trees.
 - Tasar silk is mainly produced in India in the states of Jharkhand, Chattisgarh, Orissa, Maharashtra, West Bengal and Andhra Pradesh.
 - Tasar culture is the mainstay for many tribal communities in India.
 - ✓ **Eri Silk –**
 - Eri silk is the product of the domesticated silkworm, Philosamia ricini that feeds mainly on castor leaves.
 - Eri yarn is produced in Assam, Bihar, Manipur, Meghalaya, Nagaland and West Bengal.
 - Unlike other kinds of silk, this cannot be reeled and hence it is only spun.
 - It has natural copperish colour.

- ✓ **Muga Silk -**
 - It is silk produced **only in Assam** from cocoons of silkworms belonging to the Saturniidae family, which are fed on Som and Soalu leaves. **Hence, statements 2 is correct.**
 - It has a rich golden colour.
- **Spun Silk Yarn -**
 - Yarn composed of silk filaments of lengths ranging from 1 to 8 inches produced by bleaching, dressing and spinning the silk waste which is the by-product of the raw silk reeling industry.
- **Noil Yarn -**
 - It is a short-staple residue obtained during dressing operations in silk spinning from silk waste. It is a by-product of the spun silk industry. This can be spun into Noil yarn of coarse counts.

Q 32.D

- **Seedlings** can be established from seeds or through vegetative means. The vegetative means includes cutting, grafting, budding, layering, etc. In the case of seedling establishment from seed, preliminary treatment of seed is essential to improve germination. The **reasons for delayed or failed germination of seeds** are as follows:
 - Tough and fibrous seed coat or hard cell.
 - Seeds containing higher lipids.
 - Presence of germination inhibiting substances.
 - Immature embryo.
 - After ripening process.
- Germination inhibitors are substances produced by plants or substances of related structure not found in plants that inhibit or delay the germination of seeds of the same or other species. Auxin promotes dormancy and inhibits germination by enhancing ABA action, thereby adding another protective level of control in the regulation of seed dormancy.
- **Hence option (d) is the correct answer.**

Q 33.B

- **Recent Context: Khajuraho recently hosted the 42nd annual Khajuraho Dance Festival.**
 - The festival showcased classical dances, including Kathak, Bharatnatyam, Odissi and Kuchipudi, depicting the ancient tales like - 'Mahishasur Mardini' and 'Krishna Rasa.'
 - The festival was organized by the government of Madhya Pradesh and the performances were held in an open-air auditorium in front of the Chitragupta Temple dedicated to 'Surya' (the Sun God) and the Vishwanatha Temple dedicated to Lord Shiva.
 - The dance festival was introduced 46 years ago on the premises to promote heritage and tourism. But ASI cancelled the permission after the reports of destruction of monuments and defacement of idols.
 - For the past 44 years, the state government has been organising the festival in an open garden developed near Western Group of Temples. It is being held on the temple premises after 44 years following the Archaeological Survey of India (ASI) permission.
- **Khajuraho is a group of monuments comprising Hindu temples and Jain temples.** It is located in the Chhatarpur district of Madhya Pradesh.
- It is located around 175 kilometers southeast of Jhansi. It is included in the **UNESCO World Heritage Site** list.
- Khajuraho temples are famous for **nagara-style architectural** symbolism.
- Most of the temples were built between 885 AD and 1050 AD by the Chandela dynasty.
- **Hence, option (b) is the correct answer.**

Q 34.A

- There were three major schools of sculptural art which developed in the first century AD. These were: **Mathura school of art**, Gandhara School of art, and Amravati school of art.
- **The Mathura School:** The most prominent contribution of the Mathura school to contemporary art was the **images of Buddha which were carved for the first time** perhaps in this art form. The Mathura artists used a local **red stone with black spots** to make the images. Mathura has also yielded large numbers of sculptures of Jaina deities besides the ayagapatas or stone slabs to place objects of worship. **Blue-grey schist** was predominantly used in **Gandhara School of Art**. **Hence statement 1 is not correct.**
- The Brahmanical influence on the art school of Mathura is also evident. During the Kushana period, a number of sculptures of Brahmanical deities were carved, which included Kartikeya, Vishnu, Kubera. The **Buddha images** at Mathura were **modeled on the lines of earlier Yaksha images** whereas in Gandhara it has Hellenistic features. **Hence statement 2 is correct.**

- In this school, there is boldness in carving the large images, the volume of the images is projected out of the picture plane, the faces are round and smiling, heaviness in the sculptural volume is reduced to relaxed flesh. **Narrative art** was an important **characteristic of the Amaravati School of Art**, not the Mathura School. **Hence statement 3 is not correct.**
- **Hence option (a) is the correct answer.**

Q 35.D

- Soil respiration is a measure of the carbon dioxide (CO₂) released from soil. It is released as a result of the decomposition of soil organic matter (SOM) and plants litter by soil microbes and through plant roots and soil fauna.
- It is an important indicator of soil health because it measures the level of microbial activity and the content and decomposition of Soil Organic Matter (SOM).
- **Factors Affecting Soil Respiration**
 - **Soil texture through aeration directly impacts soil respiration.**
 - **Generally, soils that have a lower porosity also have lower soil respiration rates and vice versa.**
 - **Temperature, moisture, and pH influence soil respiration as they affect microbial activity and decomposition rate.**
- Apart from these soil respiration is also affected by the use of fertilizers, pesticides, and other anthropogenic practices.
- **Hence option (d) is the correct answer.**

Q 36.D

- Short-lived climate pollutants are those pollutants that remain in the atmosphere for a much shorter period of time than carbon dioxide (CO₂), yet their potential to warm the atmosphere can be many times greater. For example, Black carbon stays in the atmosphere for about two weeks, compared to CO₂ that persists in the atmosphere for hundreds of years. Certain short-lived climate pollutants are also dangerous air pollutants that have harmful effects on people, ecosystems, and agricultural productivity.
- Reducing SLCPs not only provides climate benefits but can also lead to developmental impacts such as improved public health and agricultural benefits.
- **SLCPs include black carbon, methane, tropospheric ozone, and hydrofluorocarbons (HFCs) and are commonly associated with refrigeration, diesel-fueled vehicles, and solid-fuel cooking fires. Hence option (d) is the correct answer.**
- **To tackle SLCPs, Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC) was launched by the United Nations Environment Programme (UNEP) and six countries — Bangladesh, Canada, Ghana, Mexico, Sweden, and the United States — on 16 February 2012. The CCAC aims to catalyze rapid reductions in short-lived climate pollutants to protect human health, agriculture, and the environment.**
- SLCPs are responsible for up to 45% of current global warming. If no action to reduce emissions of these pollutants is taken in the coming decades, they are expected to account for as much as half of the warming caused by human activity.

Q 37.D

- The **Hathigumpha inscription** is one of the few notable inscriptions which throw much light on ancient Indian History. The Inscription was **located in the Udayagiri hills in Jaina caves** near Bhubaneswar in Odisha. **Hence statement 1 is not correct.**
- It describes the **achievements of Kharavela**, a descendent of the Mahameghavahana, the latter being the founder of the royal house of Cheti or **Chedi dynasty**. The Inscription throws light not only on political conditions but also on religious, cultural, and social condition of Kalinga. It is presented in **Kavya style**, and in the **Brahmi script**. **Hence statement 2 is correct.**
- The Hathigumpha inscription of Kharavela contains the only early epigraphic reference to the **kingdoms of the Tamil country** after the Asokan inscriptions. It also refers to the conquest of Kalinga by a ruler of the **Nanda dynasty**. **Hence statement 3 is correct.**

Q 38.A

- **Great oxidation event:**
 - It is also called as Oxygen Holocaust or Oxygen Revolution.
 - It was a time period when the Earth's atmosphere and the shallow ocean experienced a rise in oxygen during the Proterozoic eon (and not the Cambrian period). **Hence statement 1 is correct and statement 3 is not correct.**

- The Cyanobacteria producing the oxygen caused the event which enabled the subsequent development of multicellular forms. **Hence, statement 2 is correct.**
- This event took place during the third stage of evolution of the present atmosphere, where biologically produced molecular oxygen changed the earth's atmosphere from a weakly reducing atmosphere to an oxidising atmosphere, causing many existing species on the earth to die.
- Because the Cyanobacteria frantic for hydrogen discovered the ultimate resource, water, and its use led to the ultimate toxic waste, oxygen. Our precious oxygen was originally a gaseous poison dumped into the atmosphere. Therefore, It was a worldwide pollution crisis that occurred about **2,000 million years ago (during the Proterozoic eon).**
- **There are three stages in the evolution of the present atmosphere:**
 - **The first stage**
 - ✓ Loss of primordial atmosphere- The early atmosphere, with hydrogen and helium, is supposed to have been stripped off as a result of the solar winds.
 - ✓ This happened not only in the case of the earth but also in all the terrestrial planets, which were supposed to have lost their primordial atmosphere through the impact of solar winds.
 - **The second stage**
 - ✓ The hot interior of the earth contributed to the evolution of the atmosphere.
 - ✓ During the cooling of the earth, gases and water vapour were released from the interior solid earth. This started the evolution of the present atmosphere.
 - ✓ The early atmosphere largely contained water vapour, nitrogen, carbon dioxide, methane, ammonia and very little free oxygen.
 - ✓ The process through which the gases were outpoured from the interior is called degassing.
 - ✓ Continuous volcanic eruptions contributed to water vapour and gases to the atmosphere. As the earth cooled, the water vapour released started getting condensed. The carbon dioxide in the atmosphere got dissolved in rainwater and the temperature further decreased causing more condensation and more rains.
 - ✓ The rainwater falling onto the surface got collected in the depressions to give rise to oceans. The earth's oceans were formed within 500 million years from the formation of the earth.
 - **The Third stage**
 - ✓ The composition of the atmosphere was modified by the living world through the process of photosynthesis.
 - ✓ Around 2,500-3,000 million years before the present, the process of photosynthesis got evolved.
 - ✓ Eventually, oceans were saturated with oxygen, and 2,000 million years ago, oxygen began to flood the atmosphere. And this is called as Great Oxidation Event.

Q 39.A

- 'Kurram' is referred to the smallest self sufficient and self governing village councils from the perspective of administration. In many parts it is also known as 'Taniyur' a very large village or group of small villages (generally 5 villages) with its own system of administration.
- It was synonymous to modern system of pargana or revenue tehsils.
- Many kurrams comprise to form 'Nadu' or district and many Nadu comprises to form 'Velnadu' or
- Commissionerate and many velnadus constitute into provinces called 'Mandalams'
- **Hence option (a) is correct answer.**

Q 40.D

- During the budgetary process, the motions to reduce the amounts of demands for grants are called 'Cut Motions'. The object of a cut motion is to draw the attention of the House to the matter specified therein.
- Conditions for admissibility of Cut Motions:
 - It should **relate to one demand only.**
 - It should be confined to one specific matter which should be stated in precise terms
 - It should **not relate to expenditure 'Charged' on the Consolidated Fund of India. Hence statement 1 is correct.**
 - It should not raise a question of privilege.
 - It should not make suggestions for the amendment or repeal of existing laws.
 - The **Speaker decides whether a cut motion is or is not admissible and may disallow any cut motion** when in the opinion of the Speaker it is an abuse of the right of moving cut motions. **Hence statement 3 is correct.**
 - It should **not ordinarily seek to raise discussion on a matter pending before any statutory tribunal or statutory authority** performing any judicial or quasi-judicial functions or any

commission or court of enquiry appointed to enquire into, or investigate any matter. However, the Speaker may in her/his discretion allow such matter being raised in the House.

- It is a well-established Parliamentary convention that cut motions seeking to discuss the action of the Speaker or relating to Speaker's Department or matters under the control of Speaker is not allowed.
- Cut motions relating to matters under consideration of a Parliamentary Committee are not admissible.
- As cut motion is a form of **censure against the government therefore it can be moved only in Lok Sabha (not in Rajya Sabha). Hence statement 2 is correct.**
- Additional Information:
 - Cut Motions can be classified into three categories:
 - ✓ **Disapproval of Policy Cut:** A cut motion that says "That the **amount of the demand be reduced to Re. 1**" implies that the mover **disapproves of the policy** underlying the demand
 - ✓ **Economy Cut:** Where the object of the motion is to effect the economy in the expenditure, the form of the motion is "**That the amount of the demand be reduced by Rs...(a specified amount)**". The amount suggested for reduction may be a lump-sum reduction.
 - ✓ **Token Cut:** Where the object of the motion is to ventilate a specific grievance within the sphere of responsibility of the Government of India, its form is: "**That the amount of the demand be reduced by Rs. 100**".

Q 41.B

- Strengthening Teaching-Learning and Results for States (STARS), a World Bank aided project was recently approved for implementation.
- It would be implemented as a new Centrally Sponsored Scheme under the Department of School Education and Literacy, Ministry of Education (MoE).
- **The agreement has been signed with an aim of improving the quality and governance of school education in six states of India. The 6 Indian states include- Kerala, Maharashtra, Himachal Pradesh, Rajasthan, Madhya Pradesh, Rajasthan, and Odisha. Hence, statement 1 is not correct.**
- The STARS project will be benefitting approximately 250 million students in the age group of 6 to 17 years coming from the 1.5 million schools.
- Apart from the students, the project will also benefit 10 million teachers across the six states. The project was launched with the aim of strengthening public-school education.
- The STARS Project carries forward the vision of the National Education Policy 2020 that envisages equitable education for all. STARS will support India's vision 'Education for All' through a series of initiatives that are listed below:
 - It will focus on the direct delivery of education services at the state, district and sub-district levels by providing enhanced customized local-level solutions in improving schools.
 - Focus on students from vulnerable sections: The program will give special attention to students from vulnerable sections. More than 52% of children in the state-run schools in the six listed states are from vulnerable sections-- SC (Scheduled Caste), ST (Scheduled Tribe) and other minority communities.
 - The program will help the students in keeping up with the rapidly changing needs of the job markets.
 - **Equipping teachers: In the technology-driven era, the program will also equip the teachers to achieve a better learning outcome as they are playing a vital role in providing quality education. The program will carry out needs-based training for teachers. Hence, statement 3 is correct.**
 - **The program will invest in India's human capital program by strengthening foundational learning for the students of Classes I to III and further preparing them with cognitive, socio-behavioral and language skills to meet future labor market needs. Hence, statement 2 is correct.**

Q 42.D

- Synanthropic species refers to undomesticated species living closely alongside and benefiting from human beings. Synanthropes exist across a wide range of taxa including plants, insects, birds, and mammals
- Hence synanthropic birds are those that live near and benefit from an association with human beings. It's a kind of human-mediated symbiosis.
- **Common synanthropic birds are Sparrow, Pigeon, Peacock, crow, etc.** Among animals monkeys, rats, etc. are common examples.
- Synanthropic birds sometimes may face threats due to anthropogenic activities. The declining Sparrow population is because of human activities like urbanization.
- **Hence option (d) is the correct answer.**

Q 43.C

- Valley and mountain breezes are also known as up-valley (during day time) and down the valley (during the night).
- Breezes are, in fact, local as well as diurnal (periodic winds the directions of which are reversed during 24 hours).
- The slopes and valley floors in the mountainous regions are more heated through insolation during day time than the free atmosphere at the same elevation.
- Consequently, the warm air moves upslope (upward). This upslope moving breeze during the daytime is called the **valley breeze**. Valley breezes reach mountain peaks and yield precipitation through cumulus clouds. **Hence statement 2 is correct.**
- The valley slopes and upper parts are cooled due to loss of heat through outgoing longwave radiations and thus cool dense air descends through the valley slopes. Such wind is called **down valley or mountain breeze**.
- The cool air, of the high plateaus and the icefields draining into the valley, is called katabatic wind
- **The mountain breezes cause an inversion of temperature in the valleys.** This is why the valley floors are characterised by frost during the night while the upper parts are from frost in cold areas. **Hence, statement 1 is correct.**
- **Leeward side of the mountain range:**
 - Warm wind occurs on the leeward side of the mountain ranges.
 - The moisture in the valley breezes, while crossing the mountain ranges condense and precipitate.
 - When wind descends down the leeward side of the slope the dry air gets warmed up by the adiabatic process. This dry air may melt the snow in a short time.

Q 44.D

- **Khangchendzonga Biosphere Reserve**
 - It is located in the state of Sikkim, bordering Nepal to the west and Tibet (China) to the north-west.
 - This biosphere reserve is one of the highest ecosystems in the world. It includes the third highest mountain peak in the world, Kanchenjunga (8586m).
 - **The site is one of the world's 34 biodiversity hotspots and it is also a trans-boundary biodiversity hotspot conservation area that displays an unsurpassed range of sub-tropical to alpine ecosystems.**
 - Khangchendzonga National Park (KNP), has been inscribed as India's first "Mixed World Heritage Site" on UNESCO World Heritage List. Numerous lakes and glaciers, including the 26 km **long Zemu Glacier**, dot the barren high altitudes. Tista river flows through it.
- **Habitats:**
 - Subtropical Broadleaf Hill Forest,
 - Himalayan Moist Forest,
 - Himalayan Dry Temperate Forest and Alpine Moist Scrub
- **Major Fauna:** Tibetan Wolf, Snow Leopard, Large Indian Civet, Red Panda, Himalayan Tahr, Blue Sheep, Musk Deer etc.
- **Hence option (d) is the correct answer.**

Q 45.C

- Extra budgetary Borrowings (EBRs) are those financial liabilities that are raised by Public Sector Undertakings and other government entities for which repayment of entire principal and interest is done from the Government budget.
- These borrowings are made by state-owned firms to fund government schemes and other activities but are not part of the official budget calculations.
- Both central and state governments are allowed to make such borrowings. Central government makes such borrowings through FCI, NABARD, etc. Recently Fifteenth Finance Commission (FFC) warned the Telangana government for its heavy Extra Budgetary Borrowings.
- **Extra budgetary borrowings are excluded from the fiscal deficit calculations, but at the same time, are added to the total debt of the government. Hence, statement 1 is correct.**
- **There are no restrictions in utilizing the EBRs for either revenue or capital expenditure. In terms of revenue spending, EBRs have been used for covering fertilizer arrears, food subsidy bills/arrears of FCI. EBRs have also been used for financing capital expenditure like railway projects through borrowings of the Indian Railway Finance Corporation (IRFC). Hence, statement 2 is correct.**
- Fifteenth Finance Commission in its initial report advised both the centre and the states to eliminate extra budget borrowings.

Q 46.A

- **Red-eared turtle**

- Recently it was found in a canal at Kalathode, Kerala.
- Originated from the area around the Mississippi River and the Gulf of Mexico.
- They live in still and warm water bodies such as ponds, lakes, streams, and slow-running rivers.
- The red-eared slider turtles are considered a major threat to native turtle specials, as they mature fast, grow larger, and produce more offspring, and are very aggressive.
- They can out-compete native turtles for food, nestling, and basking sites. As they eat plants and animals, they can finish off a wide range of aquatic species, including fish and rare frogs.
- Studies show that they can also transfer diseases and parasites to native reptile species. In many places such as Australia and the European Union, it is illegal to import and keep these turtles. **Hence option (a) is the correct answer.**

Q 47.B

- **Swami Vivekananda**, originally known as **Narendranath Datta**, was born in 1863 in Calcutta. His first visit to Ramakrishna, his future guru, was in 1881, and made frequent visits to him thereafter. **In 1897 he founded the Ramakrishna Mission.**
- He attended the World Parliament of Religions (1893) at Chicago (USA) and raised the prestige of India and Hinduism very high. From the USA, he visited Europe and returned to India in 1897. Meanwhile, he started publishing two papers - **the monthly Prabudha Bharata in English** and the fortnightly Udbodhana in Bengali. Later he made his second visit to the USA in 1899 and also spoke at the Congress of the History of Religions in Paris (1900). **Hence statement 1 is not correct.**
- His socio-religious ideas and reforms He popularised his guru's religious message and tried to put it in a form that would suit the needs of contemporary Indian society. He stressed that social action was essential without which knowledge was useless in this world. He proclaimed the essential oneness of all religions. **Vedanta** according to him was a **fully rational system. Hence statement 3 is correct.**
- Further, he condemned the caste system and the current Hindu emphasis on rituals, ceremonies, etc. and urged the people to imbibe the spirit of liberty, equality and free thinking. Unlike the Arya Samaj, the Mission recognises the **utility and value of image worship** in developing **spiritual fervour** and worship of the eternal omnipotent God, although it emphasises on the essential spirit and not the symbols or rituals. **Hence statement 2 is not correct.**

Q 48.C

- A dazzler is a non-lethal weapon that uses intense directed radiation to temporarily disable its target with flash blindness. Targets can include sensors or human vision. Initially developed for military use, non-military products are becoming available for use in law enforcement and security.
- **It is used as a non-lethal method for warning and stopping suspicious vehicles/boats/aircrafts/UAVs/pirates etc. from approaching secured areas during both day and night. Hence option (c) is the correct answer.**
- It is capable of dazzle and thereby suppress the person's/optical sensor's action with disability glare in case of non-compliance to orders. It disorient/ confuse/blind a person temporarily. It also dazzles and distract aircraft/UAVs. It is a portable, shoulder operated and ruggedized for military use in adverse environmental conditions.
- Laser dazzler technology was developed by Defence Research and Development Organisation (DRDO). It is indigenously designed and developed for first time for the Armed Forces.

Q 49.D

- **Mahatma Gandhi, in 1898**, went to South Africa in connection with a case involving his client, Dada Abdullah. He witnessed the ugly face of white racism and the humiliation and contempt to which Asians were subjected. He stayed there till 1914 after which he returned to India.
- During the early moderate phase, Gandhi relied on sending petitions to authorities. In this phase, he established Natal Indian Congress and started a paper **Indian Opinion (1903)** to unite different sections of Indian society. **Hence statement 1 is correct.**
- He also established his **Phoenix Farm** near Durban. In 1907 when the Transvaal legislature passed a law requiring all Asians to take out registration cards, he launched a campaign of passive resistance, coining the phrase, satyagraha. He also set up the **Tolstoy Farm (1910)** for all those taking part in the movement. He also campaigned against restrictions on Indian Migration and against Poll tax. When Gandhi decided that the Indian Opinion, his weekly paper, should be printed at a farm away from the city, he purchased an estate in Natal province, fourteen miles from Durban (South Africa). This would be a place where

everyone would labor, and draw the same salary. He called this the Phoenix Settlement. It was desolate, overgrown with grass and trees, snake-infested, and suffered from severe winters as well as water scarcity. In this inhospitable area came and settled some Englishmen, a few Tamil and Hindi speaking people, one or two Zulus, and six Gujaratis.

- The Indians protested the Transvaal Immigration Act, by illegally migrating from Natal into Transvaal. Gokhale toured the whole country (India) mobilizing public opinion in support of the Indians in South Africa. Even Lord Hardinge, condemned the repression by the British.
- Eventually, through a series of negotiations involving Gandhi, Lord Hardinge, C.F. Andrews, and General Smuts, an agreement (**Gandhi-Smuts Agreement**) was reached in **June 1914** by which the Government of South Africa conceded the major Indian demands relating to the poll tax, the registration certificates and marriages solemnized according to Indian rites, and promised to treat the issue of Indian immigration in a sympathetic manner. **Hence statement 3 is not correct.**
- The **Natal Indian Ambulance Corps** was created by **Mahatma Gandhi** for use by the British as stretcher-bearers during the **Second Boer War**, with expenses met by the local Indian community. Gandhi was bestowed with the '**Kaiser-i-Hind**' and other medals by the British for his work in the Boer war. This was **given up** by Gandhi after the **Jallianwala Bagh massacre**. **Hence statement 2 is correct.**

Q 50.B

- **Long Term Reverse Repo Operation (LTRO) is a tool under which the central bank provides one-year to three-year money to banks at the prevailing repo rate, accepting government securities with matching or higher tenure as the collateral.**
- It is a mechanism to facilitate the transmission of monetary policy actions and the flow of credit to the economy. This helps in injecting liquidity in the banking system.
- The LTRO scheme will be in addition to the existing Liquidity Adjustment Facility (LAF) and the Marginal Standing Facility (MSF) operations. LTROs are conducted on Core Banking Solution (E-KUBER) platform.
- **Benefits of the LTROs:**
 - **It will enhance liquidity in the banking system. Hence option 1 is correct.**
 - The introduction of long-term repo operations (LTRO) **will bring down the cost of funds for banks** without effectively cutting deposit rates. As banks get long-term funds at lower rates, their cost of funds falls. In turn, they reduce interest rates for borrowers. **Hence option 2 is correct.**
 - It is a measure that is expected to bring down short-term rates and also boost investment in corporate bonds.
 - **LTRO helped RBI ensure that banks reduce (not increase) their marginal cost of funds-based lending rate, without reducing policy rates. Hence option 3 is not correct.**

Q 51.C

- **Recently, the Ministry of Power released the Electricity (Rights of Consumers) Rules, 2020 which gives rights to consumers to get reliable services and quality electricity. These rules are framed under the Electricity Act, 2003, which has a consumer charter.**
- **Electricity (Rights of Consumers) Rules, 2020:**
 - These rules empower the consumers of electricity by allowing consumers in India to access a continuous supply of quality, reliable electricity
 - It lay down rights that make distribution companies (DISCOMs) more accountable to consumers.
 - **Every distribution licensee is obliged to supply electricity on request and the consumers have the right to have minimum standards of service. Hence statement 1 is correct.**
 - No connection shall be given without a meter and it shall be the smart pre-payment meter or pre-payment meter.
 - Recognize 24x7 power supply to the consumers as their right. However, for some categories like agriculture, power regulator may specify lower hours of supply
 - While prosumers will maintain consumer status, they will also have the right to set up a Renewable Energy generation unit – either by themselves or through a service provider.
 - **A consumer can claim compensation for no supply, interrupted electricity supply, time taken for replacement of defective meters, etc. from the discoms. Hence statement 2 is correct.**
 - Consumer Grievance Redressal Forum (CGRF) which, would include consumer and prosumer representatives.

Q 52.A

- Indian constitution laid down the foundation for the parliamentary system of government, in that the **leader of the opposition play a significant role to provide constructive criticism of the policies of the government and providing an alternative government.**
- It was **in 1969 that an official leader of the opposition was recognised for the first time.**
- Further, it was accorded **statutory recognition in 1977 as the leader of Opposition in the Lok Sabha and the Rajya Sabha. Hence statement 2 is correct.**
- The **Salary and Allowances of Leaders of Opposition in Parliament Act, 1977, defines the Leader of the Opposition**, in relation to either House of Parliament, as “member of the Council of States or the House of the People, as the case may be who is, for the time being, the **Leader in that House of the party in opposition to the Government having the greatest numerical strength**”.
- Therefore, it **holds the second-highest strength in the house after the ruling party and according to directions issued by the Presiding Officers of both the Houses, it has become a convention that the minimum numerical strength required for recognition as a political party is one-tenth of the total membership of the House. Hence statement 1 is correct.**
- The 1977 Act defines LoP as that member of the House who is the “Leader in that House of the party in opposition to the Government having the greatest numerical strength and recognised as such by the Chairman of the Council of States or the Speaker of the House of the People, as the case may be.” The Speaker’s decisions in this regard have so far been determined by Direction 121(c) which laid down one of the conditions for recognition of party or group as having “at least a strength equal to the quorum fixed to constitute a sitting of the House, that is one-tenth of the total number of members of the House”. The Leaders and Chief Whips of Recognised Parties and Groups in Parliament (Facilities) Act, 1998 also refers to a recognised party in the Lok Sabha as a party that has not less than 55 members.
- On the basis of the above criteria, the Chairman of the Council of States or the Speaker of the House of the People recognise the leader of opposition in Rajya Sabha and Lok Sabha respectively.
- It was only in 1969 that for the first time since Independence, the two Houses had recognised the Opposition Party [Congress Party (Opposition) formed after the split in the Congress Party in November 1969] and a Leader of the Opposition in each House. The first time Lok Sabha got recognized as “Leader of Opposition” was in 1969. Ram Subhag Singh from INC(O). Shyam Nandan Prasad Mishra (in Rajya Sabha) Ram Subhag Singh (in Lok Sabha) were the first leaders of opposition in the Parliament of India. **Hence statement 3 is not correct.**

Q 53.C

- **Statement 1 is correct:** The Indian Space Research Organisation (ISRO) and the Japanese space agency, Japan Aerospace Exploration Agency (JAXA) are collaborating on the Lunar Polar Exploration (LUPEX) mission that is likely to be launched sometime in 2024. **It involves sending a lander and rover on the Moon’s south pole region, much like Chandrayaan-2 attempted.**
- The LupeX mission is being planned to demonstrate new surface exploration technologies related to vehicular transport and lunar night survival for sustainable lunar exploration in the polar regions — the south pole of the Moon in this case. The mission will use a lunar features-matching algorithm along with a navigational equipment from JAXA’s Smart Lander for Investigating Moon mission, and the rover will carry instruments from both the space agencies.
- The lander’s payload capacity will be a minimum of 350 kg, while the rover will carry multiple instruments, which include a drill to collect sub-surface samples from 1.5 mt depth. Besides this, water prospecting and analysis are also likely to be the mission’s objectives. The mission aims at an in-situ observation of areas where water is believed to exist, and obtain ground data on the quantity of water, besides understanding the distribution, conditions, form and other parameters of lunar water resources in the polar region.
- **Statement 2 is correct: The mission is also meant to obtain data on the quantity and forms of the water resources present on the Moon.** The launcher and rover are to be developed by Japan and the lander system will be developed by India.

Q 54.A

- The Electrojet Zeeman Imaging Explorer, EZIE, is a set of three small spacecraft that will study the auroral electrojet, which are electrical currents flowing about 60 to 90 miles above the poles that link the beautiful aurora to the Earth's magnetosphere, and which responds to solar activity and other drivers. EZIE is meant to **study electric currents in earth’s atmosphere** linking the aurora to the earth’s magnetosphere. **Hence statement 1 is correct.**

- The aurora, which is a part of the earth's complicated space weather system, responds to solar activity and other factors. The Auroral Electrojet (AE) index is a common measure of geomagnetic activity levels, even though the details of the structure of these currents are not understood.
- EZIE will leverage a trio of CubeSats to study the source of and changes in the **auroral electrojet**, an "electric current circling through earth's atmosphere around 60-90 miles above the surface and extending into the earth's magnetosphere.
- Auroral electrojet is generated by changes in the structure of the magnetotail. The interaction of the magnetosphere and the solar wind compresses the Sun-facing side of the magnetosphere. This drags out the night-time side of the magnetosphere into what is called a **magnetotail**. The same space weather phenomena that power the aurora can cause interference with radio and communication signals and utility grids on Earth's surface, and damage to spacecraft in orbit.
- **It is a Johns Hopkins Applied Physics Laboratory-led mission to explore electric currents in Earth's atmosphere that link the aurora to our planet's magnetosphere and has been selected by NASA to move forward to a scheduled launch in 2024. Hence statement 2 is not correct.**
- **EUVST is a solar telescope:** The Japan Aerospace Exploration Agency (JAXA) leads the EUVST Epsilon Mission (Solar-C EUVST Mission), along with other partners. Targeted for launch in **2026**. It will study how the solar atmosphere releases solar wind and drives the eruptions of solar material. These phenomena propagate out from the Sun and influence the space radiation environment throughout the solar system. EUVST will take comprehensive UV spectroscopy measurements of the solar atmosphere at the highest level of detail to date.

Q 55.D

- **Statement 1 and statement 2 are correct:** Pradhan Mantri Matru Vandana Yojana (PMMVY) is a flagship scheme of the Government for pregnant women and lactating mothers. **The Maternity Benefit Programme is implemented in all the districts of the country. PMMVY is a direct benefit transfer (DBT) scheme under which cash benefits are provided to pregnant women in their bank account directly to meet enhanced nutritional needs and partially compensate for wage loss.**
- **The programme is named as 'Pradhan Mantri Matru Vandana Yojana' (PMMVY). Under PMMVY, a cash incentive of ` 5000/- is provided directly to the Bank / Post Office Account of Pregnant Women and Lactating Mothers (PW&LM) for the first living child of the family subject to fulfilling specific conditions relating to Maternal and Child Health.** PMMVY is implemented using the platform of the Anganwadi Services scheme of Umbrella ICDS under the Ministry of Women and Child Development.
- **Statement 3 is correct:** Under the 'Scheme', Pregnant Women and Lactating Mothers (PW&LM) receive a cash benefit of Rs. 5,000 in three instalments on fulfilling the respective conditionality, viz. **early registration of pregnancy, ante-natal check-up and registration of the birth of the child and completion of the first cycle of vaccination for the first living child of the family. The eligible beneficiaries also receive cash incentive under Janani Suraksha Yojana (JSY).** Thus, on average, a woman gets Rs. 6,000.

Q 56.A

- Public-Private Partnership or PPP as an arrangement between a government entity and a private sector entity for the provision of public services or assets. PPP project is a project based on a long-term contract or a concession agreement.
- Generally, the private sector entity makes investments or undertakes the management for a specified period of time. Further, the risk allocation between the two entities is well-defined and the private sector entity receives performance-linked payments. Additionally, these payments are benchmarked to specified and pre-determined performance standards that the public entity or its representative can measure.
- At the national level, there is sectoral legislation in certain areas covered in the Union List, such as airports, national highways, major ports, power, and cable TV. These legislations provide the legal framework for infrastructure projects including private participation in the key infrastructure sectors.
- The government of India has streamlined the appraisal and approval mechanism for Central Sector PPP projects to ensure speedy appraisal of projects, eliminate delays, and have uniformity in appraisal mechanisms.
- The Cabinet Committee on Economic Affairs (CCEA) has approved the procedure for approval of the Central Sector Public-Private Partnership (PPP) projects. Pursuant to this decision the Government of India (GOI) notified the appraisal mechanism by setting up the Public-Private Partnership Appraisal Committee (PPPAC) responsible for the appraisal of PPP projects in the Central Sector. **PPPAC is under the Department of Economic Affairs, Ministry of Finance. It is chaired by the Secretary, Department of Economic Affairs. Hence, statement 2 is not correct.**

- PPP Projects in the Central Sector with a cost exceeding Rs.100 crore or where the value of underlying assets is more than Rs.100 crore (except Ports and NHDP projects) require Public Private Partnership Appraisal Committee (PPPAC) appraisal/approval. On recommendation by PPPAC and after CCEA approval, the projects can be bid out. Hence, statement 1 is correct.

Q 57.D

- Under Article 261 of the Constitution, in order to establish better centre-state relations and uniformity in the laws, **Constitution contains the “Full Faith and Credit” clause** which lays down the following:
- **Full faith and credit is to be given throughout the territory of India to public acts, records and judicial proceedings of the Centre and every state.** The expression ‘public acts’ includes both legislative and executive acts of the government. **Hence option 1 and option 3 are correct.**
- However, The manner in which and the **conditions under which such acts, records and proceedings are to be proved and their effect determined would be as provided by the laws of Parliament.**
- **Final judgements and orders of civil courts in any part of India are capable of execution anywhere within India** (without the necessity of a fresh suit upon the judgement). **Hence option 2 is correct.**

Q 58.D

- Constitutional bodies are those bodies that are mentioned in the constitution of India. derive their powers and authorities from the Constitution of India. Some of the examples of Constitutional Bodies in India are - Comptroller and Auditor General (CAG), Election Commission, Finance Commission etc.
- **GST Council**
- It is provided in **Art 279A** of the constitution through the 101st Constitutional Amendment Act. It is a body that makes recommendations to the Union and State Government on issues related to Goods and Service Tax.
- Members of the GST council are as follows:
 - the Union Finance Minister as Chairperson;
 - the Union Minister of State in charge of Revenue or Finance;
 - the Minister in charge of Finance or Taxation or any other Minister nominated by each State Government.
 - Vice-Chairperson to be chosen among the members.
- GST Council can make recommendations on the following:
 - The taxes, cesses and surcharges that may be subsumed;
 - The goods and services that may be subjected to or exempted from GST;
 - The threshold limit of turnover below which goods and services may be exempted;
 - Date on which GST be levied on petroleum crude, HSD, petrol, natural gas and ATF, etc.
- **National Commission for Backward Classes** – It is provided in **Art 338B** of the constitution through the 102nd Constitutional Amendment Act.
- It consists of a Chairperson, Vice-Chairperson and three other Members. They are appointed by the President the conditions of service and tenure of office of the Chairperson, Vice-Chairperson and other Members so appointed will be determined by President
- **Powers and Functions:**
 - to investigate and monitor all matters relating to the safeguards provided for the socially and educationally backward classes under this Constitution or under any other law for the time being in force or under any order of the Government and to evaluate the working of such safeguards;
 - to inquire into specific complaints with respect to the deprivation of rights and safeguards of the socially and educationally backward classes;
 - to participate and advise on the socio-economic development of the socially and educationally backward classes and to evaluate the progress of their development under the Union and any State;
 - to present to the President, annually and at such other times as the commission may deem fit, reports upon the working of those safeguards;
 - to make in such reports the recommendations as to the measures that should be taken by the Union or any State for the effective implementation of those safeguards and other measures for the protection, welfare and socio-economic development of the socially and educationally backward classes; and
 - to discharge such other functions in relation to the protection, welfare and development and advancement of the socially and educationally backward classes as the President may, subject to the provisions of any law made by parliament, by rule specify.
- **Special officer for linguistic minorities** – It is provided in Art 350B inserted by the Seventh Constitutional Amendment Act, 1956.
- The Special Officer for Linguistic minorities is appointed by the President

- He investigates all matters relating to safeguards provided for linguistic minorities under the constitution. He would present his report to the President. The President should place all such reports before each house of Parliament and send to the government of states concerned.
- **Lokpal - The Lokpal and Lokayukta Act, 2013 provided for the establishment of Lokpal for the Union and Lokayukta for the States. Hence Lokpal is a statutory body. Hence option (d) is the correct answer. Lokpal performs the function of an "ombudsman" and inquires into allegations of corruption against certain public functionaries and for related matters.**

Q 59.C

- **Indus Valley Civilisation** was a **Bronze Age Civilisation** in the northwestern regions of the Indian Subcontinent, lasting from 3300 BCE to 1300 BCE, and in its mature form from 2600 BCE to 1900 BCE. While Harappa and Mohenjodaro are situated in Pakistan, the important sites excavated in India are Lothal and Dholavira in Gujarat, Rakhigarhi in Haryana, Ropar in the Punjab, Kalibangan, and Balathal in Rajasthan, etc. These cultures were associated with distinctive pottery, evidence of agriculture and pastoralism, and some crafts. Settlements were generally small, and there were virtually no large buildings.
- **Major Characteristics of Harappa Civilisation:**
- **Domesticated and Wild Animals:** In addition to sheep and goats, there is repeated evidence of the predominant role of Indian humped cattle and Indian boar. **Camel's bones** are reported only at **Kalibangan**. A single instance of the **Indian rhinoceros** comes from the seals found at **Amri**. With the present state of evidence, it would be **unwise to conclude** that there is any proof of the regular use of the **horse** in pre-Harappan or Harappan times.
- **Agriculture:** Main crops were wheat and barley. Grains found at Harappan sites include wheat, barley, lentil, chickpea and sesame. Millets are found from sites in Gujarat. **Finds of rice** are relatively rare.
- **Pottery:** The Indus Valley pottery consists chiefly of very fine wheel-made wares, very few being hand-made. Plain pottery is more common than painted ware. **Polychrome pottery** is rare and mainly comprises small vases decorated with geometric patterns in red, black, and green, rarely white and yellow.
- **Metal Craft and Beads:** The art of bronze-casting was practised on a wide scale by the Harappans. Their **bronze** statues were made using the '**lost wax**' technique in which the wax figures were first covered with a coating of clay and allowed to dry. Beads were made of jasper, crystal, quartz, lapis lazuli, etc. **Metals like copper, bronze and gold**, and shell, faience and terracotta or burnt clay were also used for manufacturing beads. The Harappans **did not know the use of Iron**. Iron was not discovered by the Harappan people. Since it was a bronze age civilization, it had made many metallurgical advances in copper and bronze but not in Iron.
- **Hence option (c) is the correct answer.**

Q 60.C

- **Article 113 of the Constitution provides that any proposal or estimate seeking withdrawal of money from the Consolidated Fund of India should be presented to the Lok Sabha in the form of a demand for grants. Hence statement 1 is correct.**
- The demand for grants includes provisions with respect to revenue expenditure, capital expenditure, grants to State and Union Territory governments together with loans and advances.
- As the **demand for grants include both charged and voted expenditure. Charged expenditures** are considered liabilities of the government of India such as payment of interest and **are not put to vote in the Lok Sabha**. Non-votable charges are called Charged Expenditures, and no voting takes place for the amount involved in these expenditures for their withdrawal from Consolidated Fund of India. This means that they have to be paid in any case, whether the budget is passed or not passed. **Hence statement 2 is not correct.**
- **Article 113 (2) provide that Demands for grant are exclusive power of Lok Sabha and Lok Sabha shall have power to assent or to refuse to assent, to any demand, or to assent to any demand subject to a reduction of the amount specified therein.**
- And Article 113 (iii) prescribes that **no demand for grants can be presented in the Lok Sabha except on the recommendation of the President. Hence statement 3 is correct**
- **Contingency Fund of India:** This fund was constituted by the government under Article 267 of the Constitution of India. **This fund is at the disposal of the President.** Any expenditure incurred from this fund requires a subsequent approval from the Parliament and the amount withdrawn is returned to the fund from the Consolidated Fund.

- **Public Account of India:** Article 266 of the Constitution defines the Public Account as being those funds that are received on behalf of the Government of India. Money held by the government in a trust — such as in the case of Provident Funds, Small Savings collections, the income of government set apart for expenditure on specific objects like road development, primary education, reserve/special Funds, etc. — are kept in the Public Account. Public Account funds do not belong to the government and have to be finally paid back to the persons and authorities that deposited them. **Parliamentary authorisation for such payments is not required.** However, when money is withdrawn from the Consolidated Fund with the approval of Parliament and kept in the Public Account for expenditure for a specific purpose, it is submitted for a vote in Parliament.

Q 61.B

- A geographical indication or GI is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
- Geographical Indications are part of the intellectual property rights that comes under the Paris Convention for the Protection of Industrial Property
- In India, Geographical Indications registration is administered by the Geographical Indications of Goods (Registration and Protection) Act of 1999. Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.
- **Bhavani Jamakkalam**
 - **It refers to blankets and carpets manufactured in Bhavani in Erode district, Tamil Nadu. Hence, pair 1 is not correctly matched.**
 - In the late nineteenth century, competition from British made textiles led Indian weavers to invent new types of garments. In Bhavani, a community of weavers called Jangamars weaved a type of blanket using colored coarse threads called Jamakkalam.
 - A pit loom is used to weave jamakkalams. The looms are made of wood with the threads stretched horizontally from end to end. The weaver sits in a pit dug in the ground, on level with the weaving surface. The weaver operates two pedals with his legs while enabling the hands to move the shuttle across to produce the weaving pattern.
 - Recently, a dedicated website was launched, documenting the art and its other nuances.
- **Tirur Vettala**
 - **It is a type of betel leaf which is grown in Tirur and nearby areas of Malappuram district of Kerala. Hence, pair 2 is correctly matched.**
 - It is unique for its significantly high content of total chlorophyll and protein in fresh leaves.
 - It possesses special biochemical characters like unique flavour and aroma.
 - Eugenol is the major essential oil in Tirur betel leaf contributing to its pungency.
 - The leaves are nutritive and contain anticarcinogens, showing future opportunities in anticancer drugs.
 - It was awarded GI tag in 2019.
- **Ilkal sari**
 - **It is a traditional form of sari named after the town of Ilkal in the Bagalkot district of Karnataka. Hence, pair 3 is not correctly matched.**
 - Ilkal saris are woven using cotton warp on the body and art silk warp for border and art silk warp for pallu portion of the sari.
 - The growth of these saris is attributed to the patronage provided by the local chieftains in and around the town of Bellary in 8th century.
 - The peculiar characteristic of the sari is joining the body warp with the pallu warp which is locally called as *Tope Teni*. This technique is used exclusively at Ilkal.
 - Karnataka State has launched a Geographical Indications Policy, which aims to promote and market the more than 40 registered GI products from the State including Ikkal Saree. Weavers will be provided with a mechanism to initiate action against those who market the duplicate products.

Q 62.A

- **Statement 1 is correct: ICMR is the Apex body in India for the formulation, coordination and promotion of biomedical research.** It conducts, coordinates and implements medical research for the benefit of society. Its mandate includes translating medical innovations into products/processes and introducing them into the public health system.
- The National Medical Commission (NMC) has been constituted by an act of Parliament known as the National Medical Commission Act, 2019. National Medical Commission is an Indian regulatory body of 33 members which regulates medical education and medical professionals. It replaced the Medical Council of India on 25 September 2020. **Hence statement 2 is not correct.**
- The ICMR is funded by the Government of India through the Ministry of Health & Family Welfare.

Q 63.C

- **Global Risks Report 2021** has been released recently by **World Economic Forum (WEF)**. This is the 15th edition of the Global Risks Report.
- Global Risks Perception Survey undertaken by more than 650 members of WEF is the basis of the report. **Hence, option (c) is the correct answer.**
- It highlights that the global economy has been facing an increased risk of stagnation and climate change. It argued for the need to consider social well-being alongside economic gains. As per the report, the global economy may face dire consequences like the risk of job losses, widening digital divide, disrupting social interactions etc.

Q 64.B

- Mahanadi is a peninsular river but not a tributary of the river Ganga. **Hence option 2 is not correct.**
- River Son (a peninsular river) is considered to the major southern tributary of river Ganga. **Hence option 1 is correct.**
- River Ghaghara and River Gandak are important northern tributaries of Ganga which have their origins in the Himalayas. **Hence options 3 and 4 are not correct.**



- **Hence option (b) is the correct answer.**

Q 65.D

- While taxation is a primary source of income for the government, it also earns some recurring income other than tax, which is called non-tax revenue.
- The most important receipts under this head are interest receipts (received on loans given by the government to states, railways and others) and dividends and profits received from public sector companies.
- The government also collects interest as non-tax revenue on the loans and funds advanced to states for various purposes. So, the government collects non-tax revenue in return for providing/facilitating any goods or services.
- Tax revenue is charged on income earned by an individual or an entity (direct tax) and on the value of the transaction of goods and services (indirect tax). On the other hand, non-tax revenue is charged against services provided by the government.
- **Major components of Non- Tax revenue receipts include:**
 - **interest on loans to States and Union Territories (With Legislature).** **Hence option 2 is correct.**
 - **dividends and profits from Public Sector Enterprises.** It also includes the surplus of the Reserve Bank of India that is transferred to the Government. **Hence option 3 is correct.**

- The receipts of 'Public Service Commission' mainly represent Examination Fees etc
- receipts of 'Police' are on account of Central Police Forces supplied to State Governments
- receipts from **Royalty on off-shore crude oil and gas production**, profit petroleum and license fee for the right to exclusive exploration of oil and gas in a particular region. **Hence option 1 is correct.**

Q 66.B

- **The Chandelas** were a royal dynasty in **Central India**. They ruled the **Bundelkhand** region between the **9th and the 13th centuries**. Their first capital city was **Khajuraho**, which was later shifted to **Mahotsava Nagar or Mahoba**. The Chandelas initially ruled as feudatories of the Gurjara-Pratiharas. After the break-up of the Pratihara empire, the Chandellas rose and established their rule over Bundelkhand. The earliest capital of the Chandella kings was **Khajuraho**. **Hence pair 1 is not correctly matched.**
- **The Solanki dynasty** ruled parts of Gujarat and Rajasthan in north-western India, between 940 AD and 1244 AD. Their capital was located at Anahilavada (modern Patan). The medieval legends describe them as Agnivanshi Rajputs, and they are also known as the Chalukya dynasty. Mularaja, the founder of the dynasty, supplanted the last ruler of the Chapotkata (Chavda) dynasty around 940 AD. His successors fought several battles with the neighboring rulers such as the Chudasamas, the Paramaras, and the Chahamanas of Shakambhari. During the reign of Bhima I, the Ghaznavid ruler Mahmud invaded the kingdom and raided the Somnath temple during 1024-1025 CE. **Hence pair 2 is correctly matched.**
- **Yadava dynasty**, rulers of a 12th–14th-century Hindu kingdom of central India in what is now the Indian state of Maharashtra. Originally a feudatory of the Eastern Chalukyas of Kalyani, the dynasty became paramount in the Deccan under Bhillama (c. 1187–91), who founded Devagiri (later Daulatabad) as his capital. Under Bhillama's grandson Singhana (reigned c. 1210–47) the dynasty reached its height, as the Yadava campaigned against the Hoysalas in the south, the Kakatiyas in the east, and the Paramaras and Chalukyas in the north. Later rulers continued expansionist wars with varying success. During the reign of the last Yadava king, Ramachandra (reigned 1271–c. 1309), a Muslim army commanded by the Delhi sultan 'Alā-ud-Dīn Khaljī invaded the kingdom in 1294 and imposed tributary status. **Hence pair 3 is correctly matched.**
- **The Sena Empire ruled the Bengal region** through the 11th and 12th centuries. The Sena dynasty ruled Bengal after the Palas. Its founder was Samantasena described as 'Brahmakshatriya'. The reign of Lakshmanasena was remarkable for patronizing considerable literary activity. He was a devout Vaishnava. Jayadeva, the famous Vaishnava poet of Bengal and author of the Gita Govinda, lived at his court. **Hence pair 4 is not correctly matched.**
- **Hence option (b) is the correct answer.**

Q 67.B

- **Sarala Devi Chaudarani** was an educationist and political activist. She worked for women's upliftment in the area around Lahore and proposed a scheme for the education of women in purdah. She also believed in the necessity of physical culture and therefore instituted the Birastami Utsav, a sports and athletics festival.
- In 1904 she opened a swadeshi shop called **Lakshmi Bhandar**. For her efforts in promoting the swadeshi trade, the Indian National Congress gave her a gold medal. In **1910** she convened the first meeting of the **Bharat Stree Mahamandal**, the first major Indian women's organization set up by a woman, and she did this because she felt that the men working for women's emancipation lived 'under the shade of Manu'. The objectives of the Bharat Stree Mahamandal included the promotion of **education for women, abolition of the purdah system**, and improvement in the socio-economic and political status of women all over India. In 1930 she opened a school, the **Bharat Stree Shiksha Sadan**, in Calcutta. **Hence option (b) is the correct answer.**

Q 68.D

- NMVOCs are volatile organic chemical compounds, excluding methane, that under normal conditions can vaporise and enter the atmosphere. Emissions of non-methane volatile organic compounds (NMVOCs) can have damaging effects on human health.
- NMVOCs are emitted by the transport sector, combustion activities, paints, and industrial solvents, etc which can have a number of damaging impacts on human health. **Some have direct toxic effects, Benzene, for example, is known to cause cancer. Hence, statement 2 is correct**
- NMVOCs are involved in the ground-level production of ozone and secondary organic aerosols in the atmosphere over a large spatial scale. **Hence, statement 1 is correct.**
- Formaldehyde is a well-known NMVOC and is also known to cause cancer. **Hence, statement 3 is correct.**

Q 69.C

Abu'l Fazl wrote in a language that was ornate and which attached importance to diction and rhythm, as texts were often read aloud. **This Indo- Persian style** was patronized at court, and there were a large number of writers who wanted to write like Abu'l Fazl. The Akbar Nama is divided into three books of which the first two are chronicles. The third book is the Ain-i Akbari.

- The first volume dealt with Akbar's ancestors.
- The second recorded the events of Akbar's reign.
- The third is Ain-i Akbari. It deals with Akbar's administration, household, army, revenues, and geography of his empire. It provides rich details about the religion, traditions, and culture of the people living in India. It also got statistical details about crops, yields, prices, wages, and revenues. **Hence statement 1 is correct.**
- The Ain-i-Akbari is different in treatment from the strictly chronological narrative of the Akbar Nama, which moves from one regnal year to the next, chronicling events in the sequence of their actual incidence. **Hence statement 2 is correct.**
- The Ain-i-Akbari has been described elsewhere as "the first gazetteer of its kind", and it furnishes details of the court durbar, costumes, insignias, greetings, as well as details of the animal stables, etc., to describe and vividly recreate the situation at court.

Q 70.D

- Banks give loans and advances to borrowers. Based on the performance of the loan, it may be categorized as: (i) a standard asset (a loan where the borrower is making regular repayments), or (ii) a non-performing asset. NPAs are loans and advances where the borrower has stopped making interest or principal repayments for over 90 days.
- **Economic Survey 2020-21** presents the following details about NPAs in Indian Banking System.

Reporting date	Gross NPAs of PSBs (cr)	Gross NPAs of Private Banks
March, 2017	6,84,732	91,915
March, 2018	8,95,601	1,25,863
March, 2019	7,39,541	1,80,872
March, 2020	6,78,317	2,05,848
September, 2020	6,09,129	1,88,191

- From the above table it can be concluded that the **share** of Gross NPAs of **Public Sector Banks** in total Gross NPAs is around **76%** (September 2020). **Hence statement 1 is not correct.**
- Gross NPAs of Public Sector Banks did not steadily increased in the last 5 years. **Hence statement 2 is not correct.**
- **Hence option (d) is the correct answer.**

Q 71.A

- **The National Urban Digital Mission** was recently launched to create a digital infrastructure for all the cities in the country. Hence, statement 1 is correct.
- **It is an initiative of the Ministry of Housing & Urban Affairs with the Ministry of Electronics and Information Technology as one of the ecosystem partners.** Hence statement 2 is not correct.
 - Ecosystem partners are envisioned as national-level experts who comprise of the Domain Working Groups, industry associations (such as NASSCOM, ASSOCHAM and others), system integrators and solution providers such as start-ups and MSMEs. The Mission also envisages city-data alliances with participation from various ecosystem actors, who can leverage the data made available by the ULB as well as other entities to innovate and co-create locally relevant solutions. Some of the other ecosystem partners are NITI Aayog, NIC, BIS, IISc etc.
- This mission will **help in creating a shared digital infrastructure which in turn can be used to consolidate and cross-leverage the several digital initiatives of the Ministry of Housing and Urban Affairs.**
- The mission will also **enable the cities and towns to benefit from holistic and diverse forms of support with respect to the needs and local challenges of the towns and cities.**
- This mission will **institutionalize the citizen-centric and ecosystem-driven approach for urban governance and service delivery in cities by the year 2022.** It will also be providing these service deliveries in all cities and towns by 2024.

- It will be anchored by the Centre for Digital Governance (CDG) at the National Institute of Urban Affairs (NIUA).
 - The National Institute of Urban Affairs (NIUA) is India's leading national think tank on urban planning and development. Established in 1976, NIUA was tasked to bridge the gap between research and practice on issues related to urbanization, and suggest ways and mechanisms to address urban challenges in the country.

Q 72.C

- **Agriculture Voltage Technology**
- Agri-voltaic system of 105 KW capacity was **developed by ICAR-Central Arid Zone Research Institute, Jodhpur**. This technology can increase the income of farmers by generation of electricity and growing of cash crops simultaneously on the same piece of land. **Hence, statement 1 is correct.**
- Under component-I of KUSUM (Kisan Urja Suraksha Utthan Mahabhiyan) scheme, there is a provision for installation of agri-voltaic system in farmers' fields with a capacity ranging from 500 KW to 2 MW. Moreover, National Solar Energy Federation of India (NSEFI) has also documented 13 operational agri-voltaic systems in the country managed by different solar PV functionaries and public Institutes. **Hence, statement 2 is correct.**
- **About KUSUM Scheme**
- **Ministry of New and Renewable Energy (MNRE)** has launched the Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM KUSUM) Scheme for farmers for installation of solar pumps and grid connected solar and other renewable power plants in the country.
- The scheme aims to add solar and other renewable capacity of 25,750 MW by 2022 with total central financial support of Rs. 34,422 Crore including service charges to the implementing agencies.
- **Scheme Components**

The Scheme consists of **three components**:

- Component A: 10,000 MW of Decentralized Ground Mounted Grid Connected Renewable Power Plants of individual plant size up to 2 MW.
- Component B: Installation of 17.50 lakh standalone Solar Powered Agriculture Pumps of individual pump capacity up to 7.5 HP.
- Component C: Solarisation of 10 Lakh Grid-connected Agriculture Pumps of individual pump capacity up to 7.5 HP.

Q 73.B

- When Muhammad Tughlaq shifted the capital back to Delhi, his subordinates in the south declared independence. **Zafar Khan** who **declared independence in 1345** at Devagiri shifted his capital to **Gulbarga** in northern Karnataka. He took the title, **Bahman Shah** and the dynasty he inaugurated became known as the **Bahmani dynasty (1347– 1527)**.
- A few years earlier, in **1336**, the Vijayanagar kingdom was inaugurated by the Sangama brothers **Harihara and Bukka** at Vijayanagara (present-day Hampi) on the south bank of Tungabhadra. During the next two centuries, these two states fought continually and bitterly, to **control the rich Raichur doab**, and also the **seaports of Goa, Honavar**, etc. on the west coast, which were the supply points of the horses needed for their army. **Hence option (b) is the correct answer.**
- The Bahmani Kingdom later split into five successor states that were collectively known as the Deccan sultanates. Among these Bijapur became powerful by annexing Bidar and Berar in course of time. Though Ahmadnagar and Golkonda acted independently they finally joined with Bijapur to fight with their common enemy, Vijayanagar. Vijayanagar was utterly routed in the battle of **Talikota or Rakshashi-Tangadi in 1565**.

Q 74.B

- To help countries meet their emission targets, and to encourage the private sector and developing countries to contribute to emission reduction efforts, negotiators of the Kyoto Protocol included three market-based mechanisms – **Emissions Trading, the Clean Development Mechanism, and Joint Implementation**.
- Clean Development Mechanism (CDM), defined in Article 12 of the Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, **each equivalent to one tonne of CO₂**, which can be counted towards meeting Kyoto targets. **Hence, statement 1 is not correct.**

- These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.
- **The CDM is the main source of income for the UNFCCC Adaptation Fund**, which was established to finance adaptation projects and programmes in developing countries that are particularly vulnerable to the adverse effects of climate change. The Adaptation Fund is financed by a 2% levy on CERs issued by the CDM. **Hence, statement 2 is correct.**

Q 75.D

- **Technical Textiles:** Technical or engineered textiles are defined as products that are used for functional purposes rather than for aesthetic characteristics, having applications across various industries including automobiles, civil engineering and construction, agriculture, medical, shipping, industrial safety, sports and personal protection etc. Based on usage, there are 12 technical textile segments. **Hence pair 1 is correctly matched.**
- Technical textile products are manufactured mainly using speciality fibres such as Nomex, Kevlar, Spandex, Glass and Carbon etc. These fibres exhibit enhanced functional properties like higher tenacity, excellent insulation, improved thermal resistance and chemical resistance etc. Hence, these high-performance fibres find their place in varied industries and applications.
- **Geotextiles:** They are permeable fabrics that when used in association with soil, have the ability to separate, filter, reinforce, protect, or drain. These are typically made from polypropylene or polyester. They support many civil engineering applications including roads, airfields, railroads, embankments, retaining structures, reservoirs, canals, dams, bank protection, coastal engineering and construction site silt fences or geotube. **Geotextiles are permeable and allow water to filter through, while separating and larger stone or soil particles from passing. This separator/filter function prevents the intermixing of granular sub-base layers and the passage of stone particles which could cause the failure of the surface or pavement structure. Hence pair 2 is correctly matched.**
- They are also used for sand dune armouring to protect upland coastal property from storm surge, wave action and flooding. They are used as matting to stabilize flow in stream channels and swales. They can improve soil strength at a lower cost than conventional soil nailing.
- **Smart textiles:** A smart textile is materials and structures that sense and react to environmental conditions or stimuli, such as those from mechanical, thermal, chemical, electrical, magnetic or other sources. Passive smart textiles are the first generation of smart textiles and sense the external conditions; for instance, UV protecting clothing, conductive fibers, etc. As active smart textiles respond to external conditions, ultra-smart textiles sense, react and adopt themselves to conditions. Shape memory materials, chromic materials, heat storage, and thermo-regulated fabrics are the typical applications of active smart textiles. **Hence pair 3 is correctly matched.**

Q 76.C

- **Telecom Equipment and Services Export Promotion Council (TEPC) is an independent body set up by the government to promote and develop the export of telecom equipment and services. Hence statement 1 is correct.**
- TEPC as a Council plays a critical role in furtherance of Telecom export from India and assist Indian member companies in easy facilitation of their respective exports.
- The Council caters to the complete Telecom Ecosystem including Telecom Hardware Manufacturing, Telecom Service Provision, Telecom Software, and Consultancy. It thus represents the strength of Equipment Manufacturers, System Integrators, Service Providers and other stakeholders in the telecom domain.
- It organizes as well as participates in trade shows, seminars in developing and some developed countries to provide platform to the exporter members to showcase their products & services.
- Keeping in mind the caliber of Indian manufacturers and demand of developing countries, TEPC felicitates various projects in the field of Telecom Digital connectivity. It has invited its members for consortium approach to provide a platform to perform and deliver their respective services to clients outside India. **It will also help in sharing the individual expertise of the members and promote the Telecom equipment & services from India to the developing world. Hence statement 2 is correct.**

Q 77.A

- The Government has introduced the Faceless Appeal Scheme 2020 enabling faceless filing and hearing of **appeals in income tax matters.**
- All Income Tax appeals will be finalized in a faceless manner under the faceless ecosystem with the **exception of appeals relating to serious frauds, major tax evasion, sensitive & search matters, International tax, and Black Money Act. Hence, option (a) is the correct answer.**

- Under the scheme, an automated allocation system will facilitate the random allocation of cases using artificial intelligence and other suitable technology. An automated examination tool will facilitate examination of draft orders using technology. Hence, the use of artificial intelligence will eliminate discretion in the examination and selection of cases.
- The Scheme establishes a National Faceless Appeal Centre (NFAPC) as the apex body for the conduct of e-appeal proceedings in a centralized manner. The filing of an e-appeal will be through the registered account of the appellant. The National Faceless Appeal Centre (NFAC) will intimate the admission or rejection of an appeal to the appellant. The parties can file submissions through their registered accounts.
- The NFAC will be the central authority vested with the powers to facilitate the e-appeal proceedings and also dispose of the appeal. Similarly, Regional Faceless Appeal Centres vested with powers to facilitate and dispose of the appeal. The four regional centres are in New Delhi, Mumbai, Chennai and Kolkata.

Q 78.C

- **Eka Movement** or Unity Movement is a peasant movement which surfaced in Hardoi, Bahraich and Sitapur in **United Provinces** during the end of 1921. Initially started by Congress and the Khalifat movement, it was later headed by Madari Pasi. **Hence statement 1 is not correct.**
- The issues involved were:
 - high rents—50 per cent higher than the recorded rates;
 - oppression of thikadars in charge of revenue collection; and
 - practice of share-rents.
- The meetings of the Eka or the Unity Movement involved a symbolic religious ritual in which the assembled peasants vowed that they would pay only the recorded rent but would pay it on time; not leave when evicted; refuse to do forced labour; give no help to criminals; abide by panchayat decisions. Small zamindars who were disenchanted with British Government due to heavy land revenue demand were also a part of this movement.
- Slowly the leadership of Movement changed from **Congress to Madari Pasi**, a low caste leader who was **not inclined to accept non-violence**. Such **violent methods** rattled the Congress. This led the movement losing contact with nationalist class. By March 1922, severe repression by authorities brought the movement to an end. **Hence statement 2 is not correct and statement 3 is correct.**

Q 79.C

- **Recent Context: The Government of India is to construct the largest floating solar energy project in the world. The project is to be constructed at Omkareshwar Dam on Narmada river. The project will begin its power generation from 2022 to 2023.**
- Floating Solar Plants refers to the deployment of photovoltaic panels on the surface of water bodies. They are a viable alternative to land-based solar arrays.
- There are two types of floating Solar Power Plant:
 - Floating photovoltaic Solar Power plant that uses photovoltaic panels installed on a floating platform
 - Floating concentrated solar power System. It uses mirrors to redirect the solar power to a tower.
- **Advantages of floating Solar Power Plant:**
 - No land Occupancy: Most of the solar panel installations can take unused space on bodies of water, such as hydroelectric dam reservoirs, wastewater treatment ponds, or drinking water reservoirs.
 - **Higher efficiency** than ground-mounted solar systems - An average solar panel can convert between 16-20% of solar energy into electricity. Floating solar on water has better efficiency because they benefit from additional diffuse irradiation from surface reflections. Efficiency of solar panels also reduces due to higher temperatures. Floating solar on water performs better because of the cooling effect of water in the surroundings. These two factors go hand in hand in improving the overall efficiency of the floating solar panels. **Hence option 1 is correct.**
 - They help to reduce water evaporation. Therefore, is highly water-saving.
 - The shade produced by floating solar panels help reduce the presence of harmful algal blooms. **Hence option 3 is correct.**
- **Limitations of floating Solar Power Plant:**
 - Higher Capex – Floating solar technology requires specialized installation and equipment which raises the overall cost of installation. In fact, according to industry estimates a floating solar system could cost about 25% more (than land-based systems) due to the floats, moorings and additional DC cabling required.
 - **Increased Transmission Costs** – Floating solar on water technology also requires transmission infrastructure in the form of underwater cables which leads to cost escalation. Some developers prefer

to place the solar inverters on land which leads to higher cable costs and increased transmission losses. **Hence, option 2 is not correct.**

- Can Disturb Aquatic Life – The overall water ecology can be adversely affected due to shading caused by floating solar panels.
- Other Water-related problems – Water surroundings can accelerate corrosion problems of solar panels. The performance of floating solar on water technology can also be greatly impacted by extreme winds during severe storms, hurricanes, typhoons and cyclones.

Q 80.B

- In **Jainism**, the term Ganadhara is used to refer the **chief disciple of a Tirthankara**. According to Digambara tradition, only a disciple of exceptional brilliance and accomplishment is able to fully assimilate, without doubt, delusion, or misapprehension, the anekanta teachings of a Tirthankara. **Ganadhara interprets and mediate** to other people the divine sound (divyadhwani) which the Jains claim emanates from Tirthankara's body when he preaches. **Hence option (b) is the correct answer.**
- Mahavira's acknowledged status as the 24th Tirthankara (or Jina) means that Jainas perceive him as the last revealer in this cosmic age of the Jaina Dharma. **Mahavira had eleven disciples (called Ganadharas)**, all of whom were Brahmin converts to Jainism. All of them founded monastic lineages, but only two- **Indrabhuti Gautama and Sudharman**, disciples who survived Mahavira- served as the points of origin for the historical Jaina monastic community.

Q 81.B

- Carbon dioxide levels today are higher than at any point in at least the past 800,000 years. The current **CO2 level in the atmosphere is at 416 ppm (parts per million) and not ppb (parts per billion)**. The annual rate of increase in atmospheric carbon dioxide over the past 60 years is about 100 times faster than previous natural increases, such as those that occurred at the end of the last ice age 11,000-17,000 years ago. **Hence statement 1 is not correct.**
- Global warming potential (GWP) is the heat absorbed by any greenhouse gas in the atmosphere, as a multiple of the heat that would be absorbed by the same mass of carbon dioxide(CO2). Therefore, the reference gas is CO2 for GWP. GWP of CO2 is one.
- The oceans play a critical role in capturing CO2 from the atmosphere. Around 25% of all CO2 emissions are absorbed by the ocean, making it one of the world's largest carbon sinks.
- It is estimated that the oceans contain about 50 times more CO2 than the atmosphere and 19 times more than the land biosphere. CO2 moves between the atmosphere and the ocean by molecular diffusion when there is a difference between CO2 gas pressure between the atmosphere and oceans. For example, when the atmospheric pressure of CO2 is higher than the surface ocean, CO2 diffuses across the air-sea boundary into the seawater. **Hence, statement 2 is correct.**

Q 82.D

- **Recently, the accused in the Hathras rape incident were taken out for Brain Fingerprinting in order to aid the investigation process.**
- The Brain Fingerprinting or Brain Electrical Oscillation Signature is a **neuropsychological method used to interrogate an accused in the crime by studying his or her brain responses. Hence, statement 1 is correct.**
- It is also known as brain fingerprinting. The accused is questioned based on their brain response. The test is carried out through a process called electroencephalogram that studies the electrical behavior of the human brain.
- **The consent of the accused is first taken in order to perform the test.** The accused then wears a head cap with dozens of electrodes attached to it. He or she is then shown with visuals or audio clips that are related to the case in order to check if there are triggering neurons in their brains generating brain waves. **Hence, statement 2 is correct.**
- The test is conducted based on knowledge and experience. The brain of the accused might have knowledge of the crime committed. However, the alibi they have come up with and their experience of having participated in the crime determine their guilt that ultimately generates the waves in the brain. Based on this, the team determines the participation of the accused in the crime.
- The test can only be used as an aid to question the accused. **The accused cannot be convicted based on the test. The conviction should be done based on interrogation and other traditional legal practices of CBI. Hence, statement 3 is correct.**

Q 83.C

- The Indian Constitution deals with **citizenship under Part II from Articles 5 to 11**. It **does not mention the grounds for acquisition or loss of citizenship** subsequent to its commencement but **only identifies the persons who became citizens of India at its commencement** (i.e., on January 26, 1950). **Hence statement 1 is correct.**
- As '**citizenship**' is **listed under the Union list in Schedule VII** of the Indian constitution and **Constitution empowers the Parliament to enact a law** to provide for such matters and any other **matter relating to citizenship**.
- Accordingly, the Parliament has enacted the Citizenship Act, 1955, which has been amended in 1986, 1992, 2003, 2005 and 2019.
- As a result, Parliament enacted The Citizenship Act of 1955 which prescribes
 - **Five ways of acquiring citizenship**, viz, birth, descent, registration, naturalisation and incorporation of territory and
 - **Prescribes three ways of losing citizenship** whether acquired under the Act or prior to it under the Constitution, viz, renunciation, termination and deprivation, Therefore **Parliament has exclusive rights to frame laws related to citizenship**. **Hence statement 2 is correct.**

Q 84.D

- The BNCFF (Blue Natural Capital Financing Facility) supports the development of sound, investable blue natural capital projects with clear ecosystem service benefits, based on multiple income streams and appropriate risk-return profiles. By assessing, preparing, and structuring blue nature capital opportunities into bankable investments the BNCFF helps to reduce the risk of natural capital investments.
 - **The Facility is being managed by IUCN as the Facility Manager on a day-to-day basis; IUCN will execute the implementation of activities and support the evaluation of activities and results.**
 - Blue natural capital projects aim to protect, restore and enhance natural ecosystems to better support climate change adaptation and mitigation efforts whilst conserving biodiversity and other vital coastal and marine natural resources
- Protected Planet is the most up-to-date and complete source of data on protected areas and other effective area-based conservation measures (OECMs), updated monthly with submissions from governments, non-governmental organizations, landowners, and communities.
 - **Protected Planet is a joint project between IUCN and the UN Environment Programme World Conservation Monitoring Centre.**
 - Apart from serving as a business, conservation, and aid investment planning tool, Protected Planet provides the basis for monitoring and reporting on progress towards international environmental targets such as the Aichi Biodiversity Targets and the 2030 Sustainable Development Goals. Every two years, UNEP-WCMC releases the Protected Planet Report on the status of the world's protected areas and recommendations on how to meet international goals and targets.
- PANORAMA – Solutions for a Healthy Planet is a partnership initiative to document and promote examples of inspiring, replicable solutions across a range of conservation and sustainable development topics, enabling cross-sectoral learning and inspiration.
 - **It is implemented jointly by GIZ, IUCN, UNEP, GRID-Arendal, Rare, and IFOAM- Organics International, with IUCN and GIZ in a leading and coordinating role.**
 - PANORAMA allows practitioners to share and reflect on their experiences, increase recognition for successful work, and learn with their peers how similar challenges have been addressed around the globe.
- **Hence option (d) is the correct answer.**

Q 85.B

- Carnatic music is a system of music commonly associated with **South India**, including the modern Indian states of Karnataka, Andhra Pradesh, Telangana, Kerala and Tamil Nadu. It is one of two main subgenres of Indian classical music that evolved from ancient Sanatana dharma sciences and traditions, the other subgenre being **Hindustani music**, which emerged as a distinct form because of **Persian or Islamic influences** from Northern India.
- In contrast to northern styles, **Carnatic music is more thoroughly oriented to the voice**. Even when instruments are used alone, they are played somewhat in imitation of singing, generally within a vocal range, and with embellishments that are characteristic of vocal music. Fewer instruments are used in Carnatic than in northern Indian music, and **there are no exclusively instrumental forms**. **Hence statements 2 and 3 are correct.**

- Though clear cut demarcations in the style of musical presentation, similar to the **gharanas** of Hindustani music are **not seen in Carnatic music**, yet, we do come across different styles in rendering compositions. **Hence statement 1 is not correct.**
- The other key differences between the Hindustani and Carnatic systems are:
 - Hindustani music is raga based while Carnatic is kriti-based.
 - Raga essays (alapanas) are elaborated from note to note in Hindustani and from phrase to phrase in Carnatic.
 - The concept of upapakkavadyam does not exist in Hindustani music.
 - The sarangi is a major accompaniment in Hindustani, while the violin reigns in Carnatic.
 - The concept of tani avaratanam is found in Carnatic music, while the tabla player intersperses the main artist's rendering with solos.

Q 86.D

- **Floating Rate Savings Bonds 2020 are debt instruments issued by the government whose rate of return fluctuates from time to time. The interest rates for these bonds change as per its benchmark rate. Hence statement 1 is correct.**
- For the newly launched Floating Rate Savings Bonds 2020, the interest amount is payable every six months and after which the interest rate would be reset. Its first interest rate reset would happen on January 1, 2021.
- The change in the interest rate is pegged with the prevailing National Saving Certificate (NSC) rate. That is, the rates would be adjusted as 35 basis points over the prevailing NSC rate.
- **Any resident Indian can invest in this bond. NRIs are not eligible for making investments in Floating Rate Savings Bonds 2020. Hence statement 2 is correct.**
- The bond can be bought in cash (up to Rs 20,000), demand draft, cheque, or through online payments. While there is no maximum limit for investment, the minimum requirement is only Rs 1,000.
- **These bonds are not tradable, but transferable to the nominee. The bondholder/holders can make a nomination for the bond. The bond will be automatically transferred to the nominee/nominees upon his/her/their death. Meanwhile, it cannot be traded in the market or used as collateral for a loan. Hence statement 3 is correct.**

Q 87.D

- **Trend inflation refers to the long term inflation derived by removing cyclical effects from business cycles as well as other transitory distortions.** Trend inflation can also be interpreted as the infinitely long-term inflation rate expected by private economic agents. **Hence, option (d) is the correct answer.**
- If we assume that the central bank's inflation target policy is fully credible, trend inflation will converge to the target inflation rate in the long run. In the short run, however, trend inflation and the target rate can differ due to adaptive, or backwards-looking, expectations and changes in the extent to which the inflation target is credible.
- **Wage Push Inflation** is caused due to rising wages. Rising wages increase costs for firms. Also, rising wages give consumers greater disposable income and therefore cause increased consumption.
- **Imported Inflation** is due to depreciation in the exchange rate which will make imports more expensive.

Q 88.C

- **Pediplain:**
 - A pediplain is an extensive flat terrain formed by the coalescence of pediments.
 - Gently inclined rocky floors close to the mountains at their foot with or without a thin cover of debris are called **pediments**.
 - Such rocky floors form through the erosion of the mountain front through a combination of lateral erosion by streams and sheet flooding. Erosion starts along the steep margins of the landmass. Once, pediments are formed with a steep wash slope followed by a cliff or free face above it, the steep wash slope and free face retreat backwards. This method of erosion is termed as a parallel retreat of slopes through back wasting. So, through parallel retreat of slopes, the pediments extend backwards at the expense of the mountain front, and gradually, the mountain gets reduced leaving an inselberg which is a remnant of the mountain. That's how the high relief in desert areas is reduced to low featureless plains called **pediplains. Hence statement 1 is correct.**
- **Peneplain:**
 - The peneplain is a region that is almost plain.
 - It is formed due to erosion by rivers and rain, which continues until almost all the elevated portions are worn down.

- In the middle stages of rivers, streams cut their beds slower, and lateral erosion of valley sides becomes severe. Gradually, the valley sides are reduced to lower and lower slopes. The divides between drainage basins are lowered until they are almost completely flattened leaving finally, a lowland of faint relief with some low resistant remnants called monadnocks standing out here and there. This type of plain forming as a result of stream erosion is called a **peneplain** (an almost plain). **Hence, statement 2 is correct.**

Q 89.C

- The **first statement describes the term 'secularism'** as enshrined in the Indian constitution which means the Government of India does not have any religion and an individual is free to practise, profess her religion. Though it is different from the western notion of 'secularism', as the **Indian Constitution embodies the positive concept of secularism** ie, all religions in our country (irrespective of their strength) have the same status and support from the state.
- The **second statement describes the term; 'democratic'** which means that **ultimate power lies in the hand of people who elects their representative directly or indirectly**. The Indian Constitution provides for representative parliamentary democracy under which the executive is responsible to the legislature for all its policies and actions.
- The **third statement describes the term 'sovereign'** which implies that **India is neither a dependency nor a dominion of any other nation, but an independent state**. There is no authority above it, and it is **free to conduct its own affairs** (both internal and external). Being a sovereign state, **India can either acquire a foreign territory or cede a part of its territory in favour of a foreign state**. **Hence option (c) is the correct answer.**
- The **fourth statement describes the term 'Republic'** which indicates in the Indian way that **India has an elected head** called the president. He is elected indirectly for a fixed period of five years. A republic also means two more things: one, vesting of political sovereignty in the people and not in a single individual like a king second, the **absence of any privileged class and hence all public offices being opened to every citizen without any discrimination**.

Q 90.D

- Artificial Intelligence has various applications in today's society. It is becoming essential for today's time because it can solve complex problems with an efficient way in multiple industries, such as Healthcare, entertainment, finance, education, etc. AI is making our daily life more comfortable and fast. Following are some of the application of Artificial Intelligence:
 - The combination of new 5G communication technologies with AI-based systems are ushering in a 'smart generation' of vehicles, drones, and even entire cities. **Now, researchers take things one step further by introducing a 5G-assisted emotion detection system that uses wireless signals and body movement.**
 - Researchers at the USC Viterbi School of Engineering, **armed with artificial intelligence tools, can rate a movie's content in a matter of seconds, based on the movie script and before a single scene is shot.** Such an approach could allow movie executives the ability to design a movie rating in advance and as desired, by making the appropriate edits on a script and before the shooting of a single scene.
 - **Using artificial intelligence, the research team developed a method to speed the analysis of vaccines and zero in on the best potential preventive medical therapy.** The study says the method is easily adaptable to analyse potential mutations of the virus, ensuring the best possible vaccines are quickly identified. Vaccine design cycles that once took months or years can be accomplished in seconds and minutes with the machine-learning model.
 - **AI-powered video cameras in cars can reduce collisions** and improve driver behaviour and would also improve the safety of both drivers and the communities in which they deliver.
- **Hence, all the options are correct.**

Q 91.B

- Biocapsules are a revolutionary bio-fertiliser technology that ensures the successful delivery of biologically competent beneficial microbes. **Hence option (b) is the correct answer.**
- The bio-capsule uses beneficial micro-organisms including Trichoderma, Pseudomonas, Bacillus etc.
- Unlike the traditional microbial formulations, encapsulation makes it easy to store, use and transport, while maintaining a high microbial count.
- One capsule can be diluted using 100-200 litres of water based on the micro-organism present in the capsule.

- According to IISR scientists, 4,000 capsules are equivalent to 4,000 kg talc-based formulation of micro-organisms. As one capsule weighs only 1 gram, a farmer can easily replace 4 tonnes of formulation with 4 kg capsules.
- Developed by ICAR-Indian Institute of Spices Research.
- **ADVANTAGES:**
 - Smart and precise microbial delivery to crops. Maintains a high microbial population. Green technology, totally eco-friendly. Low production cost. Easy to handle and store. High shelf life. Production and storage at normal temperature. Does not require sophisticated equipment for manufacture, Can be used to deliver all agriculturally important microorganisms.
 - **Time capsule:** It is a container of any size or shape, which accommodates documents, photos and artefacts typical of the current era and is buried underground, for future generations to unearth. Material such as aluminium and stainless steel are used for the encasing.

Q 92.D

- The **consultative committees are attached to various ministries/departments of the Central Government. They provide a forum for informal discussions between the ministers and the members of Parliament on policies and programmes of the government and the manner of their implementation. Hence statement 1 is correct.**
- Under the **Government of India (Allocation of Business) Rules, 1961, These committees are constituted by the Ministry of Parliamentary Affairs.** The guidelines regarding the composition, functions and procedures of these committees are formulated by this Ministry. **These committees consist of members of both the Houses of Parliament. Hence statement 2 is correct.**
- Generally, these committees are normally constituted after the new Lok Sabha is constituted, after general elections for the Lok Sabha.
- The **Minister or Minister of State in-charge of the Ministry concerned acts as the chairman of the Consultative Committee of that Ministry. Hence statement 3 is correct.**
- Member of these committees are nominated by the Minister of Parliamentary Affairs
- Additional Information:
 - The current Consultative Committees of Members of Parliament in their broad features owe their origin to a suggestion made by the late Prime Minister, Shri Jawaharlal Nehru, in a note circulated to the members of the Cabinet in 1954. With this in view, informal Consultative Committees were constituted for the various Ministries/Departments of the Government of India in the year 1954
 - In addition, the separate Informal Consultative Committees of the members of Parliament are also constituted for all the Railway Zones. The members of Parliament belonging to the area falling under a particular Railway Zone are nominated on the Informal Consultative Committee of that Railway. Unlike the Consultative Committees attached to various ministries/departments, the meetings of the Informal Consultative Committees are to be arranged during the session periods only.

Q 93.A

- The Kanva dynasty overthrew the Shunga dynasty in parts of eastern and central India and ruled from **75 BCE to 30 BCE**. Vasudeva Kanva was the founder of the Kanva dynasty. The Kanva dynasty ruled for 45 years. After the fall of the Kanvas, the history of Magadha was blank until the establishment of the Gupta dynasty.
- About a hundred years after Ajatashatru's demise, the Nandas became the emperors of Magadha in 362 BCE. **Nandas rule reigned from 345BC to 322 BC.** The first Nanda ruler was Mahapadma. An inscription found in the famous Hathigumpha of Kharavela refers to the conquest of Kalinga by a ruler of the Nanda dynasty (probably Mahapadma Nanda). In 326 BC when Alexander invaded India the last of the Nandas, Dhana Nanda was ruling Magadha.
- In the Deccan, the **Satavahanas** established their independent rule after the decline of the Mauryas in the **first century CE (100 BC)**.
The term "Satavahana" originated from the Prakrit which means "driven by seven" which is an implication of the Sun God's chariot that is driven by seven horses as per Hindu mythology. The first king of the Satavahana dynasty was Simuka. Gautamiputra Satakarni was the greatest of the Satavahana kings. The inscription of his mother Gautami Balashri at Nashik mentions him as the conqueror of the Shakas, Pahlavas, and Yavanas. Their rule lasted for about 450 years. The Satavahana Empire declined around the 3rd century CE and was replaced by the Ikshvakus.
The **Gupta Empire** existed from the mid-to-late **3rd century CE to 543 CE**. The ruling dynasty of the empire was founded by king Sri Gupta. The most notable rulers of the dynasty were Chandragupta I,

Samudragupta, and Chandragupta II alias Vikramaditya. The empire eventually died out mainly due to invasion by the Huna peoples from Central Asia in the 6th century CE.

- **Hence option (a) is the correct answer.**

Q 94.C

- Ecosystems support all life on Earth. The healthier our ecosystems are, the healthier the planet and its people. The UN Decade on Ecosystem Restoration aims to prevent, halt and reverse the degradation of **all types of ecosystems on every continent and in every ocean. Hence statement 1 is correct.**
- Only with healthy ecosystems can we enhance people's livelihoods, counteract climate change, and stop the collapse of biodiversity.
- **It is led by the United Nations Environment Programme and the Food and Agriculture Organization of the United Nations.** The UN Decade is building a strong, broad-based global movement to ramp up restoration and put the world on track for a sustainable future. **Hence statement 2 is correct.**
- The strategy of the UN decade for the decade include 10 action points:
 - Empower a global movement
 - Finance restoration on the ground
 - Set the right incentives
 - Celebrate leadership
 - Shift behaviours
 - Invest in research
 - Build up capacity
 - Celebrate a culture of restoration
 - Build up the next generation
 - Listen and learn
- Through communications, events, and a dedicated web platform, the UN Decade will provide a hub for everyone interested in restoration to find projects, partners, funding, and the knowledge they need to make their restoration efforts a success.

Q 95.C

- **AT1 Bonds stand for additional tier-1 bonds. These are unsecured bonds that have perpetual tenure. In other words, the bonds have no maturity date.** They have call option, which can be used by the banks to buy these bonds back from investors.
- **These bonds are typically used by banks to bolster their core or tier-1 capital.** AT1 bonds are subordinate to all other debt and only senior to common equity.
- AT1 bonds have emerged as the capital instrument of choice for state banks as they strive to shore up capital ratios. A major chunk of AT1 bonds is bought by mutual funds. State banks have cumulatively raised around \$ 2.3 billion in AT1 instruments in 2020-2021.
- AT1 instruments still account for a relatively small proportion of the capital structure (averaging roughly around one per cent of risk-weighted assets) but are increasingly finding favour among state banks, ostensibly as an alternative to equity.
- Recently, the decision of the Securities and Exchange Board of India (Sebi) to slap restrictions on mutual fund (MF) investments in additional tier-1 (AT1) bonds has raised a storm in the MF and banking sectors. The Finance Ministry has asked the regulator to withdraw the changes as it could lead to disruption in the investments of mutual funds and the fund-raising plans of banks.
- **Hence, statements 1 and 2 are correct.**

Q 96.B

- Foreign exchange reserves are assets held on reserve by a central bank. These reserves are used to back liabilities and influence monetary policy.
- In India, the Reserve Bank of India Act 1934 contains the enabling provisions for the Reserve Bank to act as the custodian of foreign reserves, and manage reserves with defined objectives.
- Foreign Exchange Reserves of India consists of cash, gold, bonds, bank deposits and financial assets denominated in foreign currencies. (Primarily US dollars in the form of US treasury bonds and institutional bonds).
- Even though India is the largest gold-consuming nation, the share of gold in total forex reserves is much less than most developed nations. The share of gold in total forex reserves has fallen from 78% prior to liberalization of the Indian economy to around 5.8% (March 2021).
- **Foreign currency assets (FCA) — the largest component of foreign exchange, or forex, reserves (approx 93%). Expressed in dollar terms, the FCA include the effect of appreciation or depreciation**

of non-US currencies such as the euro, pound sterling and Japanese yen held in the forex reserves. Hence, statement 1 is not correct.

- Rising forex reserves could act as a source of comfort to the government and the RBI in managing the nation's external and internal financial issues. They act as a cushion in the event of any crisis on the economic front and enough to cover the country's import bill for a year. Lower reserves could cause a fall in the confidence of markets that India can meet its external obligations. This could trigger an outflow of foreign currency from domestic markets. **Thus a fall in reserves weakens the rupee's position against the US dollar. Hence, statement 2 is correct.**

Q 97.A

- As the threats to protected areas continue to rise, so has the desire to collaborate and face these issues. This has resulted in the establishment of the Asia Protected Areas Partnership (APAP), which has been designed as a key platform to help governments and other stakeholders collaborate for more effective management of protected areas in the region
- The partnership was initiated in 2013 at the first-ever Asia Parks Congress held in Japan and formally launched the following year at the IUCN World Parks Congress in Australia. **It is chaired by IUCN, International Union for Conservation of Nature, and co-chaired by an APAP member organization on a rotational basis. The Ministry of Environment, Forest, and Climate Change (MoEFCC) of India is the current co-chair. (India recently became co-chair, not chairman)**
- APAP was established to facilitate improved conservation outcomes for protected areas in Asia, in accordance with the Sendai Charter and in support of national and regional efforts to implement the Strategic Plan for Biodiversity.
- APAP aims to achieve this by:
 - Promoting best practices and innovative solutions to the challenges facing the region's protected areas, through knowledge sharing and capacity building
 - **Strengthening transboundary and regional cooperation.**
 - Raising awareness of the multiple benefits of Asia's protected areas, both within and outside the region.
- **Hence option (a) is the correct answer.**

Q 98.B

- Types of Iron Ore – Hematite, Magnetite, Limonite & Siderite.
- Hematite and magnetite are the most prominent iron ore found in India.
- **Haematite:**
 - Reddish or coral red colour.
 - Best quality-70% metallic content and occurs as massive, hard compact and bumpy ore. **Hence, statement 1 is not correct.**
 - Most of the hematite ores are found in the Dharwad and Cuddapah rock systems of peninsular India. **Hence, statement 3 is correct.**
 - 80 % of hematite reserves are in Odisha, Jharkhand, Chhattisgarh and Andhra Pradesh.
 - In the western section, Karnataka, Maharashtra and Goa have this kind of ore.
- **Magnetite:**
 - Black ore due to blackish colour.
 - 60 % to 70% metallic content.
 - Found in Dharwad and Cuddapah systems as well.
 - Magnetic quality.
 - Karnataka, Andhra Pradesh, Rajasthan, Tamil Nadu and Kerala.
 - **Hence, statement 1 is not correct.**
- Iron ore is not found in the North-Eastern part of India. **Hence, statement 2 is correct.**

Q 99.B

- A Giffen good is a low income, non-luxury product that defies standard economic and consumer demand theory. **Demand for Giffen goods rises when the price rises and falls when the price falls.** In econometrics, this results in an upward-sloping demand curve, contrary to the fundamental laws of demand which create a downward sloping demand curve. **Hence, option (b) is the correct answer.**
- A Giffen good is a low income, non-luxury product for which demand increases as the price increases and vice versa. Demand for Giffen goods is heavily influenced by a lack of close substitutes and income pressures.

- A **luxury good** means an increase in income causes a bigger percentage increase in demand. It means that the income elasticity of demand is greater than one.
- An **inferior good** means an increase in income causes a fall in demand. It is a good with a negative income elasticity of demand.

Q 100.C

- **Infrastructure Investment Trusts (InvITs) are mutual fund like institutions that enable investments into the infrastructure sector by pooling small sums of money from multitude of individual investors for directly investing in infrastructure so as to return a portion of the income (after deducting expenditures) to unit holders of InvITs. Hence, statement 1 is correct.**
- InvITs can invest in infrastructure projects, either directly or through a special purpose vehicle (SPV). In case of Public Private Partnership (PPP) projects, such investments can only be through SPV.
- **InvITs are regulated by the securities market regulator in India- Securities and Exchange Board of India (SEBI). InvITs are set up as a trust and registered with SEBI. The objective of InvIT is to facilitate investment into the infrastructure sector in India. Hence, statement 2 is not correct.**
- InvITs are proposed to provide a suitable structure for financing/refinancing of infrastructure projects in the country. InvITs, as an investment vehicle, may aid:
 - providing wider and long-term re-finance for existing infrastructure projects.
 - freeing up of current developer's capital for reinvestment into new infrastructure projects.
 - refinancing/takeout of existing high cost debt with long-term low-cost capital and help banks free up/reduce loan exposure, and thereby help them create headroom for new funding requirements.
 - **InvITs may help in attracting international finance into Indian infrastructure sector. Hence, statement 3 is correct.**
 - InvITs will enable the investors to hold a diversified portfolio of infrastructure assets.
 - InvITs are also proposed to bring higher standards of governance into infrastructure development and management and distribution of income from assets so as to attract investor interest.