



**PRESTORMING – 2025-26**  
**ALL INDIA MOCK TEST - III**  
**GENERAL STUDIES – PAPER - I EXPLANATION**  
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1. Which of the following are reasons for the revision of the base year in GDP accounting at periodic intervals?
1. Capture structural changes in the economy
  2. Incorporate the latest data sources
  3. Improve estimation methodologies
  4. Enhance coverage and accuracy
- Select the correct answer using the codes given below:
- (a) 1, 2 and 3 only
  - (b) 1 and 4 only
  - (c) 2 and 3 only
  - (d) 1, 2, 3 and 4**

**EXPLANATION:**

Recently, the Government has initiated coordinated reforms as part of a **broader modernisation of the national statistical system** aimed at strengthening data quality, credibility and policy relevance.

- Major reforms under this include the upcoming revision of GDP and price indices base years, improvements in measuring the informal and services economy, enhancements to labour market statistics, cross-cutting innovations in survey methods and technology, and steps to boost transparency through stakeholder engagement.
- The base year is revised periodically to reflect structural shifts in the economy and to improve the accuracy of economic estimates. **Base year for GDP estimates being revised to 2022-23** to reflect new economic structures.
- Periodic base year updates ensure that GDP and other indices reflect the current economic structure and relative prices, which tend to evolve over time.
- The base year is revised periodically **to better capture the structural changes** happening in the economy by updating the methodology of compilation and **incorporation of new data** sources. **So, Statements 1 and 2 are correct.**
- Moreover, rebasing allows the adoption of **international best practices in estimation methodology** as recommended by bodies like the UN Statistical Commission. **So, Statement 3 is correct.**
- Aligning with updated global standards ensures that India's statistics remain comparable and methodologically sound in light of new guidance on measuring the digital economy, supply-use tables, etc.
- The revision of the GDP base year to 2022–23 marks a significant step in aligning India's national accounts with the realities of a rapidly transforming economy. By integrating improved data sources, strengthening methodological frameworks, **expanding coverage of emerging sectors** and enhancing transparency through the Supply and Use Tables (SUT) framework, the new series provides a **more accurate, consistent and comprehensive measure** of economic activity. **So, Statement 4 is correct.**



2. Which of the following statements regarding Small Finance Banks (SFB) is **incorrect**?
- The minimum paid-up voting equity capital shall be Rs. 200 crore.
  - The minimum capital adequacy ratio required to be maintained is 15 per cent of its risk-weighted assets.
  - An SFB can act as a Business Correspondent for another bank.**
  - An SFB is required to extend 60 per cent of its Adjusted Net Bank Credit to priority sectors.

**EXPLANATION:**

Small Finance Banks (SFBs) are specialised financial institutions established with the primary goal of fostering financial inclusion by offering basic banking services to underserved and unbanked segments of society.

Regulated by the Reserve Bank of India, SFBs bridge the financial gap in rural and semi-urban areas, focusing on small business units, micro and small industries, marginal farmers, and the unorganised sector.

**Some of the key guidelines for SFBs include:**

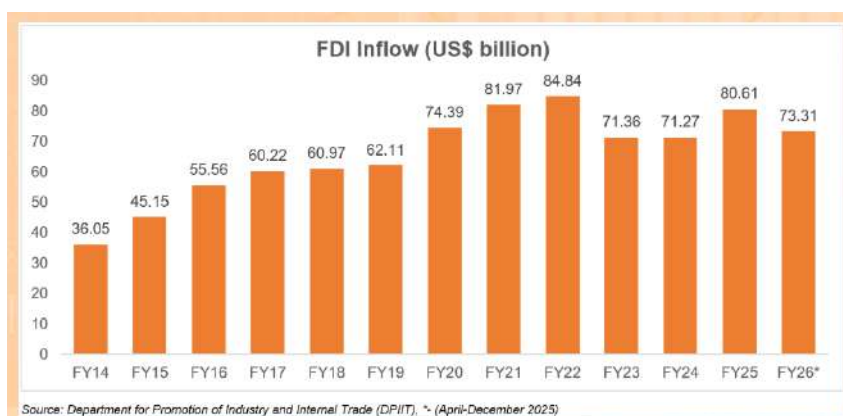
- SFBs are granted scheduled bank status after being operational and deemed suitable under Section 42 of the RBI Act, 1934.
- SFBs are required to focus on providing financial services to unbanked and underbanked segments, including small businesses, low-income households, and farmers.
- SFBs must maintain a minimum Capital to Risk-Weighted Assets Ratio (CRAR) of 15%. **So, Option (b) is correct.**
- SFBs are required to extend 60% of their Adjusted Net Bank Credit to Priority Sector Lending. **So, Option (d) is correct.**
- SFBs must open at least 25% of their total branches in unbanked rural areas.
- The minimum paid-up voting equity capital for SFBs shall be ₹200 crore. **So, Option (a) is correct.**
- SFBs must maintain at least 50% of their loan portfolio as advances up to ₹25,00,000.
- SFBs must comply with prudential norms related to income recognition, asset classification, and provisioning.
- SFBs are encouraged to adopt technology to improve operational efficiency and outreach.
- A small finance bank **cannot be a Business Correspondent (BC)** for another bank, though it can have its own BC network. **So, Option (c) is not correct.**

3. Which of the following are the likely externalities of increased foreign direct investment into India?
- Increased contribution to GDP
  - Introduction of newer technology
  - Increased outflow under the Invisibles account
  - Increased usage of cross-border tax avoidance strategies
  - Collapse of domestic industries
- Select the correct answer using the codes given below:
- 4 and 5 only
  - 1, 2 and 3 only
  - 1, 2, 3 and 4 only**
  - 1, 2, 3, 4 and 5

**EXPLANATION:**

India has reached a significant milestone in its economic development, with gross foreign direct investment (FDI) inflows totalling an impressive US\$ 1.14 trillion since April 2000. FDI equity inflows during April–December 2025 (FY26) increased to Rs. 4,16,709 crore (US\$ 47,874 million), up from Rs. 3,40,962 crore (US\$ 40,672 million) in the corresponding period of April–December 2024 (FY25).

- **Increased contribution to GDP:** Foreign Direct Investment (FDI) has a positive effect on economic development because FDI has a role in increasing domestic investment. As FDI increases, it increases export activities, promotes the transfer of goods and services, and increases access to technology, increasing GDP. **So, Statement 1 is correct.**
- **Introduction of newer technology:** Increased Foreign Direct Investment (FDI) into India, surpassing US\$ 1 trillion cumulatively by late 2025, is acting as a catalyst for technological advancement. By fostering greenfield projects and easing regulations, FDI brings advanced technologies, managerial expertise, and R&D capabilities, primarily benefiting sectors like electronics, automobiles, and services. **So, Statement 2 is correct.**
- **Increased outflow under the Invisibles account:** FDI leads to outflows such as profit repatriation, royalty payments, and technical fees, which are recorded under the invisibles account of the current account, thereby increasing outflows. **So, Statement 3 is correct.**
- **Increased usage of cross-border tax avoidance strategies:** Increased Foreign Direct Investment (FDI) in India generally boosts industrial productivity and technology transfer, but it simultaneously increases risks of Base Erosion and Profit Shifting (BEPS) and treaty shopping. Key externalities include significant tax revenue losses due to routing investment through tax havens, enhanced "round-tripping," and competitive tax concessions. **So, Statement 4 is correct.**
- **Lead to a loss of control over domestic industries:** The increased foreign direct investment can lead to a loss of control over domestic resources and industries, and competition for local resources such as labour or raw materials. Host nations relying heavily on FDI become prone to global economic uncertainties that may disrupt their economies. However, these effects do not necessarily result in the collapse of domestic industries. **So, Statement 5 is not correct.**



4. Which of the following indices uses "share of parliamentary seats" as an indicator of measurement?
- (a) Gender Inequality Index
  - (b) Gender Development Index
  - (c) Human Development Index
  - (d) Inequality-adjusted Human Development Index

**EXPLANATION:**

**Gender Inequality Index (GII):**

The GII measures gender inequalities in three key dimensions – reproductive health, empowerment, and the labour market.

- **Reproductive health** is measured by the maternal mortality ratio and adolescent birth rates.
- **Empowerment** is measured by the **share of parliamentary seats held by women** and the proportion of the population with at least some secondary education for each gender.
- **Labour market participation** is measured by the labour force participation rates for women and men.

- In 2023, India ranked 102nd on the Gender Inequality Index (GII) at 0.403, reflecting challenges in reproductive health, political representation, and workforce participation.

**So, Option (a) is correct.**

**Gender Development Index (GDI):**

The GDI measures gender gaps in achievements in three basic dimensions of human development:

- **Health** (measured by female and male life expectancy at birth),
- **Knowledge** (measured by female and male expected years of schooling for children and mean years of schooling for adults aged 25 years and older) and
- **Living standards** (measured by female and male estimated GNI per capita). It is a ratio of the female to the male Human Development Index.
- In GDI 2023, India scored 0.874, with women scoring 0.631 compared to 0.722 for men.

It does not include political representation like parliamentary seats. **So, Option (b) is not correct.**

**Human Development Index (HDI):**

The HDI is a summary measure for assessing average achievement in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living.

- India's HDI value for 2023 is 0.685— which puts the country in the Medium human development category—positioning it at 130 out of 193 countries and territories.
- HDI does not consider gender inequality or parliamentary share. **So, Option (c) is not correct.**

**Inequality-adjusted Human Development Index (IHDI):**

The IHDI adjusts the HDI for inequality in the distribution of each dimension across the population.

- The IHDI is a summary measure of key dimensions of human development: a long and healthy life, a good education, and a decent standard of living, adjusted for inequalities in these dimensions. Higher values indicate higher and more equal human development.
- The difference between the HDI and the IHDI gives the 'loss' in human development due to inequality. As the inequality in a country increases, the loss in human development also increases.
- The Inequality-adjusted Human Development Index (IHDI) value for India is approximately 0.475 in 2023.
- It does not specifically measure gender inequality and does not include parliamentary representation. **So, Option (d) is not correct.**

5. Which one of the following statements best reflects the objective of the Tex-RAMPS Scheme?
- Set up a nationwide network of handloom clusters with a focus on traditional crafts and GI-tagged textile products.
  - Offer interest subvention and credit guarantees to textile MSMEs for upgrading machinery and expanding production capacity.
  - Establish large-scale, world-class integrated textile parks to improve the competitiveness of the Indian textiles industry.
  - Develop India's textiles and apparel ecosystem by promoting research in smart textiles and creating efficient data systems to facilitate evidence-based policymaking.**

**EXPLANATION:**

The **Textiles Focused Research, Assessment, Monitoring, Planning and Start-up (Tex-RAMPS)** Scheme is a **Central Sector Scheme with 100%** funding from the Government of India, Ministry of Textiles (MoT), designed to strengthen India's textiles and apparel (T&A) sector through targeted research, integrated statistical systems, structured evaluation, sectoral planning, capacity development, and innovation support.

It addresses critical sectoral gaps in data, R&D, monitoring, inter-governmental coordination, and start-up support to enable evidence-based policy making, enhanced competitiveness, and sustainable growth.

- Tex-RAMPS is structured around five core components, including **promotion of advanced research in smart textiles**, sustainability, and process efficiency, development of robust data and analytics systems for **evidence-based policymaking**, and establishment of an Integrated Textiles Statistical System for real-time monitoring and strategic decision-making.
- It also focuses on strengthening State-level capacity, knowledge dissemination, and organising sectoral engagements, alongside targeted support for start-ups, incubators, and academia-industry collaboration.
- The scheme is expected to enhance India's global competitiveness, improve data-driven governance, generate employment opportunities, and foster closer collaboration between States, industry, academia, and government institutions, reinforcing the vision of a resilient, future-ready, and globally competitive textile ecosystem.

Thus, the objective of the Tex-RAMPS Scheme is to develop India's textiles and apparel ecosystem by promoting research in smart textiles and creating efficient data systems to facilitate evidence-based policymaking. **So, Option (d) is correct.**

### Ministry of Textiles Launches the Tex-RAMPS Scheme

- **Research & Innovation**  
Smart textiles • Sustainability • Higher efficiency
- **Data & Diagnostics**  
Employment trends • Supply chain mapping  
• India-Size study
- **Integrated Data System**  
Real-time analytics through the Integrated Textiles Statistical System (ITSS)
- **Capacity Development**  
State-level planning • Knowledge-sharing  
• Sectoral events
- **Start-up & Innovation**  
Incubators • Hackathons • Academia-industry partnerships for high-value ventures

6. Consider the following:

1. Advanced Cell Chemistry & Battery Storage
2. Green Hydrogen
3. Decarbonisation
4. Semiconductors
5. Data Centre Infrastructure

How many of the above are classified as sunrise sectors in India?

- (a) Only two
- (b) Only three
- (c) Only four
- (d) All five**

#### **EXPLANATION:**

India's sunrise sectors, buoyed by robust human resources and supportive government policies such as 100% FDI under automatic routes, present compelling investment opportunities. Investors stand to benefit from robust growth potential and government support. These sectors promise economic prosperity and offer avenues for sustainable development, making them attractive investment destinations.

- As of early 2026, the Government of India, particularly through the State Bank of India's (SBI) newly launched Centre of Excellence (CHAKRA), has **identified eight key "sunrise" sectors** vital for India's economic transformation and its Viksit Bharat 2047 vision.
- **Advanced Cell Chemistry/ Battery:** Driven by favourable market factors and strong government support, the manufacturing capacity for lithium-ion batteries in India is projected to grow to more than 100 GWh by 2030. **(1)**
  - **Green Hydrogen and Ammonia:** Anchored by the National Green Hydrogen Mission (2023), the Government of India targets production of 5 million tonnes per annum by 2030, supported by around 125 GW of renewable-energy capacity. **(2)**
  - **Decarbonization:** it is critical to mitigating climate change, protecting ecosystems, and promoting sustainable economic growth. In recent years, decarbonisation has become a central pillar of global climate policy, driven by the goals of the Paris Agreement to limit global warming to 1.5°C above pre-industrial levels. **(3)**
  - **Semiconductors:** India strengthened its strategic focus with the launch of the India Semiconductor Mission (ISM) in December 2021, backed by a government outlay of approximately ₹76,000 crore. **(4)**
  - **Data Centres Infrastructure:** India's data centre industry is emerging as a strategic pillar of the country's ~₹90 lakh crore digital economy target by 2028. **(5)**
  - **Renewables:** India's path to becoming a resilient and low-carbon economy is closely tied to the expansion of its renewable energy sector. With targets of achieving 500 GW of non-fossil fuel capacity by 2030 and net-zero emissions by 2070, renewables are poised to transform the nation's energy landscape.
  - **E-mobility & Charging Infra:** The government aims for 30% of all new vehicle sales to be electric by 2030, as outlined in NITI Aayog's USD \$200B opportunity roadmap, and plans to deploy around 72,000 public EV charging stations under the PM E-Drive scheme to strengthen nationwide charging infrastructure.
  - **Smart Infrastructure:** Smart Infrastructure integrates traditional physical infrastructure - such as roads, water supply, power grids, logistics and housing - with digital technologies like IoT sensors, SCADA systems, smart meters, integrated command and control centres (ICCCs) and digital twins.

Thus, **all five sectors** are widely recognised as sunrise sectors in India. **So, Option (d) is correct.**

7. Consider the following:

1. Increase in the price of commodities imported into the country.
2. Depreciation of the domestic currency.
3. Protection of domestic industries producing import-substitution commodities.

If a tariff is imposed by a country on imports, which of the above is/are potential consequences?

- (a) 3 only  
**(b) 1 and 3 only**  
 (c) 2 only  
 (d) 1, 2 and 3

**EXPLANATION:**

A tariff refers to the tax imposed by the government on imported goods from other countries. Tariff is imposed majorly to protect the domestic producers, but the government also imposes tariffs to reduce imports from other countries, thereby promoting the use of domestic products. The following are the potential consequences if a tariff is imposed by a country on imports.

**Increase in the price of imported commodities:**

- Tariffs are a tax placed by the government on imports.

- They raise the price for consumers, lead to a decline in imports, and can lead to retaliation by other countries. **So, Statement 1 is correct.**

**Appreciation of the domestic currency:**

- A decline in demand for foreign goods induced by import tariffs lowers the demand for foreign currency and leads to an appreciation of the domestic currency.
- The direct effect of an import tariff is to appreciate the domestic currency, generating a valuation effect on the country's external net asset position. **So, Statement 2 is not correct.**

**Protection of domestic import-substitution industries:**

- Tariffs are an important barrier to free trade; they are often imposed to protect the domestic industry from cheap imports.
- However, it often leads to retaliation with other countries placing tariffs on their exports.
- As imported goods become more expensive, domestic producers face less competition.
- This helps industries that produce substitutes for imports. **So, Statement 3 is correct.**

8. Which of the following statements is correct regarding Non-intrusive Usage of Data to Guide and Enable (NUDGE), which was recently seen in the news?
- (a) It is an initiative of the RBI to monitor asset performance in the banking system.
  - (b) It is an initiative of the Ministry of Corporate Affairs to track the profitability of companies in India and to ensure that companies on the verge of bankruptcy are provided adequate guidance.
  - (c) It is an initiative of the Ministry of Women and Child Development aimed at strengthening interventions for women's safety, security and empowerment.
  - (d) It is an initiative of the Income Tax department involving data-driven behavioural interventions to transform tax collection efficiency.**

**EXPLANATION:**

The **Income Tax Department's NUDGE** (Non-Intrusive Usage of Data to Guide and Enable) initiative, focuses on compliance and correcting the filing of the ITRs and related Schedules.

- It provides resources to guide and enable the taxpayers to accurately file their ITRs as mandated under the Income Tax Act.
- Recently, India's tax administration has quietly undergone a structural shift from a system dominated by audits and penalties to one that relies on behavioural insights, data analytics and voluntary compliance.
- The Economic Survey 2025-26 points to the growing use of "nudges" by the Income Tax Department as a key factor behind improved tax collection efficiency, reduced litigation and higher taxpayer participation.

**Economic Survey 2026: The NUDGE Framework**

- The NUDGE framework uses large-scale data analytics to identify potential non-compliance and prompt corrective action before formal enforcement begins.
- It focuses on influencing taxpayer behaviour through timely information, gentle prompts, and data-driven insights rather than coercive enforcement.
- The emphasis is on prevention rather than punishment, enabling taxpayers to voluntarily correct or update their filings.

Thus, Nudge is an initiative of the Income Tax Department involving data-driven behavioural interventions to transform tax collection efficiency. **So, Option (d) is correct.**

9. Which of the following elements has the highest composition by weight of the Earth's Crust?
- (a) Silicon
  - (b) Oxygen**
  - (c) Aluminium
  - (d) Magnesium

**EXPLANATION:**

**The Earth's crust** makes up **1% of the planet's volume**. Many elements make up the crust, with some being more abundant than others.

- The crust is a rigid surface containing both the oceans and landmasses.
- Most elements are found in only trace amounts within the Earth's crust, but several are abundant.
- The Earth's crust comprises about **95% igneous and metamorphic rocks**, 4% shale, 0.75% sandstone, and 0.25% limestone.
- **Oxygen, silicon, aluminium, and iron account for 88.1%** of the mass of the Earth's crust, while another 90 elements make up the remaining 11.9%.
  - **Silicon** is the second most prominent element found in the Earth's crust. **It makes up some 28% of the mass of the crust**, and can be found in a wide variety of minerals and elemental compounds, usually in conjunction with oxygen. Thus, Silicon is the second most abundant element found in earth crust. **So, Option (a) is not correct.**
  - **Oxygen** is by far **the most abundant element in the Earth's crust, making up 46% of mass**. Oxygen is a highly reactive element that combines with other elements, forming oxides. Examples of common oxides are minerals such as granite and quartz (oxides of silicon), rust (oxides of iron), and limestone (oxide of calcium and carbon). **So, Option (b) is correct.**
  - **Aluminium**, third on the list of most abundant elements, **comprises roughly 8% of the mass of the Earth's crust**, and is the most abundant metal in the crust. Though it is the most commonly found metal, it is always found in compound form, never in its raw state. Aluminium is most frequently found in the Earth's crust as aluminosilicate minerals, which include feldspars (the most abundant), micas and various clays. **So, Option (c) is not correct.**
  - **Magnesium** is the 7th most common element in the Earth's crust, with a **mass of about 2% of the Earth's crust**. The metal does not occur as a free element but in combination with other elements like oxygen, calcium, and carbon. Dolomite is an example of a mineral containing magnesium. **So, Option (d) is not correct.**

10. Match List-I with List-II and select the correct answer using the codes given below the lists:

	<b>List-I (Lake)</b>		<b>List-II (States)</b>
A.	Loktak Lake	1.	Manipur
B.	Sargol Lake	2.	Rajasthan
C.	Sasthamkotta Lake	3.	Kerala
D.	Wular Lake	4.	Jammu and Kashmir

**Codes:**

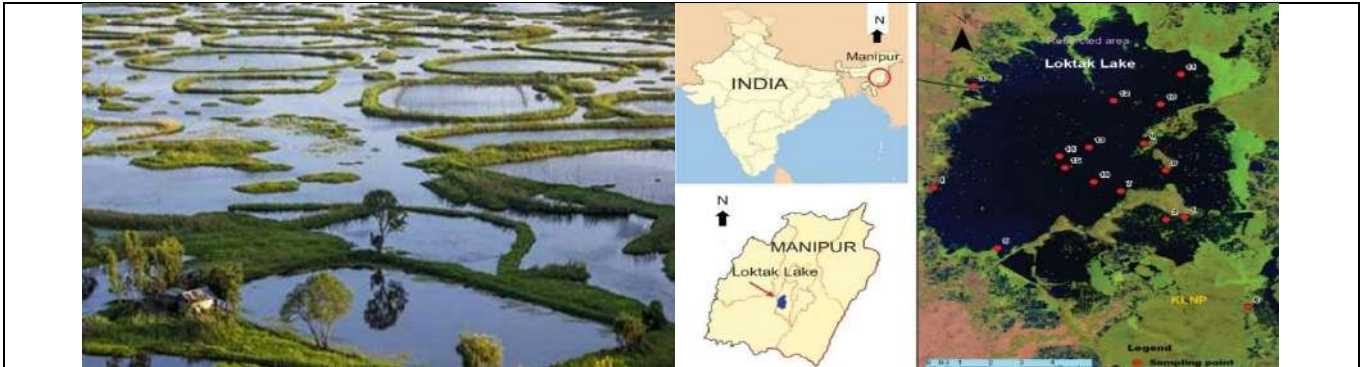
- (a) A-1, B-2, C-3, D-4
- (b) A-1, B-3, C-2, D-4
- (c) A-2, B-1, C-3, D-4
- (d) A-4, B-2, C-3, D-1

**EXPLANATION:**

**Loktak Lake** is situated 38 km south of Imphal (the capital of Manipur) in the Bishnupur **district of Manipur**. It acts as a **natural reservoir** for the rivers and streams of the valley and hills in the state.

**A-1.**

- Loktak is the **largest freshwater inland natural reservoir in the eastern region of the country** and has been identified as a major Indian wetland by the International Union for Conservation of Nature (IUCN).
- The rich wildlife/biodiversity of this lake earned it the status of a **Ramsar site** of international importance in 1990.
- Loktak Lake also finds a mention in the **Montreaux Record**, which is a record of Ramsar sites.



**Sargol Lake** is a saline lake located in the Nagaur district of **Rajasthan, India**.

- It is a part of the **arid inland drainage system of western India**, where rivers do not reach the sea and water accumulates in depressions, often becoming saline due to evaporation.
- Didwana, Kuchaman, Sargol, and Khatu are well-known names of saline lakes located in the state of Rajasthan, India. **B-2.**

**Sasthamkotta Lake**, known as the "**Queen of Lakes**", is the **largest freshwater lake in Kerala**, located in the Kollam district. **C-3.**

- The lake is named after the ancient Sastha temple (a pilgrimage centre) located on its bank.
- It is surrounded by hills on all sides except the south.
- The present area of the lake is **375 ha**, since a large part of the lake is occupied by agriculture. The lake is used for fishing. The source of water is from the underground sprouts.
- The lake has a capacity to hold 22390 million litres of water.
- The purity of the lake water for drinking use is attributed to the presence of a large population of larvae called *cavaborus* that consumes bacteria in the lake water.
- The lake is a designated **wetland of international importance under the Ramsar Convention** since November 2002.

**Wular Lake is the second largest fresh-water lake of Asia**, situated on the foothills of Haramuk Mountain in **Jammu and Kashmir**.

- It is spread in a total area of 200 square km, covering almost 24 km in length, while its breadth is 10 km. The lake lies between the **towns of Sopur and Bandipore**. **D-4.**
- The main source of water for Wular Lake is the **River Jhelum**. This lake also has a small island in its centre called the 'Zaina Lank'. Wular Lake is also said to be a remnant of Satisar Lake that existed in ancient times. The premises of this lake also form a popular sunset point.
- Therefore, the correct option is **(a) A-1, B-2, C-3, D-4.**

11. Consider the following statements:

1. Asteroids are smaller than a planet, but they are larger than meteoroids.
2. Meteoroids can be formed from Asteroids and Comets.
3. On entering the Earth's atmosphere, Meteorites vaporise and turn into a meteor.
4. Comets orbit the Sun and are made of rock and ice.

How many of the above given statements is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three**
- (d) All four

**EXPLANATION:**

An asteroid is a small rocky object that orbits the Sun. Asteroids are smaller than a planet, but they are larger than the pebble-size objects we call meteoroids. Most asteroids in our solar system are found in the main asteroid belt, a region between Mars and Jupiter. But they can also hang out in other

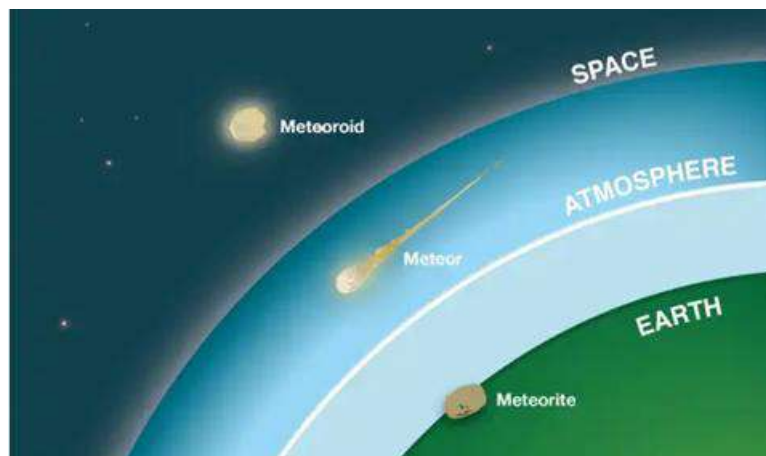
locations around the solar system. For example, some asteroids orbit the Sun in a path that takes them near Earth. **So, Statement 1 is correct.**



**Meteoroids** are space rocks that range in size from dust grains to small asteroids. This term only applies when these rocks while they are still in space.

- Most meteoroids are pieces of other, larger bodies that have been broken or blasted off. Some come from comets, others from asteroids, and some even come from the Moon and other planets. Some meteoroids are rocky, while others are metallic, or combinations of rock and metal.
- **Meteoroids often come from asteroids or comets.** Sometimes, when these celestial bodies collide or break apart, they release meteoroids into space. These tiny travellers zip around the solar system at incredible speeds, following their own paths through the darkness of space. **So, Statement 2 is correct.**

- If a **meteoroid (not Meteorites)** comes close enough to **Earth and enters Earth's atmosphere, it vaporises and turns into a meteor:** a streak of light in the sky. Because of their appearance, these streaks of light are sometimes called "shooting stars". But meteors are not actually stars.
- When a meteor survives a trip through the atmosphere and hits the ground, it's called a **meteorite**. **So, Statement 3 is not correct.**



**Comets** are **icy balls of gas**, dust and rock that **orbit the sun**. When frozen, they are the size of a small town. When a comet's orbit brings it close to the Sun, it heats up and spews dust and gases into a giant glowing head larger than most planets.

The dust and gases form a tail that stretches away from the Sun for millions of miles. There are likely billions of comets orbiting our Sun in the Kuiper Belt and even more distant Oort Cloud. **So, Statement 4 is correct.**



12. Consider the following countries:

- I. Chad
- II. Mali
- III. Nigeria
- IV. Sudan

The River Niger flows through which of the above countries?

- (a) I and II only
- (b) II and III only**
- (c) III and IV only
- (d) I, II and IV only

**EXPLANATION:**

The Niger River is the principal river of western Africa, running for 4,200 km. It is **Africa's third-longest river**, after the Nile and the Congo.

- The Niger River **rises in Guinea and flows through the countries of Guinea, Mali, Niger, Benin, and Nigeria**. Thus, the River Niger does not flow through Chad and Sudan. **So, Option (b) is correct.**
- The basin extends across approximately 2.2 million km<sup>2</sup>, shared by multiple countries: Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, and Nigeria.
- The river passes through varied terrain, such as the **Fouta Djallon highlands**, an internal delta region, and a narrow gorge. The Niger River is a source of irrigation and hydroelectricity for the region.
- **Mali**, occupying much of the Upper Niger Basin, is highly dependent on the river for agriculture, fisheries, and hydropower.
- The Niger drainage system is bounded in the south by such highlands as the Fouta Djallon, the Banfora Cliffs in Burkina Faso, the Plateau of Yorubaland, and the Cameroon highlands. This southern rampart forms a watershed separating the rivers of the Niger system from others that flow directly southward to the Atlantic Ocean.
- The Niger valley is sparsely settled, although there are population concentrations in the lake region and near the confluence of the Niger and Benue.
- Fishing is an important activity along the length of the river system, especially during the dry season when the deep-sea and coastal fish catch is smallest.
- At Mopti in Mali, the Niger River is joined by the **Bani**, its largest tributary on the right, after which it enters a region of lakes, creeks, and backwaters that is often called the “internal delta” of the

Niger. These lakes are chiefly on the left bank and are connected to the river by channels that undergo seasonal changes in the direction of flow. At high water, most of the lakes become part of a general inundation. The largest of the lakes in this region is **Lake Faguibine**, which is nearly 120 km long, 25 km wide, and more than 50 metres deep in places.

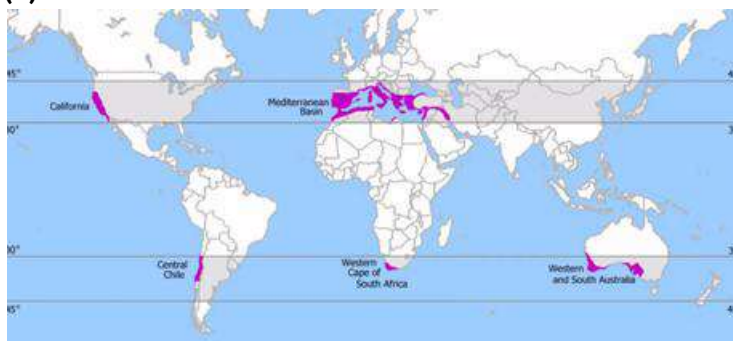


13. Which one of the following climates occurs in the Southeastern USA, Southern and Eastern China, Southern Japan, northeastern Argentina, Coastal South Africa and the eastern Coast of Australia?
- Mediterranean Climate
  - Marine West Coast Climate
  - Humid Subtropical Climate**
  - Cold climate with Humid Winters

**EXPLANATION:**

The **Mediterranean climate** is characterised by Warm and dry summers due to sub-tropical high-pressure conditions, and Wet and mild winters.

Prevails within 25° and 45° latitudes on the west coasts in both hemispheres—over central California, central Chile, the Mediterranean region, southern South Africa, southeastern and southwestern Australia. **So, Option (a) is not correct.**



The **marine west coast climate** is located poleward of the Mediterranean climate on the west coast of the continents.

- This climate is found in: Northwestern Europe, the west coast of North America, north of California, southern Chile, southeastern Australia and New Zealand.
- Due to marine influence, the temperature is moderate, and in winter, it is warmer than for its latitude.
- The mean temperature in summer months ranges from 15°-20°C and in winter 4°-10°C. The annual and daily ranges of temperature are small.

- Precipitation occurs throughout the year. Precipitation varies greatly from 50 to 250cm. **So, Option (b) is not correct.**



**Humid subtropical or China type** climate is characterised by a hot and humid summer and mild winter with an average annual temperature of 20°C and well-distributed rainfall throughout the year (100 cm).

- Hurricanes and typhoons are common.
- Prevails within 25° to 45° latitude on the east coast in both hemispheres. This climate is found in the southeast USA, southern Brazil, Uruguay, Argentina, and south-eastern Africa, the eastern coastal belt of Australia, southern and eastern China and southern Japan. **So, Option (c) is correct.**



**Cold climate with humid winter** occurs poleward of the marine west coast climate and mid latitude steppe. The winters are cold and snowy. The frost-free season is short. The annual range of temperature is large. The weather changes are abrupt and short. Poleward, the winters are more severe. **So, Option (d) is not correct.**

14. Consider the following statements regarding energy generation in India:

**Statement I:**

In India, the installed renewable energy capacity is more than the generation.

**Statement II:**

Renewable energy is intermittent due to weather and climate.

Which one of the following is correct with respect to the above statements?

- (a) **Both Statement I and Statement II are correct, and Statement II is the correct explanation for Statement I**
- (b) Both Statement I and Statement II are correct, and Statement II is not the correct explanation for Statement I
- (c) Statement I is correct, and Statement II is incorrect
- (d) Statement I is incorrect, and Statement II is correct

**EXPLANATION:**

India has achieved an important milestone of sourcing **50% of its total electric power capacity of about 484 gigawatts from non-fossil-fuel sources**, though publicly available data show that the share of clean energy in the electricity actually supplied is below 30%.

- India has achieved a landmark in its energy transition journey by reaching 50% of its installed electricity capacity from non-fossil fuel sources — five years ahead of the target set under its Nationally Determined Contributions [NDCs] to the Paris Agreement.
- In 2014, the share of renewable energy sources – solar, wind, biomass, hydropower (small and large) and nuclear power – constituted about 30% of India’s installed electricity capacity. As of June 30, 2025, as per the Centre, it rose to 50%. However, the share of electricity generated from these sources rose from **17% in 2014-15 to 28% in the April 2024 to May 2025 period**.
- Despite the rise in clean energy capacity, the slower increase in utilising clean energy was due to the **“capacity utilisation factor” (CUF)**, a measure of how much available energy was usable. CUF values for clean energy have been lower than those of coal or nuclear sources.
- While solar and wind now make up a large share of installed capacity, their CUFs are much lower. Solar has a CUF of approximately 20% and wind around 25-30%, compared to coal’s 60% or nuclear’s 80%. This means their contribution to actual generation remains limited despite high installed capacity.
- The primary reason for this lower CUF is the **intermittent nature of renewable energy**. Unlike a gas or coal plant, which can be turned up or down to match consumption, a solar farm can only produce electricity when the sun is out, and a wind turbine only when the air is moving. Solar panels generate nothing at night and much less on cloudy days or in winter. Wind turbines can go from full power to zero within hours if the weather changes. This weather-dependence is the basis of intermittency: renewable output fluctuates daily and seasonally in ways that do not always align with society’s round-the-clock power needs.

Therefore, in India, the share of installed renewable energy capacity is higher than its share in actual electricity generation. This gap arises because renewable energy sources are intermittent in nature, as they depend on weather and climatic conditions, leading to a lower Capacity Utilisation Factor (CUF).

**Both Statement I and Statement II are correct, and Statement II is the correct explanation for Statement I**

15. Salar de Uyuni is situated in the:

- (a) East of Chile
- (b) West of Uruguay
- (c) North of Peru
- (d) South of Paraguay

**EXPLANATION:**

Salar de Uyuni is the world’s largest salt flat, spanning 4086 square miles (10,582 sq. km) in southwestern Bolivia. Unlike traditional deserts, which have sand in abundance, the Salar de Uyuni features vast expanses of glistening white salt.

- The landscape is entirely flat, bar a few small ‘islands’ such as Isla Incahuasi, which only accentuates its surreal beauty.
- Underneath the cemented salt are **large reservoirs of lithium-rich brine**.
- In fact, approximately **70% of the world’s lithium reserves** are found in Salar de Uyuni.
- The Salar de Uyuni is situated in southwestern Bolivia, directly to the east of the border with Chile.  
**So, Option (a) is correct.**



16. Consider the following events during the Indian Freedom Struggle:

1. Kukis' Revolt
2. Zeliangrong Movement
3. Ahom Revolt
4. Heraka Movement

Select the correct chronological order of the above-given events:

- (a) 4-2-1-3
- (b) 4-1-2-3
- (c) 3-2-1-4
- (d) **3-1-2-4**

**EXPLANATION:**

- **Ahom Revolt (1828):** The British had pledged to withdraw from Assam after the First Burma War (1824-26). But, after the war, instead of withdrawing, the British attempted to incorporate the Ahoms' territories in the Company's dominion. This sparked off a rebellion in 1828 under the leadership of Gomdhar Konwar, an Ahom prince, along with compatriots, such as Dhanjoy Bongohain and Jairam Khargharia Phukan. Assembling near Jorhat, the rebels formally made Gomdhar Konwar the king. Finally, the Company decided to follow a conciliatory policy and handed over Upper Assam to Maharaja Purandar Singh Narendra, and part of the kingdom was restored to the Assamese king. **(3)**
- The **Anglo-Kuki War (Kuki Revolt, 1917-19)** was a tribal uprising in Manipur during **World War I**. The British ordered the Kukis to provide labourers for the war without proper consultation. The Kukis refused, opposing forced recruitment and colonial authority. From 1917 to 1919, Kuki groups fought British forces in the hills, and the British suppressed the revolt. It was an important anti-colonial tribal resistance in Northeast India. **(1)**
- **Zeliangrong Movement (1920s; Manipur)** was led by the Zemi, Liangmei and Rongmei tribes, against the failure of the British to protect them during the Kuki violence in 1917-19. **(2)**
- The **Heraka Movement** in Manipur during the 1930s was a socio-religious and political movement led by **Rani Gaidinliu**. In 1927, at the age of 13, she joined the movement along with her cousin **Haipou Jadonang**. The movement aimed at the **revival of the traditional Naga religion (Heraka)** and the establishment of **self-rule (Naga Raj)** by ending British colonial authority. Initially guided by Jadonang's leadership, it later transformed into a more organised resistance under Gaidinliu. **(4)**

Therefore, the correct sequence (from earliest to latest) is: Ahom Revolt (1828), Kukis' Revolt (1917-1919), Zeliangrong Movement (1920s), Heraka Movement (1930s)-**(3-1-2-4)**. So, **Option (d) is correct.**

17. With reference to the August Declaration of 1917, consider the following statements:

1. Indians resented that the decision regarding responsible government was to be taken by the Britishers alone, without any time frame.
2. Gandhi described the scheme as a post-dated cheque.
3. Attainment of self-government for Indians now became a government policy.

Which of the above given statements is/are correct?

- (a) 1 only  
 (b) 2 and 3 only  
**(c) 1 and 3 only**  
 (d) 1, 2 and 3

**EXPLANATION:**

The Secretary of State for India, Edwin Samuel Montagu, made a statement on August 20, 1917, in the British House of Commons in what has come to be known as the August Declaration of 1917.

- According to the declaration, increasing association of Indians in every branch of administration, and the gradual development of self-governing institutions, with a view to the progressive realisation of responsible government in India, is an integral part of the British Empire. Therefore, attainment of self-government for Indians became a government policy. **So, Statement 3 is correct.**
- Indian Objections to Montagu's statement were two-fold:
  - First, no specific time frame was given.
  - Second, the government alone was to decide the nature and the timing of advance towards a responsible government, and the Indians were resentful that the British would decide what was good and what was bad for the Indians. **So, Statement 1 is correct.**

Mahatma Gandhi described the Cripps Mission (1942) (not the August Declaration of 1917) as **"A post-dated cheque on a crashing bank"**. **So, Statement 2 is not correct.**

- The **Cripps Mission** was a 1942 attempt by the British government, led by Sir Stafford Cripps, to gain Indian support for the defence of the country against Japanese invasion during World War II.
- The mission aimed to offer India dominion status after the war in exchange for cooperation.
- The negotiations took place in Delhi between the Indian National Congress and the Muslim League. However, the mission ultimately failed as the Indian National Congress leaders rejected the proposal.

18. With reference to Sufism, consider the following rows:

Sl.No	Term	Description
1.	Tasawwuf	Followers of Sufism
2.	Ziyarat	Pilgrimage to the tombs of Sufi saints
3.	Sama	Performance of mystical music

How many of the above given rows is/are correctly matched?

- (a) Only one  
**(b) Only two**  
 (c) All three  
 (d) None

**EXPLANATION:**

**Sufism** is an English term popularised in the nineteenth century. In Islamic texts, **Sufism** is commonly known as **Tasawwuf**.

- Sufism is the mystical dimension of Islam, emphasising self-realisation, spiritual discipline, tolerance, righteousness, and universal love.

- The word is often linked to the Arabic word suf (wool), referring to the rough woollen garments worn by early ascetics.
- It is also sometimes traced to safa, meaning purity.
- There are several terms for a spiritual teacher or guide, such as pir or sheikh, whose role was to transmit teachings to the disciple, known as the murid. Therefore, Followers of Sufism are known as **Sufis/Murids**. **So, Pair (1) is not correct.**

When the **shaikh (teacher)** died, his tomb-shrine (dargah, a Persian term meaning court) became the centre of devotion for his followers.

- This encouraged the **practice of pilgrimage or ziyarat to his grave**, particularly on his death anniversary, known as urs (Literally “marriage”, symbolising the union of the saint’s soul with God). **So, Pair (2) is correct.**
- Devotees believed that after death, saints were spiritually united with God and therefore closer to Him than in life. As a result, people visited these shrines to seek blessings for both material and spiritual well-being. Over time, this gave rise to the veneration of the shaikh as a **Wali**, forming an important aspect of Sufi devotional practices.

The essential features associated with Sufism include:

- Sama: Spiritual dance and music to promote their concepts. **So, Pair (3) is correct.**
- Fana: Spiritual merger of devotee with Allah.
- Insan-e-kamil: Perfect human with all good virtues,
- Zikr-tauba: Remembrance of god all the time(zikr),
- Wahadat-ul-wajood: One god for entire universe; unity of god and being.

19. Which of the following texts provides insights into the cultural and social life of the Satavahana period?

- (a) Mahabhasya
- (b) Kumara Sambava
- (c) Gatha Saptasati**
- (d) Tolkappiyam

**EXPLANATION:**

**The Mahabhashya** is an important work by Patanjali. It explains and expands the **rules of Sanskrit grammar given by Panini** in the Ashtadhyayi.

- Beyond grammar, the text engages with broader intellectual traditions, offering insights relevant to fields such as philosophy, logic, and literary theory. It has been referenced across diverse disciplines, including Vaishnavism, Yoga, Ayurveda, Vyakarana (grammar), and Kavyashastra (poetics), underscoring its wide-ranging influence.
- Because of its clarity and depth, the *Mahabhashya* is considered a key text for understanding Sanskrit and ancient Indian knowledge.

Thus, Maha Bhasya is a grammatical text, not particularly related to the cultural and social life of the Satavahana period. **So, Option (a) is not correct.**

**Kumara Sambhavam** is one of the gems of Sanskrit literature written by the great poet Kalidasa.

- The poems talk about the courtship of Lord Shiva and Parvathi and the love and romance between them.
- Smt. D.Pattammal has done the Tamil adaptation of this great work of poet Kalidasa.

Thus, it is a classical Sanskrit poem about Shiva and Parvati. **So, Option (b) is not correct.**

**Gatha Saptashati** is a famous Prakrit literary work traditionally attributed to Hala, a Satavahana king who ruled in the Deccan region around 20–24 CE.

- It is a collection of 700 poems (gathas) set largely in a rural background.
- The work was composed in a form of Prakrit language, especially associated with Maharashtri Prakrit.

- It is regarded as one of the most sensuous and expressive literary works, with emphasis on descriptions of nature, human emotions, and everyday life.
- A remarkable feature of the text is that many verses are written from the perspective of women.
- The Gatha Saptashati provides valuable insights into the cultural life and social conditions of the Satavahana period. **So, Option (c) is correct.**

**Tolkappiyam** is the most ancient extant Tamil grammar text and the oldest extant long work of Tamil literature. Some traditions place it in the mythical Second Sangam, variously in the 1st millennium BCE or earlier.

- Tolkappiyam is a unique work on grammar and poetics. It is divided into three parts, each containing nine sections, dealing with Ezhuttu (letters), Col (words), and Porul (subject matter).
- It covers various aspects of language, from the spoken form to poetic expression, including phonology, morphology, syntax, rhetoric, prosody, and poetics.
- Thus, Tolkappiyam deals with Tamil grammar and poetics. **So, Option (d) is not correct.**

20. Which of the following is the main reason for the cultivation of indigo plantations in India by the end of the 18th century?

- (a) European cloth manufacturers boycotted woad, which was used to make violet and blue dyes.
- (b) The demand for synthetic dyes declined due to their poor quality.
- (c) Rising global demand for indigo, along with a decline in its production in other parts of the world.**
- (d) Only India had the suitable climate to grow indigo.

**EXPLANATION:**

The indigo plant grows primarily in the tropics. By the thirteenth century, Indian indigo was being used by cloth manufacturers in Italy, France and Britain to dye cloth.

**Limited Supply of Indian Indigo:**

- However, only small amounts of Indian indigo reached the European market and its price was very high.
- European cloth manufacturers therefore had to depend on another plant called woad to make violet and blue dyes.

**Preference for Indigo Dye:**

- Indigo produced a rich blue colour, whereas the dye from woad was pale and dull. Therefore, the Cloth dyers, preferred indigo as a dye.
- By the seventeenth century, European cloth producers persuaded their governments to relax the ban on indigo imports.

**Indigo Cultivation in European Colonies:**

- The French began cultivating indigo in St Domingue in the Caribbean islands, the Portuguese in Brazil, the English in Jamaica, and the Spanish in Venezuela. Indigo plantations also came up in many parts of North America.
- A large farm operated by a planter employing various forms of forced labour.

**Rising Demand in Britain and Decline in Existing Supplies:**

- By the end of the eighteenth century, the demand for Indian indigo grew further.
- Britain began to industrialise, and its cotton production expanded dramatically, creating an enormous new demand for cloth dyes.
- While the demand for indigo increased, its existing supplies from the West Indies and America collapsed for a variety of reasons.
- Between 1783 and 1789, the production of indigo in the world fell by half. **So, Option (c) is correct.**

**Expansion in India:**

- Faced with the rising demand for indigo in Europe, the Company in India looked for ways to expand the area under indigo cultivation.

- From the last decades of the eighteenth century, indigo cultivation in Bengal expanded rapidly and Bengal indigo came to dominate the world market.
- In 1788, only about 30 per cent of the indigo imported into Britain was from India. By 1810, the proportion had gone up to 95 per cent.

21. With reference to the Congress Socialist Party, consider the following:

1. It was formed in 1934 by Acharya Narendra Dev and Jayaprakash Narayan.
2. It had its own Constitution, membership and ideology.
3. It separated from the Congress Party immediately after its formation.

Which of the statements given above is/are correct?

**(a) 1 and 2 only**

(b) 1 and 3 only

(c) 3 only

(d) 1, 2 and 3

**EXPLANATION:**

The Socialist Party was formed in 1934 as the Congress Socialist Party (SP) by **Acharya Narendra Dev** and **Jayaprakash Narayan**, with its own constitution, membership, discipline and ideology. **So, Statements 1 and 2 are correct.**

- It **remained within the Congress Party till March 1948.**
- Their disassociation as a protest against the Congress's move towards the right and its growing authoritarian tendencies was announced at a meeting in Nashik on March 28, 1948. **So, Statement 3 is not correct.**
- In September 1952, the Socialist Party merged with the Kisan Mazdoor Praja Party (KMPP) to form the Praja Socialist Party (PSP), with J. B. Kripalani as chairman and Ashoka Mehta as general secretary.
- With this merger, it became the largest opposition party to the Congress with an all-India presence.

22. Which of the following correctly denotes the meaning of Votive Stupa?

(a) Mark significant events in Buddha's life.

(b) Contain objects used by Buddha or his disciples.

(c) Built to bury bodily relics of Buddha or enlightened monks.

**(d) Erected by pilgrims and devotees to earn spiritual merit, fulfil vows, or commemorate visits to sacred sites.**

**EXPLANATION:**

A stupa, literally meaning heap, is a mound-like structure designed to encase Buddhist relics and other holy objects. Stupas are the oldest Buddhist religious monuments.

- **Votive stupas** are small, often miniature, Buddhist structures erected by pilgrims, monks, and devotees to earn spiritual merit, fulfil vows, or commemorate visits to sacred sites.
- Popularized from the 7th century CE in India, these miniature terracotta or stone structures are frequently placed around larger, main stupas, serving as an act of devotion and a repository for sacred items. **So, Option (d) is correct.**



**There are five types of stupas:**

- **Relic stupas**, in which the relics of Buddha and other religious persons are buried.
- **Object stupas**, in which the objects belonging to Buddha or his disciples are buried.
- **Commemorative stupas**, built to commemorate events in the life of Buddha and his disciples.
- **Symbolic stupas**, built to symbolize various aspects of Buddhist theology.
- **Votive stupas**, constructed to commemorate visits or gain spiritual benefits.

23. With reference to the Bagurumba dance, consider the following statements:

1. It is performed exclusively by male members of the Bodo community.
2. It is performed in formations such as circles or lines.
3. It has been recently inscribed in UNESCO's Representative List of the Intangible Cultural Heritage of Humanity along with Deepavali.

How many of the above given statements is/are correct?

- (a) Only one  
(b) Only two  
(c) All three  
(d) None

**EXPLANATION:**

Recently, the Prime Minister addressed the **Bagurumba Dwhou 2026**, a historic cultural event celebrating the rich heritage of the Bodo community at Sarusajai Stadium, Guwahati.

- Bagurumba is one of the folk dances of the Bodo community, deeply inspired by nature.
- The dance symbolises blooming flowers and reflects harmony between human life and the natural world.
- Traditionally **performed by young Bodo women, with men accompanying as musicians**, the dance features gentle, flowing movements that imitate butterflies, birds, leaves and flowers. **So, Statement 1 is not correct.**
- Performances are usually organised in groups, forming circles or lines that enhance their visual elegance. **So, Statement 2 is correct.**
- The Bagurumba dance holds deep cultural significance for the Bodo people.
- It represents peace, fertility, joy and collective harmony, and is closely associated with festivals such as Bwisagu, the Bodo New Year, and Domasi.



**Deepavali**, the "festival of lights," was officially inscribed on **UNESCO's Representative List of the Intangible Cultural Heritage of Humanity on December 10, 2025.**

Other UNESCO Intangible Cultural Heritage elements from India include:

- Garba of Gujarat (2023),
- Durga Puja in Kolkata (2021),
- Kumbh Mela (2017), Yoga (2016),
- Traditional brass and copper craft of utensil making (Thatheras of Punjab) (2014), Sankirtana (Manipur) (2013),
- Buddhist chanting of Ladakh (2012),
- Chhau dance (2010),
- Kalbelia folk songs and dances (Rajasthan) (2010),
- Mudi yettu (Kerala) (2010),
- Ramman (Garhwal Himalayas) (2009),
- Kuttiyattam (Sanskrit theatre) (2008),
- Tradition of Vedic chanting (2008),
- Ramlila (Traditional performance of the Ramayana) (2008).

Thus, the Bagurumba dance is not part of UNESCO's Representative List of the Intangible Cultural Heritage of Humanity. **So, Statement 3 is not correct.**

24. With reference to the comparative efficiency of solar photovoltaics and liquid biofuels, consider the following statements:

1. The photosynthetic efficiency of plants in converting sunlight into usable biomass is typically less than 1%, whereas commercial silicon solar panels operate at an efficiency of 15% to 20%.
2. In terms of land-use efficiency, installing solar panels on a specific area can generate approximately 20 times more energy annually than producing liquid biofuels from crops grown on the same land.
3. In the Indian context, to match the transport distance powered by one hectare of solar energy, ethanol derived from approximately 251 hectares of sugarcane would be required.

Which of the above given statements is/are correct?

- (a) 1 and 3 only
- (b) 3 only
- (c) 2 only
- (d) **1, 2 and 3**

**EXPLANATION:**

The photosynthetic efficiency of plants: **Plants convert less than 1% of sunlight into biomass through photosynthesis.** Even more energy is then lost when we turn those plants into liquid fuels. Crops such as sugarcane tend to perform better than others, like maize or soybeans, but even they are still inefficient.

- By comparison, **solar panels convert 15% to 20% of sunlight into electricity**, with some recent designs achieving as much as 25%. That means replacing crops with solar panels will generate a lot more energy. **So, Statement 1 is correct.**
- In terms of land use efficiency, a study has found that **solar panels on a particular area of land could produce roughly 23 times more energy than liquid biofuels produced from crops grown on the same land.**

Thus, in terms of land-use efficiency, installing solar panels on a specific area can generate approximately 20+ times more energy annually than producing liquid biofuels from crops grown on the same land. **So, Statement 2 is correct.**

India's 2025 target for 20% ethanol blending in petrol requires large increases in ethanol from sugar and grains. The report by the Institute for Energy Economics and Financial Analysis (IEEFA) shows that generating solar energy to recharge electric vehicle (EV) batteries would be a far more efficient use of land than growing crops for ethanol.

The report shows that matching **the distance driven by EVs recharged from one hectare of solar generation would require ethanol derived from up to 251 hectares of sugar cane or 187 hectares of maize** – even accounting for losses from electricity transmission, battery charging and grid storage. **So, Statement 3 is correct.**

25. "BharatGen", recently launched by the Ministry of Science and Technology, refers to:

- (a) A centralised database for storing the whole-genome sequencing data of 10,000 Indian citizens.
- (b) India's first sovereign multilingual and multimodal AI initiative for large language models.**
- (c) A blockchain-based platform for the transparent distribution of agricultural subsidies.
- (d) An indigenously developed 32-bit microprocessor specifically designed for space launch vehicles.

**EXPLANATION:**

Ministry of Science and Technology's **"BharatGen"** stands out as a **government-owned sovereign multilingual and multimodal Large Language Model (LLM) initiative**, tailored to India's socio-cultural context and linguistic diversity.

BharatGen integrates three major modalities- text, speech and document vision, so that it can understand, generate, and interpret information in the same way Indian citizens naturally communicate. **So, Option (b) is correct.**

Built to support over twenty-two Indian languages. Currently, BharatGen's AI models support 15 Indian languages, which include Hindi, Assamese, Bengali, Gujarati, Kannada, Maithili, Malayalam, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil and Telugu. By June 2026, all 22 scheduled Indian languages will be covered.

- BharatGen is supported under the **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) of the Department of Science and Technology.**
- The four key distinguishing features of BharatGen are:
  - Multilingual and multimodal nature of foundation models,
  - Bhartiya data set-based building and training,
  - Open-source platform, and
  - The development of an ecosystem of generative AI research in the country.
- The project is expected to be completed in two years, along with plans to benefit several government, private, educational, and research institutions.

- BharatGen will cater to both text and speech, ensuring coverage across India's diverse linguistic landscape. By training on multilingual datasets, it will deeply capture the nuances of Indian languages, which are often underrepresented in global AI models.
- Further, unlike models that rely on global datasets, BharatGen focuses on developing processes for collecting and curating India-centric data, ensuring that the country's diverse languages, dialects, and cultural contexts are accurately represented. This emphasis on data sovereignty strengthens India's control over its digital resources and narrative.
- BharatGen **aligns with the vision of Atmanirbhar Bharat** by creating foundational AI models specifically tailored for India.

26. Arrange the following chemical bonds in decreasing order of bond strength:

1. Covalent bond
2. Hydrogen bond
3. Ionic bond
4. Van der Waals forces

Select the correct answer using the codes given below:

- (a) 3 > 1 > 2 > 4  
 (b) 1 > 3 > 2 > 4  
 (c) 3 > 1 > 4 > 2  
 (d) 1 > 2 > 3 > 4

**EXPLANATION:**

A chemical bond may be defined as "a binding force between two atoms in a molecule". Broadly, the chemical bonds are classified into the following types:

- **Ionic bond** – Ionic bonds are strong bonds. The typical bond energy range is **400-4000 kJ/mol**.
- **Covalent bond** – The strength of a covalent bond is weaker than that of an ionic bond. The bond energy ranges from **150 to 1100 kJ/mol**.
- **Hydrogen bond** - Hydrogen bond strengths range from **4 kJ to 50 kJ per mole**.
- **Van der Waals forces** – It is a weak intermolecular force that is dependent on the distance between atoms or molecules. The strengths of Van der Waals forces typically range from **0.4 kJ.mol<sup>-1</sup> to 4 kJ.mol<sup>-1</sup>**.

Thus, chemical bonds in decreasing order of bond strength are Ionic bond > covalent bond > Hydrogen bond > Van der Waals forces. **3 > 1 > 2 > 4. So, Option (a) is correct.**

27. The 2025 Nobel Prize in Physiology or Medicine was awarded for discoveries concerning "Peripheral Immune Tolerance." In this context, consider the following statements:

1. The research identified the fundamental mechanisms that prevent the human immune system from attacking the body's own organs.
2. A key component of this discovery is the role of Regulatory T-cells (Tregs) in maintaining immunological balance.
3. Disruption of these mechanisms is a primary cause of autoimmune diseases such as Type 1 Diabetes and Multiple Sclerosis.
4. The findings have led to the development of "Inverse Vaccines" that aim to retrain the immune system to ignore specific healthy tissues.

How many of the above given statements is/are correct?

- (a) Only one  
 (b) Only two  
 (c) Only three  
 (d) **All four**

**EXPLANATION:**

The 2025 Nobel Prize in Physiology or Medicine was awarded to Mary E. Brunkow, Frederick J. Ramsdell, and Shimon Sakaguchi “for their discoveries concerning **peripheral immune tolerance**” that restrain self-reactive T cells escaping the thymus and thus prevent the immune system from harming the body. **So, Statement 1 is correct.**

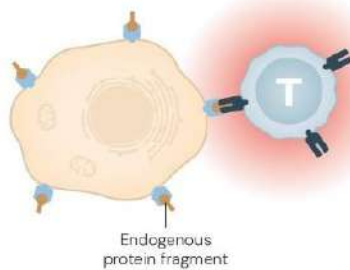
- **Peripheral immune tolerance** refers to the regulatory mechanisms operating outside the thymus that control self-reactive T cells which have escaped central tolerance. While the thymus eliminates most autoreactive T cells, some still enter circulation.
- **T cells (T lymphocytes)** are a type of white blood cell that play a central role in the immune system. They are part of the **adaptive immune system**, meaning they respond in a **specific and targeted way** to infections. They are produced in the bone marrow but mature in the thymus (that’s why they’re called “T” cells).

**Regulatory T cells (Tregs)**, discovered by Shimon Sakaguchi, are special immune cells that stop the immune system from overreacting. Regulatory T cells are the **“brakes” of the immune system.**

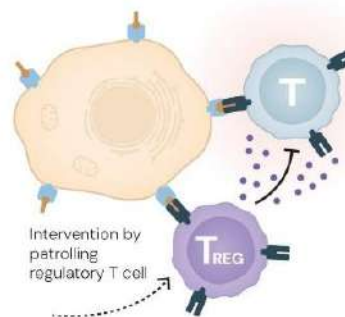
- They **prevent the body from attacking itself** (self-tolerance)
- They **calm down other immune cells** when the response is too strong
- They help avoid diseases where the body harms its own tissues (autoimmunity). **So, Statement 2 is correct.**

**How regulatory T cells protect us**

1 A T cell that has slipped through the test in the thymus reacts to a fragment from one of the body’s proteins.



2 Regulatory T cells discover that the attack is a mistake and calm it down. This prevents autoimmune diseases.



**Peripheral immune tolerance** acts as a **second line of control** (after the thymus) to keep self-reactive immune cells in check. A key role is played by **Regulatory T cells (Tregs)**, identified by Shimon Sakaguchi, which actively suppress harmful immune responses.

When these tolerance mechanisms **fail or are disrupted**, self-reactive T cells are no longer controlled and begin attacking the body’s own tissues. This leads to **autoimmune diseases**, such as:

- **Type 1 Diabetes** - immune system attacks insulin-producing cells in the pancreas.
- **Multiple Sclerosis** - immune system damages the central nervous system.
- Systemic Lupus Erythematosus - immune system attacks multiple organs. **So, Statement 3 is correct.**

The 2025 Nobel Prize in Physiology or Medicine, awarded for discoveries concerning peripheral immune tolerance, recognised foundational research on how the immune system prevents self-reactive T cells from attacking the body’s own tissues.

- This understanding has paved the way for innovative therapeutic strategies such as **“inverse vaccines.”** Unlike traditional vaccines that activate immunity, inverse vaccines are designed to induce antigen-specific immune tolerance by retraining the immune system to ignore particular self-antigens.

- These therapies build on peripheral tolerance mechanisms, including regulatory T-cell pathways and liver-mediated immune suppression, and hold promise for treating autoimmune diseases such as Multiple Sclerosis, Type 1 Diabetes, and Rheumatoid Arthritis with fewer systemic side effects.  
**So, Statement 4 is correct.**

28. With reference to the technical specifications of India's indigenous Small Modular Reactor (SMR) program, consider the following pairs:

Sl.No.	Component / Material	Technical Feature / Application
1.	BSMR-200	Utilises Pressurised Water Reactor (PWR) technology and Slightly Enriched Uranium (SEU) fuel.
2.	HTGCR	Designed to provide high-grade process heat for Green Hydrogen generation.
3.	ApuRVA	Indigenous low-alloy steel specifically developed for reactor pressure vessel (RPV) forgings.

How many of the above given pairs is/are correctly matched?

- (a) Only one  
(b) Only two  
(c) **All three**  
(d) None

**EXPLANATION:**

**The Bharat Small Modular Reactor (BSMR-200)** is an indigenous 200 MWe (sometimes noted as 220 MWe) reactor. BSMR is based on the proven pressurised water reactor technology.

- It will use Slightly Enriched Uranium (SEU) as a fuel.  
➤ It has been provided with passive safety features as well as several engineered safety systems to ensure nuclear safety during off normal conditions.  
➤ BSMR is being jointly designed and developed by Bhabha Atomic Research Centre (BARC) and Nuclear Power Corporation of India Limited (NPCIL). **So, Pair (1) is correct.**

**India's High Temperature Gas Cooled Reactor (HTGCR)**, particularly the 5 MWth HTGCR developed by the Bhabha Atomic Research Centre (BARC), is specifically intended to deliver high-grade industrial process heat to support clean hydrogen generation, serving as a key step in decarbonising core industrial sectors and reducing dependence on imported fossil fuels. **So, Pair (2) is correct.**

**ApuRVA (Advanced Purified Reactor Vessel Alloy)** is an indigenously developed, ultra-clean, low-alloy steel designed for large-sized reactor pressure vessel (RPV) forgings, marking a major achievement in India's nuclear self-reliance.

The material and technology for forgings for reactor pressure vessels of BSMR-200 and SMR-55 have been developed indigenously in collaboration with Indian industries. The control rod drive mechanism has also been developed in-house. **So, Pair (3) is correct.**

29. Which of the following Hydrogen is not produced using fossil fuels?

- (a) Blue Hydrogen  
(b) Turquoise Hydrogen  
(c) **Pink Hydrogen**  
(d) Grey Hydrogen

**EXPLANATION:**

**Blue hydrogen production involves making hydrogen (H<sub>2</sub>) from fossil fuel feedstocks** while using carbon capture and storage (CCS) to reduce CO<sub>2</sub> emissions from the production process. The captured CO<sub>2</sub> is concentrated, compressed, and permanently stored underground. Blue hydrogen is more expensive than grey hydrogen, the predominant hydrogen production method, but less expensive than zero-emissions green hydrogen. **So, Option (a) is not correct.**

**Turquoise hydrogen is produced from methane pyrolysis** along with solid carbon in a process that does not produce any carbon dioxide. This **process uses natural gas as feedstock**, which is abundantly available worldwide and **is a widely used fossil fuel**. Methane pyrolysis provides an effective pathway to decarbonise natural gas to produce clean hydrogen with no CO<sub>2</sub> footprint. **So, Option (b) is not correct.**

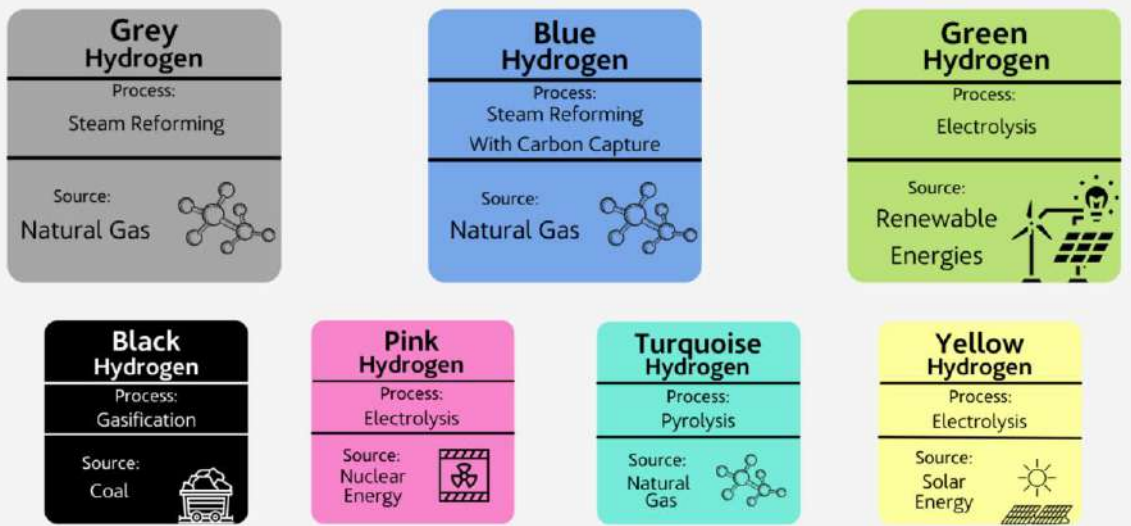
Pink hydrogen is a type of hydrogen generated through water electrolysis powered by nuclear energy, which is considered green (environmentally friendly) due to its lack of CO<sub>2</sub> emissions during production.

- Pink hydrogen is a **promising replacement for fossil fuels** in the cement industry, steel industry, aviation, and heavy transportation, as it can be used as a feedstock and energy source with no greenhouse gas emissions.
- As the world races to meet ambitious carbon reduction targets, a promising solution is emerging - Pink hydrogen produced using nuclear power.

Thus, Pink hydrogen is not produced using fossil fuels; it is generated via electrolysis powered by nuclear energy. **So, Option (c) is correct.**

Grey hydrogen is **produced from fossil fuels** and commonly uses the steam methane reforming (SMR) method. During this process, CO<sub>2</sub> is produced and eventually released to the atmosphere.

While grey hydrogen is affordable and widely available, its production process results in significant carbon dioxide (CO<sub>2</sub>) emissions, making it a contributor to climate change. **So, Option (d) is not correct.**



30. How many of the following are biopesticide gene(s) used in genetically modified crops in India?

1. Cry1Ac
2. Cry2Ab
3. Barnase
4. Barstar
5. Bar

Select the correct answer using the codes given below:

- (a) Only two
- (b) Only three
- (c) Only four
- (d) All five

**EXPLANATION:**

A biopesticide gene refers to a specific segment of DNA derived from a natural organism that, when introduced into a plant or applied to it, produces a substance that kills, stunts, or repels agricultural pests.

**Cry1Ac** is a gene derived from **Bacillus thuringiensis (Bt)** that produces insecticidal proteins toxic to specific insect pests, particularly lepidopteran larvae. When introduced into crops like cotton, it enables the plant to produce its own pesticide, thereby protecting it from insect damage.

Therefore, Cry1Ac functions as a biopesticide gene. **So, Statement 1 is correct.**

**Cry2Ab** is another Bt gene that encodes an insecticidal protein similar to Cry1Ac but with a slightly different spectrum of pest control. It is often used along with Cry1Ac in Bt-cotton (e.g., Bollgard-II) to improve effectiveness and delay resistance development in pests.

Therefore, Cry2Ab is also a biopesticide gene. **So, Statement 2 is correct.**

**Barnase gene** is a chimeric dominant gene (source: *Bacillus amyloliquefaciens*) that encodes a potent ribonuclease driven by the TA29 promoter.

Its expression destroys the tapetal cells surrounding the pollen sac through hydrolysis, resulting in abnormal pollen formation and causing male sterility. It is used in genetically modified crops for hybrid seed production and not for pest control.

Therefore, barnase is used for inducing male sterility (hybrid seed production), not pest resistance **So, Statement 3 is not correct.**

**Barstar gene**, also obtained from *Bacillus amyloliquefaciens*, encodes a barnase-specific ribonuclease inhibitor. This protein inactivates the activity of the barnase enzyme and restores male fertility by eliminating its cytotoxic effects. It is used along with barnase to regulate fertility in crops like GM mustard and does not provide resistance against pests. Therefore, barstar is used to restore fertility (pairs with barnase), not pest resistance. **So, Statement 4 is not correct.**

**Bar gene**, which confers **resistance to the herbicide** bialaphos, was cloned from *Streptomyces hygroscopicus*. Bialaphos contains phosphinothricin, an analogue of glutamate that inhibits glutamine synthetase.

- The bar gene encodes an enzyme that acetylates phosphinothricin, thereby inactivating it and conferring resistance.
- The gene was sequenced and successfully transferred into *Escherichia coli*, where it functioned as a selectable marker. It has also been used to develop herbicide-resistant plants.

The Bar gene provides herbicide tolerance, not pest resistance. **So, Statement 5 is not correct.**

31. With reference to Vitamin B12 and fetal health, consider the following statements:

1. Vitamin B12 is a water-soluble vitamin found exclusively in animal-derived foods, making vegetarians and vegans particularly vulnerable to deficiency.
2. Vitamin B12 is stored in the liver for several years, meaning a deficiency is severe enough to harm the fetus, and can develop even before the mother shows any clinical symptoms.
3. Folate supplementation, if started after conception is confirmed, is considered equally effective in preventing Neural Tube Defects compared to supplementation begun before conception.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**EXPLANATION:**

**Vitamin B12 (cobalamin) is a water-soluble** vitamin essential for DNA synthesis, erythropoiesis, and neurological function. It is **found naturally only in animal-derived foods**, making populations with limited meat intake, such as **vegetarians and vegans, particularly vulnerable to deficiency. So, Statement 1 is correct.**

Vitamin B12 is mainly found in animal-based foods like meat, fish, eggs, and dairy products. However, fortified foods such as cereals, nutritional yeast, and plant-based milks (soy, almond) also provide vitamin B12, making them suitable options for vegetarians and vegans.

Unlike most other vitamins, B12 is stored in substantial amounts, mainly in the liver, until it is needed by the body. If a person stops consuming the vitamin, the body's stores of this vitamin usually take about 3 to 5 years to exhaust.

- Vitamin B12 is vital for the human body, but it is also rare, and the body is unable to produce it itself. Our liver and muscles can store up to 5 mg of the highly coveted vitamin B12. The dreaded deficiency symptoms, therefore, only appear gradually over the years. For a foetus, on the other hand, a vitamin B12 deficiency in the mother can, under certain circumstances, be life-threatening.
- Vitamin B12 deficiency can cause severe, irreversible harm to a fetus (including neural tube defects, developmental delays, and low birth weight) even when the mother is asymptomatic. **So, Statement 2 is correct.**

The nutritional status of women prior to and during pregnancy plays a key role in fetal growth and development.

- Poor nutritional status in a woman in the period before she conceives and in early pregnancy (up to 12 weeks of gestation) may increase the risk for adverse pregnancy outcomes. This periconceptional period is therefore considered to be an important time for interventions that promote maternal health and thereby increase the likelihood of positive pregnancy outcomes.
- Birth defects, or congenital malformations, are structural or functional abnormalities present from birth and can be caused by a number of factors, including micronutrient deficiencies.
- **Neural tube defects** such as spina bifida are one of the most common congenital malformations.
- Current evidence suggests that **follic acid supplementation in the periconceptional period** (time immediately *before* conception but extends into the early weeks of pregnancy, typically covering roughly 3 months before to 3 months after conception), either alone or in combination with other vitamins and minerals, can prevent neural tube defects.

Therefore, folate is crucial for preventing Neural Tube Defects. The neural tube forms very early—often before a woman even knows she is pregnant. That's why folate supplementation **before conception and during early pregnancy** is critical. Starting after pregnancy is confirmed is **less effective**, not equally effective. **So, Statement 3 is not correct.**

32. Consider the following statements:

**Statement I:** The anti-defection law seeks to ensure political stability in legislatures.

**Statement II:** The anti-defection law provides for the disqualification of legislators who voluntarily give up membership of their political party or defy the party's whip.

Which of the following is correct with respect to the above statements?

- (a) **Both Statement I and Statement II are correct, and Statement II is the correct explanation of Statement I**
- (b) Both Statement I and Statement II are correct, but Statement II is not the correct explanation of Statement I
- (c) Statement I is correct, but Statement II is incorrect
- (d) Statement I is incorrect, but Statement II is correct

**EXPLANATION:**

The anti-defection law, introduced through the **52nd Constitutional Amendment** in 1985, was designed to curb political defections motivated by office or power.

The Tenth Schedule of the Constitution (which embodies the anti-defection law) is designed to prevent the evil or mischief of political defections motivated by the lure of office or material benefits or other similar considerations. It is intended to strengthen the fabric of Indian parliamentary democracy by curbing unprincipled and unethical political defections.

➤ By disqualifying members who resign from their party or defy party whips, the **anti-defection law aims to ensure political stability**, strengthen party cohesion, and safeguard the mandate of the electorate. **So, Statement I is correct.**

➤ **The Tenth Schedule** lays down the process by which legislators may be disqualified on grounds of defection by the Presiding Officer of a legislature based on a petition by any other member of the House.

➤ **Disqualification on ground of defection:** A legislator belonging to a political party will be disqualified if he:

- voluntarily gives up his party membership, or
- votes or abstains to vote in the House contrary to the direction issued by his political party (i.e., defying the party whip). **So, Statement II is correct.**

A member is not disqualified if he has taken prior permission of his party, or if the voting or abstention is condoned by the party within 15 days. Independent members will be disqualified if they join a political party after getting elected to the House. Nominated members will be disqualified if they join any political party six months after getting nominated.

Thus, these disqualification provisions are the mechanisms used to achieve political stability. Therefore, **Statement II is the correct explanation of Statement I**

33. The division of powers between the Centre and the States in the Indian Constitution is based on the scheme provided in the?

- (a) Morley-Minto Reforms, 1909
- (b) Montagu-Chelmsford Act, 1919
- (c) Government of India Act, 1935**
- (d) Indian Independence Act, 1947

**EXPLANATION:**

The Government of India Act of 1935 was a significant piece of legislation passed by the British Parliament that aimed to **restructure the governance of India**.

➤ It proposed the **creation of a Federation of India**, comprising provinces and princely states, and established **three legislative lists**—federal, provincial, and concurrent—**to divide powers** between the **central government** and the **provinces (states)**. **So, Option (c) is correct.**

➤ This act ended the system of dyarchy in the provinces, granting them greater autonomy. It also introduced bicameralism in six provinces and expanded voting rights to approximately 14 per cent of the population.

34. With reference to various Parliamentary Motions, Match List-I with List-II.

	<b>List I (Parliamentary Motions)</b>		<b>List II (Uses)</b>
A.	Substantive Motion	1.	Used as a regular way of proceeding.
B.	Guillotine Closure	2.	To put off further consideration of the business in hand for the time being
C.	Dilatory Motion	3.	A self-contained, independent proposal.
D.	Ancillary Motion	4.	Famous during the Budget session

Select the correct answer using the codes below:

- (a) A-1; B-2; C-4; D-3
- (b) A-4; B-3; C-2; D-1
- (c) A-1; B-2; C-3; D-4
- (d) A-3; B-4; C-2; D-1**

**EXPLANATION:**

The term '**motion**' in its wide sense means any proposal made for the purpose of eliciting a decision of the House. Motions are, in fact, the basis of all Parliamentary proceedings. Any matter of importance/public interest can be the subject matter of a motion.

- In order to ascertain the will of the House in regard to a matter before it, every question to be decided by the House must be proposed by a member in the form of a motion.
- Every matter is determined in the House by means of a question put from the Chair on a motion made by a member and resolved in the affirmative or negative, as the case may be.
- The question should repeat the terms of the motion and should be so framed as to be capable of expressing a decision of the House.
- Motions can be classified under the following categories, namely – Substantive Motions, Substitute Motions and Subsidiary Motions.

**A substantive motion** is a **self-contained, independent proposal** submitted for the approval of the House and drafted in such a way as to be capable of expressing a decision of the House, e.g. all resolutions are substantive motions. **A-3.**

**The Guillotine** is a key parliamentary tool used to **fast-track budget approval** by putting every pending 'Demand for Grants' to votes at once.

Thus, the Guillotine is famous during the Budget session. **B-4.**

A dilatory motion is a parliamentary procedure used to delay or postpone the immediate consideration of a bill, motion, or resolution.

- **Dilatory motion** is a generic name for motions, the object of which is **to put off further consideration of the business in hand for the time being.**
- A dilatory motion is intended to have a postponing or indefinitely delaying effect on a debate. If it is moved and carried, the subject under discussion is either shelved or the debate is postponed.
- If the Chairman thinks that a dilatory motion is an abuse of the rules of the House, he/she may either refuse to accept the motion or accept it and put the question on it forthwith, i.e., without allowing it to be debated.
- A dilatory motion is a superseding motion because if it is accepted by the Chairman, he/she proposes the motion as a new question, which supersedes the original question and must be disposed of before the debate on the original question can be resumed.

Thus, the **Dilatory motion** is a procedural tool designed to retard the progress of business, often to shelve a topic or allow for further consultation, which can be moved at any time during a debate. **C-2.**

**Ancillary Motions** are motions which are recognised by the practice of the House as **the regular way of proceedings** with various kinds of business. Examples of ancillary motions are

- That Bill should be taken into consideration.
- That Bill passed. **D-1.**

Now match them:

- A. Substantive Motion → 3 (A self-contained independent proposal)
- B. Guillotine Closure → 4 (Famous during the Budget session)
- C. Dilatory Motion → 2 (For superseding a motion already before the House)
- D. Ancillary Motion → 1 (Used as a regular way of proceeding)

So, the answer is: **A-3; B-4; C-2; D-1. So, Option (d) is correct.**

35. In the context of Indian federalism, the 'Full Faith and Credit' clause (Article 261) implies:

- (a) **Public acts, records, and judicial proceedings of the Union and State shall be given full credit throughout India.**
- (b) The Union government must provide full financial credit to states during a fiscal crisis.
- (c) The Governor must accept all advice given by the Council of Ministers without question.
- (d) States must give preference to Central laws over State laws in all matters.

**EXPLANATION:**

Under Article 261 of the Constitution, the jurisdiction of each State is confined to its own territory. Therefore, it is possible that the acts and records of one State may not be recognised in another State. To remove such difficulty, the Constitution contains the "**Full Faith and Credit**" clause, which provides the following:

**Recognition Throughout India:**

- Full faith and credit shall be given throughout the territory of India to the public acts, records, and judicial proceedings of the Centre and every State. **So, Option (a) is correct.**
- The expression of public acts includes both legislative and executive acts of the Government.
- The expression public record includes any official book, register, or record made by a public servant in the discharge of official duties.

**Power of Parliament:**

- The manner in which, and the conditions under which, such acts, records, and proceedings are to be proved and their effect determined shall be as provided by the laws of Parliament.
- Thus, the general rule is subject to the power of Parliament to prescribe the mode of proof and the effect of such acts, records, and proceedings of one State in another State.

**Execution of Judgements:**

- Final judgments 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 judgment.
  - This rule applies only to civil judgments and not to criminal judgments.
  - In other words, it does not require the courts of one State to enforce the penal laws of another State.

36. With reference to Article 39(b) of the Indian Constitution, consider the following statements:

1. It directs the State to ensure that the ownership and control of material resources of the community are so distributed as to subserve the common good.
2. The term "material resources of the community" includes only natural resources owned by the State.
3. Laws enacted to give effect to Article 39(b) can be protected from judicial review under certain constitutional provisions.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only**
- (c) 2 and 3 only
- (d) 1, 2 and 3

**EXPLANATION:**

Article 39(b) of the Constitution of India, a key Directive Principle of State Policy (Part IV), directs the State to ensure that the ownership and control of community material resources are distributed to best serve the common good. It aims to prevent concentration of wealth and ensure equitable distribution. **So, Statement 1 is correct.**

Material resources of the community refer to tangible, non-human assets—natural or man-made, public or private—that can be used to subserve the common good, as outlined in Article 39(b) of the Indian Constitution.

- Article 39(b) allows the State to acquire ownership and control of “material resources of the community” distributed to best “subserve the common good”.
- The phrase “material resources of the community” has been interpreted broadly by the Supreme Court of India.
  - Based on recent Supreme Court interpretations (2024), a nine-judge Constitution Bench of the Supreme Court held that **not all privately owned property is** a “material resource of the community” under Article 39(b) of the Constitution.
  - It **does not include only State-owned natural resources**; it can also cover **private resources** if they are significant for the community’s welfare. **So, Statement 2 is not correct.**

Laws made to implement Article 39(b) can receive protection under **Article 31C**.

Laws enacted to implement this goal are protected from judicial review, specifically challenges under Articles 14 and 19 via Article 31C, a provision added to prioritise Directive Principle of State Policy over certain fundamental rights. **So, Statement 3 is correct.**

37. With reference to early constitutional developments in India, consider the following statements:

1. The judgment in the State of Madras v. Champakam Dorairajan Case, 1951, led to the enactment of the First Constitutional Amendment Act.
2. In Shankari Prasad v. Union of India Case, 1951, the Supreme Court held that Parliament cannot amend Fundamental Rights.
3. The First Constitutional Amendment Act introduced reasonable restrictions under Article 19.

Which of the statements given above is/are correct?

- (a) 1 and 3 only  
(b) 2 and 3 only  
(c) 1 only  
(d) 1, 2 and 3

**EXPLANATION:**

The justiciability of Fundamental Rights and the non-justiciability of Directive Principles, along with the moral obligation of the State to implement Directive Principles (Article 37), have led to a conflict between the two since the commencement of the Constitution.

**Champakam Dorairajan Case (1951):**

- In the Champakam Dorairajan case (1951), the Supreme Court ruled that in the case of any conflict between Fundamental Rights and Directive Principles, the former would prevail.
- It declared that Directive Principles must conform to and run as subsidiary to Fundamental Rights.

**Amendments by Parliament:** Following this, Parliament enacted the First Amendment Act (1951), the Fourth Amendment Act (1955), and the Seventeenth Amendment Act (1964) to implement certain Directive Principles. **So, Statement 1 is correct.**

**First Amendment Act, 1951:**

- Empowered the State to make special provisions for the advancement of socially and economically backward classes.
- Provided for the saving of laws relating to the acquisition of estates, etc.
- Added the Ninth Schedule to protect land reform and other laws included in it from judicial review.
- Added three more grounds of restriction on freedom of speech and expression under Article 19, namely, **public order, friendly relations with foreign states, and incitement to an offence.**
- It also made these **restrictions' reasonable' and thus justiciable in nature.** Provided that state trading and nationalisation of any trade or business by the State shall not be invalid on the ground of violation of the right to trade or business. **So, Statement 3 is correct.**

In **Shankari Prasad v. Union of India**, 1951, the question of whether Fundamental Rights can be amended by Parliament under Article 368 came up for consideration soon after the Constitution came into force.

- The case challenged the constitutional validity of the First Amendment Act, 1951, which **curtailed the right to property**.
- The Supreme Court ruled that the power of Parliament to amend the Constitution under Article 368 includes the power to amend Fundamental Rights.
- It further clarified that the term 'law' in **Article 13 refers only to ordinary laws and does not include constitutional amendment acts**.

Therefore, the Court held that the Parliament could amend Fundamental Rights under Article 368. It ruled that constitutional amendments are not "law" under Article 13. **So, Statement 2 is not correct.**

38. Consider the following statements with respect to the State Election Commissioner:

1. The State Election Commissioner is appointed by the Governor of the State.
2. The conditions of service and tenure of office of the State Election Commissioner are determined by the State Legislature.
3. The State Election Commissioner can be removed from office only in the manner and on the grounds as a Judge of a High Court.

Which of the statements given above are correct?

- (a) **1 and 3 only**  
(b) 2 and 3 only  
(c) 1 and 2 only  
(d) 1, 2 and 3

**EXPLANATION:**

The State Election Commission is the Constitutional Authority under Article 243-K and Article 243-ZA of the Constitution of India.

As per Article 243-K and 243-ZA of the Constitution of India, all elections to panchayats and urban local bodies are to be held under the superintendence, direction and control of the State Election Commission.

- The State Election Commission consists of a state election commissioner appointed by the Governor of the State. **So, Statement 1 is correct.**
- His/her conditions of service and tenure of office shall also be **determined by the Governor**, not by the State Legislature. **So, Statement 2 is not correct.**
- He/she shall not be removed from the office except in the manner and on the grounds prescribed for the removal of a judge of the State's high court. **So, Statement 3 is correct.**
- His/her conditions of service shall not be varied to his/her disadvantage after his/her appointment.

39. With reference to Fundamental Rights (FRs) and Directive Principles of State Policy (DPSPs), consider the following statements:

1. Courts can declare laws violative of FRs and DPSPs as unconstitutional.
2. In case of conflict between the two, DPSPs prevail as they are obligations on the State.

Which of the statements given above is/are correct?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) **Neither 1 nor 2**

**EXPLANATION:**

**Fundamental Rights (FRs)** are guaranteed under Part III (Articles 12-35) of the Constitution. They are described as the **Magna Carta** of the Indian Constitution. The **Directive Principles of State Policy (DPSP)** are enshrined under Part IV (Articles 36-51) of the Constitution. They act as Principles and guidelines for the government to follow while making laws for the Country.

- If a law is violative of the fundamental rights of an individual, the courts are bound to declare that law unconstitutional and void. Whereas, if a law is violative of any directive principle, then courts cannot declare that law as unconstitutional and void.
- However, they can uphold the validity of a law on the basis that it was framed to give effect to a directive principle. **So, Statement 1 is not correct.**

The justiciable nature of FRs and the non-justiciable nature of DPSPs have caused a conflict between the two since the inception of the constitution.

- Until the judgment of the Supreme Court (SC) in the **State of Madras v. Srimathi Champakam Dorairajan case (1951)**, there was a constant conflict between FRs and DPSPs on which of them shall prevail over the other.
- The SC settled this question in this case by ruling that in cases of conflict between FRs and DPSPs, **FRs shall prevail**. It held that DPSP has to comply with FRs and run subsidiaries for them. **So, Statement 2 is not correct.**

In the **Minerva Mills case (1980)**, the Supreme Court also held that 'the Indian Constitution is founded on the bedrock of the balance between the Fundamental Rights and the Directive Principles. They together constitute the core of commitment to social revolution. They are like two wheels of a chariot, one no less than the other.

- To give absolute primacy to one over the other is to disturb the harmony of the Constitution. This harmony and balance between the two is an essential feature of the basic structure of the Constitution.
- The goals set out by the Directive Principles have to be achieved without the abrogation of the means provided by the Fundamental Rights.

Therefore, the present position is that the Fundamental Rights enjoy supremacy over the Directive Principles.

40. With reference to the White Winged Wood Duck, consider the following statements:

1. It is also known as 'Deo hanh'.
2. In India, it inhabits the tropical evergreen forests of the Western Ghats.
3. It is crepuscular in nature.

How many of the above given statements is/are correct?

- (a) Only one
- (b) Only two**
- (c) All three
- (d) None

**EXPLANATION:**

The White-Winged Wood Duck is also known as 'Deo Hanh', which is the state bird of Assam. As per the assessment of BirdLife International in 2024, this species has been categorised as 'critically endangered' in the IUCN Red List due to the small and fragmented population. **So, Statement 1 is correct.**

The White-Winged Wood Duck was once widely distributed in northeast India and Southeast Asia. In India, the white-winged duck (WWD) primarily inhabits the dense tropical evergreen forest and secluded water bodies of Assam and Arunachal Pradesh, but its population has drastically declined due to habitat loss, hunting, and fragmentation.

These threats have led to a fragmented population concentrated in a few protected areas and small forest fragments, increasing the risk of local extinction, with an estimated c. 50-150 individuals in India.

Thus, in India, the duck is limited to Assam and Arunachal Pradesh. Due to its ghostly call, it is called 'Deo Hans' or Spirit Duck in Assamese. It is not found in the Western Ghats. **So, Statement 2 is not correct.**

The White-Winged Wood Duck mostly resides in dense tropical evergreen forest and is known to prefer inaccessible swampy areas formed by numerous rivers, streams, etc.

It is a crepuscular bird as it is most active at dusk and dawn. Adults are largely omnivorous. The food consists of plant and animal material, aquatic plants, seeds of wild and cultivated plants, aquatic insects, crustaceans, molluscs, frogs, snakes and fish. It breeds in the hollows of trees during the summer months. **So, Statement 3 is correct.**



41. With reference to plastisphere, consider the following statements:

1. It is a human-made ecosystem.
2. It is always found on terrestrial surfaces.
3. In this ecosystem, microorganisms form biofilms on the surface of plastic.

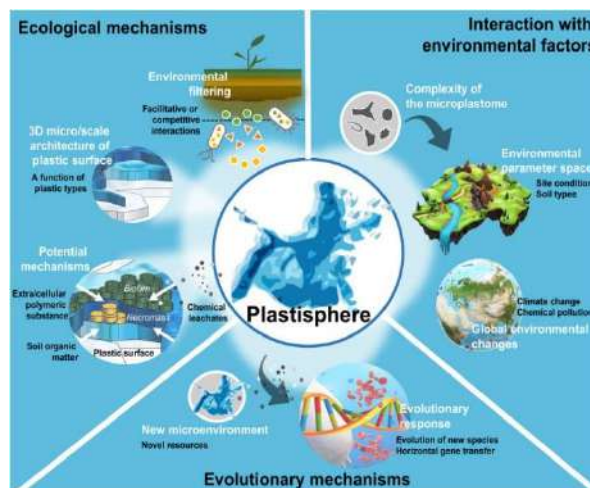
How many of the above given statements is/are correct?

- (a) Only one
- (b) Only two**
- (c) All three
- (d) None

**EXPLANATION:**

The plastisphere is a unique, human-made ecosystem consisting of diverse microorganisms, including bacteria, fungi, and algae, **that form biofilms** on plastic debris in aquatic environments.

The term “plastisphere” was first coined in 2013. These microbial communities are distinct from surrounding water, acting as specialised habitats that can degrade plastics, host pathogens, and transport organisms across oceans. **So, Statements 1 and 3 are correct.**



The plastisphere describes the ecological niche created when microbes colonise the **surface of plastic litter in aquatic environments**. Like many other microbial environments, plastisphere formation starts with biofilm formation. Therefore, plastisphere is mostly associated with Aquatic environment. **So, Statement 2 is not correct.**

**Plastisphere Ecosystem:**

- As a densely populated micro-ecosystem, the plastisphere is made up of primary producers, predators, symbionts, and decomposers.
- Diatoms are considered to be one of the earliest colonisers of plastic surfaces. Over time, as the community matures, they are replaced by other eukaryotes, such as heterotrophic dinoflagellates.
- Apart from phototrophs, the plastisphere contains sunlight-converting photoheterotrophs, like *Erythrobacter* and *Roseobacter*, and many heterotrophs that require organic carbon sources, including members of the Gammaproteobacteria, Firmicutes, and Actinobacteria families.
- Fungi have also been reported in communities growing on plastic debris, even though studies are still rare on the fungal marine plastisphere.

42. Which of the following Protected Areas are located in the Godavari River basin?

1. Tadoba-Andhari Tiger Reserve
2. Sri Venkateswara National Park
3. Indravati National Park
4. Kawal Tiger Reserve

Select the correct answer using the codes given below:

- (a) 1 and 2 only
- (b) **1, 3 and 4 only**
- (c) 2 and 3 only
- (d) 1, 2, 3 and 4

**EXPLANATION:**

Godavari, the Dakshin Vahini Ganga, originates at an elevation of 1067 meters in the **Brahmagiri Hills of the Western Ghats in Nashik District of Maharashtra** and continues its journey over 1465 kms in the southeast direction to meet the Bay of Bengal at Narasapuram in West Godavari district of Andhra Pradesh.

- The Godavari basin extends over the states of Maharashtra, Andhra Pradesh, Telangana, Chhattisgarh and Odisha, in addition to smaller parts in Madhya Pradesh, Karnataka and the Union territory of Puducherry, having a total area of 3,12,812 Sq.km.
- Godavari basin supports significant forest areas in Central India, much of which is in the belt of eastern Maharashtra, Chhattisgarh and Telangana states. Protected areas in the Godavari basin are given below in the table.



Table-II: Wildlife sanctuaries/ Protected areas/ National Parks in the basin:

Sr. No.	State	Wildlife sanctuaries/ Protected areas/ National Parks	District
1.	Maharashtra	Tadoba National Park (Tiger Reserve)	Chandrapur
		Bor Wildlife Sactuary	Wardha
		Navegaon Wildlife Sanctuary	Gondiya
		Nagzira Wildlife Sanctuary	Gondiya
		Pench National Park (Tiger Reserve)	Seoni
2.	Chhattisgarh	Bhairamgarh Wildlife Sanctuary	Dantewada
		Kanger Ghati National Park	Bastar
		Indravati National Park (Tiger Reserve)	Dantewada
		Pamed Wildlife Sanctuary	Dantewada
3.	Andhra Pradesh	Coringa Wildlife Sanctuary	East Godavari
		Papikonda Wildlife Sanctuary	West Godavari
4.	Telangana	Kinnerasani Wildlife Sanctuary	Khammam
		Pocharam Wildlife Santuary	Medak
		Manjira Bird Sanctuary	Nizamabad
		Eturnagaram Wildlife Sanctuary	Warangal
		Kawal Wildlife Sanctuary	Adilabad
		Siwaram Wildlife Sanctuary	Karimnagar
		Pranhita Wildlife Sanctuary	Adilabad
Siwaram Wildlife Sanctuary	Karimnagar		

The **Sri Venkateswara National Park** is not located in the Godavari River basin. Therefore, among the above given Protected Areas - **Tadoba-Andhari tiger reserve, Indravati national park and Kawal tiger reserve** are located in the Godavari Basin. **So, Option (b) is correct.**

43. Consider the following statements:

1. Bioaccumulation occurs only at higher trophic levels, whereas biomagnification takes place across all trophic levels.
2. Both bioaccumulation and biomagnification occur when biologically inactive and water-soluble substances enter the food chain.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) **Neither 1 nor 2**

**EXPLANATION:**

**Bioaccumulation:**

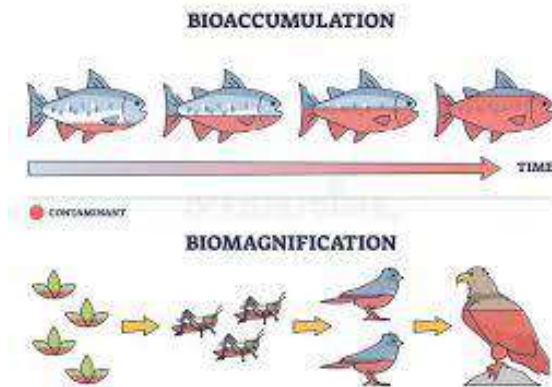
- It is the process by which toxins enter the food web by building up in individual organisms.
- It occurs at the base of a food web, usually within primary producers like phytoplankton (not at higher tropic level).
- These microscopic photosynthetic organisms absorb Persistent Organic Pollutants (POPs) directly from the seawater and accumulate them in their bodies over time.

- The toxins build up in their tissues because they are absorbed from the water at a rate faster than they can be metabolised.

**Biomagnification:**

- It is the process by which toxins are passed from one trophic level to the next (and thereby increase in concentration) within a food web.
- It occurs when slightly larger organisms called zooplankton feed upon the contaminated phytoplankton and, in turn, absorb Persistent Organic Pollutants (POPs) into their own tissues at a higher concentration.
- The more contaminated phytoplankton a zooplankton eats, the more pollutants it will have in its body.
- In other words, the POPs can be passed from producer to consumer (to consumer, to consumer, and so on).
- Biomagnification can continue all the way up the food web or chain (at all trophic levels).
- Trophic levels refer to a level or position in a food chain or food web.

Thus, bioaccumulation occurs within organisms at the lower trophic level, whereas in biomagnification, persistent organic pollutants (POPs) are transferred from producers to consumers and progressively increase across higher trophic levels. **So, Statement 1 is not correct.**



Bioaccumulation describes the buildup of a substance within a single organism over its lifetime, while biomagnification refers to the amplification of that substance as it passes up the food chain.

- Because these compounds are lipophilic and persistent, they avoid being broken down or excreted, instead accumulating in fatty tissues and increasing with each trophic level.
- Many bioaccumulative chemicals are fat-soluble and tend to reside primarily in fat deposits or in fatty substances in the blood.
- Biomagnification occurs when substances are persistent, accumulate in fatty tissues, and are not easily broken down or excreted.
- In order for biomagnification to occur, the pollutants must be long-lived, mobile, fat-soluble, and biologically active.

Thus, both bioaccumulation and biomagnification occur when biologically active and fat-soluble substances enter the food chain. **So, Statement 2 is not correct.**

44. Consider the following statements regarding the 'National Clean Air Programme' (NCAP):
1. It aims to achieve a 20–30% reduction in PM<sub>10</sub> concentrations by 2024 (with 2017 as the base year), revised to 40% by 2026.
  2. It covers 131 non-attainment cities.
  3. It is a statutory programme under the Air (Prevention and Control of Pollution) Act, 1981.
- Which of the statements given above are correct?

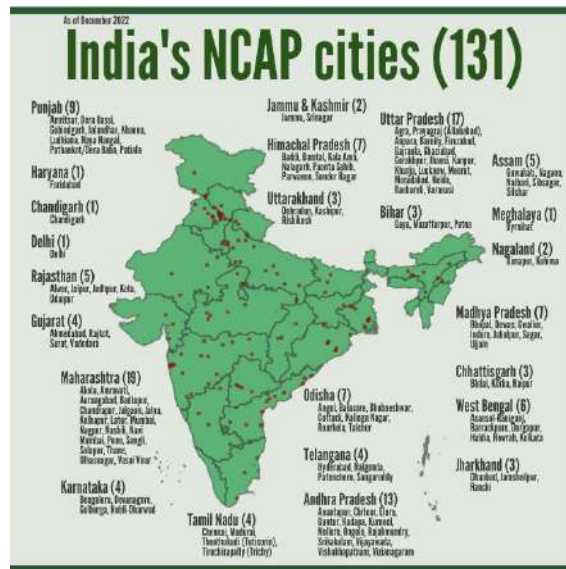
- (a) 1 and 2 only**  
 (b) 2 and 3 only  
 (c) 1 and 3 only  
 (d) 1, 2 and 3

**EXPLANATION:**

National Clean Air Programme (NCAP) was launched by the Ministry of Environment, Forest and Climate Change (MoEF&CC) in January 2019 with the **objective of improving air quality in 131 non-attainment and Million Plus Cities**/Urban Agglomerations across 24 States/UTs, by engaging all relevant stakeholders.

- NCAP aims for a **reduction of 20-30% in PM10 concentrations by 2024-25** compared to the baseline year of 2017-18.
- The **target has been revised** to achieve up to a **40% reduction in PM10 levels** or to meet national standards (60 µg/m<sup>3</sup>) **by 2025-26**.
- City-specific targets ranging from 4-15% have been given for the reduction in annual PM10 concentrations by implementing city-specific action plans.

In addition, an annual target of 15% improvement in Good Days (Air Quality Index <200) has been prescribed for 49 Million Plus cities/Urban Agglomerations. **So, Statements 1 and 2 are correct.**



NCAP is not notified under any Act {The Environment (Protection) Act 1986 or The Air (Prevention and Control of Pollution) Act 1981} and thus not binding on any authority or pollutants. Thus, the NCAP is **not a statutory programme**; it is a **policy initiative**, not legally binding under the Air Act, 1981. **So, Statement 3 is not correct.**

45. Consider the following statements:

**Statement I:** Ocean absorb a major portion of the excess heat produced in the atmosphere due to high greenhouse gas emissions.

**Statement II:** Water possesses high specific heat capacity.

Which of the following is correct with respect to the above statements?

- (a) **Both Statement I and Statement II are correct, and Statement II is the correct explanation for Statement I.**
- (b) Both Statement I and Statement II are correct, and Statement II is not the correct explanation for Statement I.
- (c) Statement I is correct, but Statement II is incorrect.
- (d) Statement I is incorrect, but Statement II is correct.

**EXPLANATION:**

The oceans are a major component of the climate system. They have played the principal role in the climatic balance that the planet has experienced over the last few thousand years. Their role in regulating climate involves taking up heat and redistributing it across the globe, increasing



atmospheric humidity, and buffering (taking up and storing) large quantities of CO<sub>2</sub> from the atmosphere.

Over the past 50 years, the **ocean has absorbed 90% of the atmospheric heat due to the increase in greenhouse gas concentrations**, where the ocean's top few meters store as much heat as Earth's entire atmosphere. **So, Statement I is correct.**

**Water's high heat capacity** is a property caused by hydrogen bonding among water molecules. When heat is absorbed, hydrogen bonds are broken, and water molecules can move freely. When the temperature of water decreases, the hydrogen bonds are formed and release a considerable amount of energy.

- **Water has the highest specific heat capacity of any liquid.** Specific heat is defined as the amount of heat one gram of a substance must absorb or lose to change its temperature by one degree Celsius. For water, this amount is one calorie, or 4.184 Joules per °C. As a result, it takes water a long time to heat and a long time to cool. In fact, the specific heat capacity of water is about five times more than that of sand. **So, Statement II is correct.**
- Due to the **high specific heat capacity of water**, it can absorb and store large amounts of heat with only a small increase in temperature. As a result, the oceans act as a major **heat sink** for the Earth's climate system.
- With the increase in greenhouse gases, excess heat is trapped in the atmosphere, and nearly **90% of this additional heat is absorbed by the oceans**. This is possible because water resists rapid temperature changes due to its high heat capacity.

**Both Statement I and Statement II are correct, and Statement II is the correct explanation for Statement I.**

46. Consider the following:

1. Gulf of Mannar
2. Gulf of Kutch
3. Andaman and Nicobar Islands

How many of the above areas is/are habitats of dugongs in India?

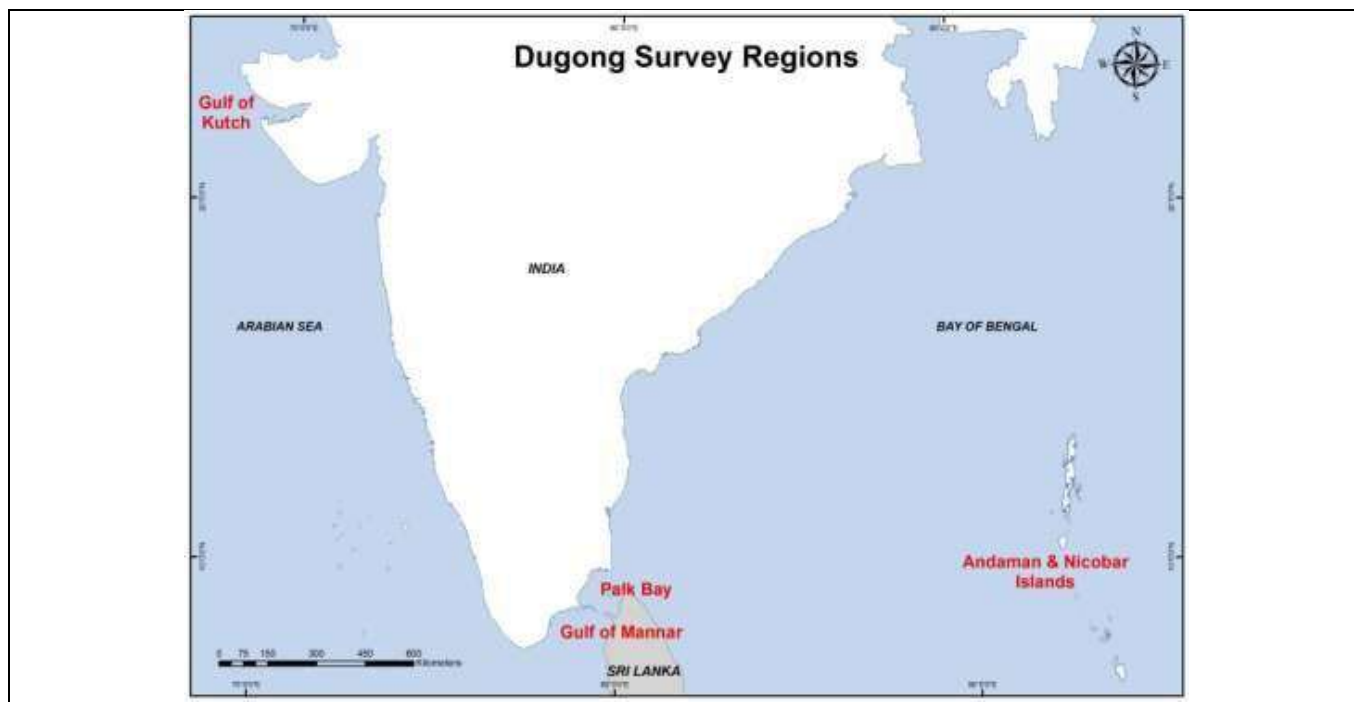
- (a) Only one
- (b) Only two
- (c) All three**
- (d) None

**EXPLANATION:**

Dugongs (Dugong dugon), commonly known as sea cows, are often referred to as the "farmers or gardeners of the sea" for their important role in preserving coastal ecosystems and aiding fish production.

- Growing up to three metres long and weighing over 400 kg, these gentle giants are found in warm waters along coastlines, mainly confined to seagrass beds, which occur in calm, sheltered habitats such as bays and lagoons.
- They are found in the Gulf of Mannar, the Palk Bay, the Gulf of Kutch and the Andaman and Nicobar Islands in India. Dugongs are primarily herbivorous, grazing 30 kg-40 kg of seagrass a day.

Thus, all three listed areas are habitats of dugongs in India. **So, Option (c) is correct.**



47. Which greenhouse gas has the highest 100-year Global Warming Potential (GWP) among the following?
- Carbon dioxide ( $\text{CO}_2$ )
  - Nitrous oxide ( $\text{N}_2\text{O}$ )
  - Methane ( $\text{CH}_4$ )
  - Sulphur hexafluoride ( $\text{SF}_6$ )**

**EXPLANATION:**

**The Global Warming Potential (GWP)** depends on both the efficiency of a molecule as a greenhouse gas and its atmospheric lifetime.

- GWP is measured relative to the same mass of  $\text{CO}_2$  and evaluated over a specific timescale.
- If a molecule has a high GWP on a short timescale but a short lifetime, it will have a large GWP over 20 years but a smaller one over 100 years.
- Conversely, if a molecule has a longer atmospheric lifetime than  $\text{CO}_2$ , its GWP increases with time.
- Sulphur hexafluoride ( $\text{SF}_6$ ) is a stable, colourless, odourless synthetic gas used as an insulating material in medium and high voltage electrical equipment.
- Around 80% of  $\text{SF}_6$  is used in electricity transmission and distribution to insulate live electrical parts and control current flow.
- It is the strongest known greenhouse gas, with a GWP of 25,200 (100-year period) and an atmospheric lifetime of about 3,200 years. **So, Option (d) is correct.**

**Examples of the atmospheric lifetime and GWP for several greenhouse gases include:**

- **Carbon dioxide** has a variable atmospheric lifetime and cannot be specified precisely. Recent work indicates that recovery from a large input of atmospheric  $\text{CO}_2$  from burning fossil fuels will result in an effective lifetime of tens of thousands of years. Carbon dioxide is defined to have a GWP of 1 over all time periods.
- **Nitrous oxide** has an atmospheric lifetime of 114 years and a GWP of 289 over 20 years, 298 over 100 years and 153 over 500 years.
- **Methane** has an atmospheric lifetime of  $12 \pm 3$  years and a GWP of 72 over 20 years, 25 over 100 years and 7.6 over 500 years. The decrease in GWP at longer times is because methane is degraded to water and  $\text{CO}_2$  through chemical reactions in the atmosphere.

**IPCC Global Warming Potential (GWP) values relative to CO<sub>2</sub>**

Common chemical name or industrial designation	Chemical formula	GWP values for 100-year time horizon		
		Fourth Assessment Report (AR4)	Fifth Assessment Report (AR5)	Sixth Assessment Report (AR6)
<b>Major Greenhouse Gases</b>				
Carbon dioxide	CO <sub>2</sub>	1	1	1
Methane – non-fossil	CH <sub>4</sub>	25	28	27.0
Methane – fossil	CH <sub>4</sub>	N/A	30	29.8
Nitrous oxide	N <sub>2</sub> O	298	265	273
Nitrogen trifluoride	NF <sub>3</sub>	17,200	16,100	17,400
Sulfur hexafluoride	SF <sub>6</sub>	22,800	23,500	24,300

48. Consider the following rows:

<b>Sl.no</b>	<b>Site in the news</b>	<b>Country</b>
1.	Ras Laffan	Oman
2.	Fujairah port	Qatar
3.	Litani River	Iraq

How many of the above rows is/are correctly matched?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None**

**EXPLANATION:**

**Ras Laffan** Industrial City, located about 80 km north of **Doha in Qatar**, is the world's largest liquefied natural gas (LNG) hub.

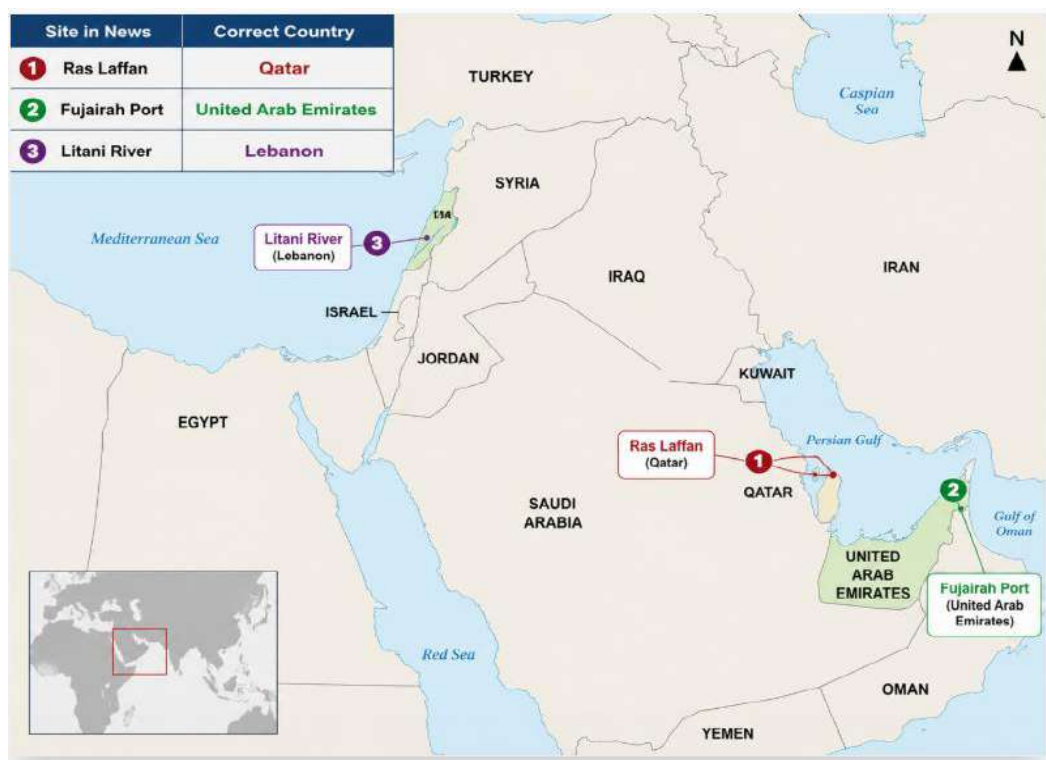
- It hosts major facilities operated by QatarEnergy and international companies, making it central to global LNG production and exports.
- The complex processes a significant share of global LNG trade, supplying regions such as Asia and Europe.
- It also includes large-scale gas-to-liquids and refinery units producing fuels like aviation fuel.
- Recently, the site was reported in news due to missile strikes that caused fires and damage to LNG infrastructure. The incident highlights its critical role in global energy security and Qatar's economy. **So, Pair 1 is not correct.**

**The Port of Fujairah** is the only multi-purpose maritime facility on the east coast of the **United Arab Emirates** and a key shipping hub for the Gulf region.

- Strategically located about 70 nautical miles outside the Strait of Hormuz, it serves as an important economic link between Europe and Asia, while also connecting the Indian subcontinent and North East Africa to global trade routes.
- Since beginning operations in 1983, the port has played a significant economic and strategic role in the region's development.
- It offers extensive facilities, including container handling, general and project cargo, as well as dry and liquid bulk operations.
- Its importance has further increased due to its role in global energy and maritime security networks. **So, Pair 2 is not correct.**

**The Litani River** is located in **Lebanon, (not Iraq)**, and has recently in news due to the Israel-Hezbollah conflict.

- Israel's defence minister stated that after ongoing operations, the Israeli military aims to establish control up to the Litani River as part of a proposed security or buffer zone in southern Lebanon.
- Reports also mention military actions against Hezbollah infrastructure, including groups such as the Radwan forces.
- The developments are linked to displacement of civilians in southern Lebanon and ongoing regional security tensions along the Israel-Lebanon border. **So, Pair 3 is not correct.**



49. Consider the following statements regarding India's polar expeditions and related activities:
- I. HIMANSH is a dedicated Research Station established by India in Himachal Pradesh to study glaciers.
  - II. The Madrid Protocol was established in 1991 to protect the environment of the Antarctic, which is administered by the Antarctic Treaty.
  - III. According to the Indian Antarctic Act, 2022, both drilling and dredging for mineral resources in Antarctic are banned.
- Which of the statements given above are correct?
- (a) I and II only
  - (b) II and III only
  - (c) I and III only
  - (d) I, II and III**

**EXPLANATION:**

**The National Centre for Polar and Ocean Research (NCPOR)**, Goa, under the Ministry of Earth Sciences, has established a high-altitude research station in the Himalayas named HIMANSH.

- HIMANSH is **located in the Chandra Basin of Lahaul-Spiti Valley in Himachal Pradesh** at an altitude of approximately 4080 meters above mean sea level (amsl). It serves as a dedicated facility for conducting research on the Himalayan cryosphere.

- The primary objective of HIMANSH is to facilitate cryospheric studies in the Chandra Basin. This includes investigating the dynamics and rate of change of Himalayan glaciers and assessing their implications for regional hydrology and climate systems.
- The station has been established under NCPOR's "Cryosphere and Climate" programme, with the aim of enabling systematic monitoring of glaciers. It supports research on glacier dynamics, mass balance, energy balance, and hydrological processes in the region. **So, Statement 1 is correct.**

The Madrid Protocol, officially known as the **Protocol on Environmental Protection to the Antarctic Treaty**, was signed on 4 October 1991 and came into force in 1998 to ensure comprehensive protection of the Antarctic environment under the framework of the Antarctic Treaty System. **So, Statement 2 is correct.**

- Article 2 of the protocol designates Antarctica as a "natural reserve, devoted to peace and science".
- Article 3 of the Environment Protocol sets forth basic principles applicable to human activities in Antarctica, and Article 7 prohibits all activities relating to Antarctic mineral resources, except for scientific research.
- Until 2048, the Protocol can only be modified by unanimous agreement of all Consultative Parties to the Antarctic Treaty.

The Indian Antarctic Act, 2022, is an act to provide for the national measures for protecting the Antarctic environment and dependent and associated ecosystems and to give effect to the Antarctic Treaty, the Convention on the Conservation of Antarctic Marine Living Resources and the Protocol on Environmental Protection to the Antarctic Treaty and for matters connected therewith or incidental thereto.

**Permit for mineral resource activities:** According to the Indian Antarctic Act, 2022, no person or vessel in Antarctica shall:

- **Drill, dredge or excavate** for mineral resources;
- Collect any samples of mineral resources; or
- Do anything for the purpose of identifying specific mineral resource occurrences or deposits, or areas where such occurrences or deposits may be found.

Therefore, according to the Indian Antarctic Act, 2022, both drilling and dredging for mineral resources in Antarctic are banned. **So, Statement 3 is correct.**

50. Which of the following countries are involved in the Takeshima/Dokdo island dispute?

- (a) Japan and North Korea
- (b) South Korea and Japan**
- (c) North Korea and South Korea
- (d) Japan and China

**EXPLANATION:**

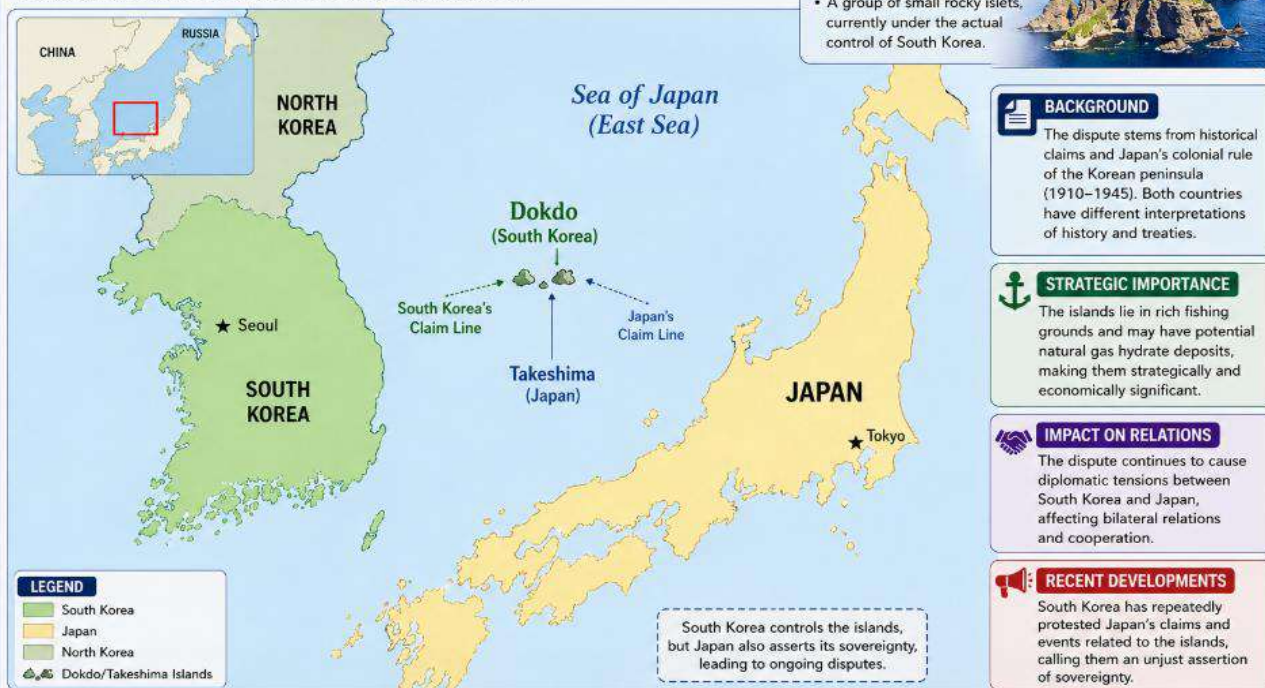
The **Takeshima/Dokdo islands** are a group of small islets in the Sea of Japan (East Sea) that are involved in a long-standing territorial dispute between Japan and South Korea.

- They are **known as Takeshima in Japan and Dokdo in South Korea**, with both countries claiming sovereignty over them.
- The islands are currently under South Korean control, but Japan also asserts its claim, leading to repeated diplomatic tensions and protests.
- The dispute is deeply rooted in historical issues related to Japan's colonial rule over the Korean peninsula and continues to affect bilateral relations.
- Recently, South Korea strongly objected to a Japanese government event related to the islands, calling it an unjust assertion of sovereignty.

- The islands are also strategically significant due to their rich fishing grounds and potential natural gas hydrate resources, making the issue both politically sensitive and economically important. **So, Option (b) is correct.**

## Takeshima/Dokdo Island Dispute

A long-standing territorial dispute between South Korea and Japan over a group of small islands in the Sea of Japan (East Sea).



51. Consider the following statements:

- Croatia is the last country to join the European Union.
- Bulgaria is the last country to join the Eurozone.
- The United Kingdom is the second country to quit the European Union.
- Finland is the only Nordic State to use the Euro currency.

How many of the statements given above is/are correct?

- (a) Only one  
 (b) Only two  
**(c) Only three**  
 (d) All four

### EXPLANATION:

**The European Union (EU)** is an economic and political union of 27 countries. It operates an internal (or single) market which allows free movement of goods, capital, services and people between member states.

- **On 1 July 2013, Croatia** became the 28th (now 27th) Member State of the European Union.
- Since then, **no other countries have joined** the EU, and the UK left the EU on 31 January 2020.
- **The EU countries are:** Austria, Belgium, Bulgaria, Croatia, the Republic of Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden. **So, Statement 1 is correct.**

The eurozone was established with the official launch of the euro on January 1, 1999, in 11 countries, including France, Germany, and Austria.

- Currently, six of the EU's 27 member countries, Sweden, Poland, the Czech Republic, Hungary, Romania, and Denmark, have not yet adopted the euro.
- Recently, **Bulgaria joined the eurozone** and adopted the euro as its official currency on New Year's Day 2026, becoming the 21st member of the euro area.
- To ensure a smooth transition, the Bulgarian lev will remain in circulation alongside the euro throughout January 2026.
- From 1<sup>st</sup> February 2026, the euro will become the country's sole legal tender. **So, Statement 2 is correct.**

**The United Kingdom** is the first state (not the second) to have officially withdrawn from the European Union (Brexit, Jan 2020),  
Brexit is a portmanteau of the words "British" and "exit" that was coined to refer to the United Kingdom's decision in a June 23, 2016, referendum to leave the European Union (EU). **So, Statement 3 is not correct.**

**Finland** is the only Nordic state that uses the euro as its official currency. While Denmark, Norway, Sweden and Iceland have kept their own national currencies (Danish krone, Norwegian krone, Swedish krona and Icelandic Krona), Finland has been a member of the European Union since 1995, and has belonged to the European Economic and Monetary Union since 1999, when it adopted the euro as its currency. **So, Statement 4 is correct.**

52. With reference to the FIDE Women's World Cup, consider the following statements:

1. The winner of the tournament secures qualification for the FIDE Rapid Chess Championship.
2. If the tiebreaker in the final ends in a draw, the title is shared by both finalists.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2**

**EXPLANATION:**

FIDE stands for **Fédération Internationale des Échecs** (International Chess Federation). The FIDE Women's World Cup is a premier, knockout-format chess tournament organised by the world governing body, featuring top female players competing for a high-stakes prize fund and spots in the Women's Candidates tournament.

- The FIDE Women's World Cup selects players through multiple tracks such as classical rating lists, continental events, Olympiad performance, and nominations.
- The winner of the **FIDE Women's World Cup** does **not** qualify for the FIDE Rapid Chess Championship. Instead, the top 3 finishers of the tournament: **winner**, runner-up, and third place, qualify for the **Women's Candidates Tournament**, which is part of the classical world championship cycle. **So, Statement 1 is not correct.**

The FIDE Women's World Cup is a knock-out tournament that will be played over seven rounds.

- All rounds shall be played with two classical game matches, plus a tiebreak when necessary.
- In any match, the first player to score more points than her opponent in the two standard classical games shall be the winner of the match.
- If a match is tied after the two classical games, tie-breaks are played in multiple stages—rapid, faster rapid, blitz, and finally, sudden-death blitz games.
- As per the rules, **additional games are repeated until one player wins a game**. Therefore, a draw at the end of tie-breaks is not possible because:
  - The format ensures a decisive result.
  - **The title or match cannot be shared between players. So, Statement 2 is not correct.**

53. Consider the following statements regarding the PM Swasthya Suraksha Yojana (PMSSY):
- I. This scheme envisages the creation of tertiary healthcare capacity in medical education, research and clinical care in the underserved areas of the country.
  - II. The objectives include the establishment of All India Institutes of Medical Sciences (AIIMS) and the upgradation of existing Government Medical Colleges / Institutions (GMCIs).
- Which of the above given statements is/are correct?
- (a) I only
  - (b) II only
  - (c) Both I and II**
  - (d) Neither I nor II

**EXPLANATION:**

The **Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) Scheme** is a healthcare programme from the Government of India that **envisions the creation of tertiary healthcare services encompassing clinical care, medical education and research across India, keeping the needs of underserved regions of the country.** This programme would help to narrow the imbalances that exist in the availability and delivery of healthcare services, including medical education and research. **So, Statement I is correct.**

The two main objectives of the PMSSY are the following:

- **Setting up premier medical institutes, AIIMS**, that deliver quality healthcare services in underrepresented states of India. AIIMS would also develop education technology to impart medical knowledge through effective designing and planning of teaching, curriculum and faculty development and undertaking research in medical education.
- **Converting existing Government Medical Colleges into super speciality healthcare** centres alongside delivering quality medical education and undertaking medical research.

Thus, the objective of PM Swasthya Suraksha Yojana (PMSSY) is setting up premier medical institutes, AIIMS, that deliver quality healthcare services and converting existing Government Medical Colleges into super speciality healthcare centres. **So, Statement II is correct.**

54. With reference to the Vaishnava bhakti movement in Bengal, consider the following statements:
1. It was inspired by the Bhagavata Purana, the Sahajiya Buddhist and Nathpanthi traditions.
  2. Jayadeva, who followed this tradition, popularised the practice of Sankirtan.
- Which of the statements given above is/are correct?
- (a) 1 only**
  - (b) 2 only
  - (c) Both 1 and 2
  - (d) Neither 1 nor 2

**EXPLANATION:**

The Vaishnava bhakti in Bengal was different from its North Indian and the older South Indian bhakti.

- The sources which influenced it can be traced to two different traditions – the Vaishnava bhakti tradition of the Bhagavata Purana, with its glorification of Krishna lila on the one hand, and Sahajiya Buddhist and Nathpanthi traditions on the other. **So, Statement 1 is correct.**
- The Vaishnava influence was transmitted by various bhakti poets, beginning with Jayadeva in the 12th century. Jayadeva's Gita Govinda was composed in Sanskrit.
- Chaitanya (1486-1533) was the most prominent Vaishnava saint of Bengal. He popularised Krishna-bhakti in many parts of Eastern India. Chaitanya popularised the practice of sankirtan or group devotional singing accompanied by ecstatic dancing. **So, Statement 2 is not correct.**

55. Consider the following pairs:

Sl.No	Literary work	Author
1.	Prithviraja Raso	Chand Bardai
2.	Rajtarangini	Kalhana
3.	Majm-ul-Bahrain	Dara Shikoh

Which of the above given pairs are correctly matched?

- (a) 1 and 2 only  
(b) 2 and 3 only  
(c) 1 and 3 only  
**(d) 1, 2 and 3**

**EXPLANATION:**

**Chand Bardai** was a native of Lahore who composed **Prithviraj Raso**, the first epic of Hindi literature.

- The poem celebrates the life of Prithviraj Chauhan (1166- 1192) who was a king from the Chauhan dynasty.
- He wrote about his King's achievement, bravery, love and wars he had fought.
- He was not just a court poet but a very influential person who was also a member of the king's inner circle and accompanied the king to all places and battles. **So, Pair (1) is correct.**

**Rajatarangini** (literally, River of Kings) is an epic poem (mahakavya/prabandha) composed in the classical language, Sanskrit, in 1148-50 CE in Kashmir.

- It was composed by a **Kashmiri Pandit, named Kalhana.**
- He is said to have been the son of a former minister by the name of Champaka in the court of a Kashmiri king, Harsha (r. 1089-1101CE).
- Kalhana himself, however, does not seem to have worked for any king. **So, Pair (2) is correct.**

**Dara Shikoh** (1615-1659) was the eldest son and designated heir of Mughal emperor Shah Jahan, celebrated at court for his inquisitive mind, Sufi devotion, and broad-minded approach to faith.

- Dara Shikoh and his Guru Pandit Raj Jagannath have an unequalled contribution in this direction.
- **Dara Shikoh** called his famous **book Majma-ul-Bahrain**, that is, Sagar Sangam, the essence of the thoughts of Hinduism and Islam. **So, Pair (3) is correct.**

56. Uccavadi, rajyas, sime, sthala are administrative units associated with:

- (a) Chera Dynasty  
(b) Chola Empire  
**(c) Vijayanagara Empire**  
(d) Kakatiya Dynasty

**EXPLANATION:**

The territory of the Vijayanagara Kingdom was organised into administrative units called **rajyas or provinces** from the very beginning of the kingdom's establishment.

- The rajyas were placed under **pradhanis**, who were superior officers. Initially, pradhanis were princes of the royal line, but later the post was occupied by military officers.
- The headquarters of each rajya was called **uccavadi or cavadi**, which denoted a rajya.
- These rajyas incorporated existing divisions like **nadu** and **parru** from the Tamil region.

**Importance of Rajyas:**

- The exact number of rajyas in the Vijayanagara Kingdom has not been definitively determined.
- However, it is suggested that the rajyas were important administrative and revenue units.

**Decline of Rajyas**

- The rajyas ceased to serve as important administrative units when the nayaka system was established during the reign of Krishnadevaraya.
- Despite this, the names of the rajyas continued to appear in records as geographical names.

### Military Garrisons

- In the later stages, the headquarters of the earlier rajyas, along with other towns, became fortified garrisons under military officers called amara nayakas.

### Other Administrative Divisions:

- Apart from rajyas, there were other smaller divisions such as **sime**, **sthala**, and **nadu**.
- In some records, the terms rajya and sime are used interchangeably, such as Terekanambi sime and Terekanambi rajya.
- Some divisions existed within another division with the same territorial nomenclature, like Kundahatta Sthala within Nagavali Sthala.

### Complex Administrative Structure:

- The complex nomenclature and administrative divisions prevent the establishment of a clear hierarchy of administrative divisions.
- The use of varying territorial names suggests that, for administrative convenience, the authorities introduced a peculiar nomenclature system to identify different territorial divisions.
- The changes in nomenclature indicate variations in the administrative machinery over different periods.

Thus, **uccavadi**, **rajyas**, **sime**, and **sthala** are administrative units associated with the Vijayanagara Empire. **So, Option (c) is correct.**

57. With reference to the Mahalwari settlement, consider the following statements:

1. Holt Mackenzie devised this settlement system for the North Western Provinces of the Bengal Presidency.
2. In British revenue records, mahal is a revenue estate which may be a village or a group of villages.
3. The estimated revenue of each mahal was to be revised periodically.
4. Zamindar was responsible for collecting the revenue and paying it to the Company.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 3 and 4 only
- (d) 1, 2 and 3 only**

### EXPLANATION:

In the North Western Provinces of the Bengal Presidency (most of this area is now in Uttar Pradesh), Holt Mackenzie devised the new system, which was called the mahalwari settlement, and came into effect in 1822. **So, Statement 1 is correct.**

- The Mahalwari system was one of the three major land revenue settlements of British colonial India introduced under the administration of East India Company.
- It was the last land settlement experimented by the company administration and expected to be an improvement over both the previous working settlements.
- The other two major settlements were Zamindari (in Bengal presidency) and Ryotwari (in Madras and Bombay Presidency).

Features	Permanent Settlement	Ryotwari System	Mahalwari System
<b>Year of Introduction</b>	1793	1820	1822
<b>Introduced by</b>	Lord Cornwallis	Alexander Reed, Thomas Munro	Holt Mackenzie
<b>Regions</b>	Bengal, Bihar, Orissa, Banaras, northern districts of Madras	Parts of Madras & Bombay Presidencies, Assam, Burma	North-Western Provinces, Punjab, Gangetic Valley, parts of Central India

<b>Land Revenue</b>	Permanently fixed	Revised periodically	Revised periodically
<b>Revenue Collector</b>	Zamindar	Ryot	Village headman

Holt Mackenzie felt that the village was an important social institution in north Indian society and needed to be preserved.

- Under his directions, collectors went from village to village, inspecting the land, measuring the fields, and recording the customs and rights of different groups.
- In British revenue records, a mahal is a revenue estate which may be a village or a group of villages.
- The estimated revenue of each plot within a village was added up to calculate the revenue that each village (mahal) had to pay.
- This demand was to be revised periodically, not permanently fixed. **So, Statements 2 and 3 are correct.**
- The responsibility of **collecting revenue** and **paying** it to the Company was assigned to the **village headman** rather than the zamindar. **So, Statement 4 is not correct.**

58. Arrange the following events from the Indian freedom struggle in a correct chronological order:

1. Formation of the Communist Party of India by M.N Roy.
2. Establishment of Hindustan Republican Association.
3. Submission of the Nehru Report.
4. Appointment of the Simon Commission.

Select the correct answer using the codes given below:

- (a) 1-2-4-3
- (b) 4-3-2-1
- (c) 3-1-2-4
- (d) 2-1-3-4

**EXPLANATION:**

- The **Communist Party of India (CPI) was formed in 1920** in Tashkent (now the capital of Uzbekistan) **by M.N. Roy**, Abani Mukherji and others after the second Congress of the Communist International. M.N. Roy was also the first to be elected to the leadership of the Communist International. He was the editor of the communist journal Vanguard. He condemned the sessions court's sentence to death to 172 of the 225 accused in the Chauri Chaura incident (later, 19 were hanged and the rest transported) as against 22 policemen killed. **(1)**
- The **Hindustan Republican Association was founded in October 1924** in Kanpur by Ramprasad Bismil, Jogesh Chandra Chatterjee and Sachin Sanyal, with an aim to organize an armed revolution to overthrow the colonial government and establish in its place the Federal Republic of the United States of India, whose basic principle would be adult franchise. **(2)**
- The Government of India Act, 1919, provided for a commission after ten years to review the working of the constitutional scheme. Accordingly, the all-white, seven-member Indian Statutory Commission, popularly known as **the Simon Commission** (after its chairman, Sir John Simon), was appointed by the British government **on 8 November 1927** under Prime Minister Stanley Baldwin. Its main provocation for Indians was the complete exclusion of Indians, which was seen as a violation of the principle of self-determination and a deliberate insult to Indian self-respect. In response, the Congress session at Madras in **December 1927**, presided over by M.A. Ansari, resolved to boycott the commission "at every stage and in every form", while Jawaharlal Nehru secured a snap resolution declaring complete independence as the Congress's goal. **(4)**
- As a response to Lord Birkenhead's challenge, an All-Parties Conference was convened in February 1928 and appointed a sub-committee chaired by Motilal Nehru to draft a constitution for India. This effort became the first major attempt by Indians to design a comprehensive constitutional

framework for the country. The committee included notable leaders such as Tej Bahadur Sapru, Subhas Chandra Bose, M.S. Aney, Mangal Singh, Ali Imam, Shuaib Qureshi, and G.R. Pradhan. This report, which came to be known as **the Nehru Report**, was submitted at the Lucknow session of the all-party conference on **August 28, 1928. (3) So, Option (a) is correct. (1-2-4-3)**

59. With reference to the Indian freedom struggle, which of the following leaders participated in the Second Round Table Conference?

1. Mahatma Gandhi
2. Madan Mohan Malviya
3. Sarojini Naidu
4. B.R. Ambedkar
5. Muhammad Ali Jinnah

Select the correct answer using the codes given below:

- (a) 1, 3 and 4 only
- (b) 1, 2, 3 and 5 only
- (c) 2, 4 and 5 only
- (d) 1, 2, 3, 4 and 5**

**EXPLANATION:**

**The Round Table Conferences** (1930–32) were a series of three meetings held by the British government to discuss the future constitution of India.

They were convened by the Viceroy of India, Lord Irwin, and the British Prime Minister, Ramsay MacDonald, as the recommendations of the Simon Commission were considered inadequate.

**Leaders participated in the Second-Round table conference:**

- The Indian National Congress nominated **Mahatma Gandhi** as its sole representative. A. Rangaswami Iyengar and **Madan Mohan Malaviya** were also there.
- There were a large number of Indian participants, besides the Congress.
- The representatives for Indian women were **Sarojini Naidu**, Begum Jahanara Shahnawaz and Radhabai Subbarayan.
- The Depressed Classes were represented by **B.R. Ambedkar** and Rettamalai Srinivasan.
- The Muslims were represented by Aga Khan III, Maulana Shaukat Ali, **Muhammad Ali Jinnah**, A.K. Fazlul Huq, Muhammad Iqbal, Muhammad Shafi, Muhammad Zafarullah Khan, etc. **So, Option (d) is correct.**

60. With reference to the integration of various provinces and princely states in the Indian Union, which of the following statements is correct?

- (a) The Mountbatten Plan of 1947 contemplated that the princely states would join either India or Pakistan and ruled out their independence.
- (b) The Dickie Bird plan proposed that the provinces be declared independent successor states and be allowed to choose whether to join the constituent assembly or not.
- (c) The Cabinet Mission Plan allowed the princely states to enter into an arrangement with any successor Indian government or the British government.
- (d) All of the above given statements are correct.**

**EXPLANATION:**

**Mountbatten Plan (June 3, 1947):**

- The Mountbatten Plan of June 3, 1947, discussed the partition of India and advised the rulers of the states to join either of the two dominions (India or Pakistan) and ruled out their independence.

**Dickie Bird Plan:**

- Under the Dickie Bird Plan, all the provinces, viz. Bombay, Madras, United Provinces, Bengal, Punjab, and North-West Frontier, etc., were proposed to be declared independent.
- The Plan proposed that the provinces be declared independent successor states and then be allowed to choose whether to join the Constituent Assembly or not.

**Cabinet Mission Plan (May 16, 1946):**

- The Cabinet Mission Plan was a statement made by the Cabinet Mission and the Viceroy, Lord Wavell, on May 16, 1946, that contained proposals regarding the constitutional future of India in the wake of Indian political parties and representatives not coming to an agreement.
- It allowed princely states to enter into arrangements with any successor Indian government or the British government, as they would no longer be under British paramountcy.
- The members of the Cabinet Mission were: Lord Pethick-Lawrence, Secretary of State for India; Sir Stafford Cripps, President of the Board of Trade; and A.V. Alexander, First Lord of the Admiralty.

Thus,

- The Mountbatten Plan guided princely states to join either dominion and ruled out their independence.
- The Dickie Bird Plan proposed independent provinces with a choice regarding the Constituent Assembly;
- The Cabinet Mission Plan implied the lapse of British paramountcy, allowing princely states to decide their future arrangements. **So, Option (d) is correct.**

61. With reference to the National Turmeric Board, consider the following statements:

1. The headquarters has been established in Keralam.
2. It functions under the Ministry of Agriculture and Farmers' Welfare.
3. India accounts for more than half of the global turmeric production.
4. Turmeric has anti-viral and anti-cancer properties.

How many of the above given statements is/are correct?

- (a) Only one
- (b) Only two**
- (c) Only three
- (d) All four

**EXPLANATION:**

Turmeric (*Curcuma longa*) is native to India and has been studied extensively for its health benefits. On June 29, 2025, Union Home Minister inaugurated the headquarters of the National Turmeric Board in **Nizamabad, Telangana**. **So, Statement 1 is not correct.**

- The state of Maharashtra was the leading producer of turmeric in India during the fiscal year 2024.
- Telangana was chosen as the headquarters as it is one of the top turmeric-producing states — it was the third largest producer of turmeric in 2024-25.






The National Turmeric Board will function under the **Union Ministry of Commerce** (not the Ministry of Agriculture and Farmers' Welfare) and Industry, which also controls boards for tea, coffee, rubber, spices and tobacco.

It will focus on the development and growth of turmeric and turmeric products in the country. The central government has also allocated Rs 200 crore to improve the quality of the turmeric crop, carry out research and to improve farmers' income. **So, Statement 2 is not correct.**

India is the largest consumer of turmeric and also its biggest producer and exporter. More than 30 varieties of turmeric are grown in over 20 states across the country. India produced **11.61 lakh tonnes of turmeric in FY23** on 3.24 lakh hectares, accounting for more than **75% of global production**. **So, Statement 3 is correct.**

Turmeric has Multiple End-uses Across Various Sectors, such as in Medicine & Nutraceuticals. Curcumin, turmeric's key compound, is valued for its anti-inflammatory, antioxidant/anti-viral, and anticancer properties, widely used in nutraceuticals. **So, Statement 4 is correct.**

**Turmeric has Multiple End-uses Across Various Sectors**

- 
**Food**  
 • Turmeric is a staple spice in Indian cuisine and commercial curry powders. It is also used as a condiment, colourant, and preservative. Turmeric oleoresin enhances products like pickles, mayonnaise, and beverages.
- 
**Medicine & Nutraceuticals**  
 • Curcumin, turmeric's key compound, is valued for its anti-inflammatory, antioxidant, and anticancer properties, widely used in nutraceuticals.
- 
**Cosmetics**  
 • Curcumin, valued in the cosmetics industry for its anti-inflammatory, antioxidant and anti-aging effects, is found in a wide array of Ayurvedic products like shampoos, serums, and foundations.
- 
**Fabric Dye**  
 • Turmeric's vibrant yellow pigment is used as a natural dye in textiles, notably in regions like Tanzania.
- 
**Cultural & Spiritual Significance**  
 • It is considered sacred, symbolises prosperity in Hinduism, and plays a vital role in festivals, weddings, and childbirth rituals.

62. Consider the following Statement regarding financial market transactions:  
 "The simultaneous purchase and sale of the same asset in different markets in order to profit from tiny differences in the asset's trading price."

Which of the following strategies is described above?

- (a) Speculation
- (b) Arbitrage**
- (c) Hedging
- (d) Diversification

**EXPLANATION:**

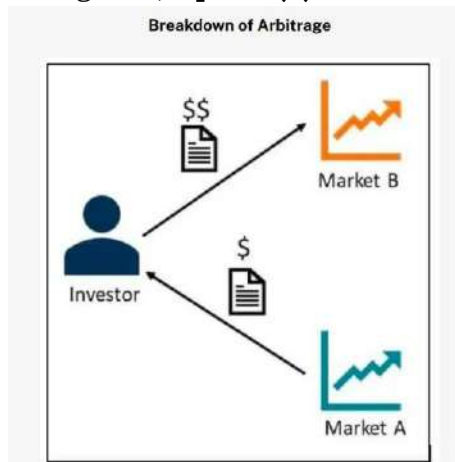
Financial markets are highly interconnected, allowing investors to trade across markets quickly. Sometimes, profit opportunities arise due to price differences of the same asset in different markets.

- This strategy is known as **arbitrage**, which involves the simultaneous purchase and sale of the same asset in different markets to profit from price differences.
- Investors who engage in this practice are called arbitrageurs, and timing is crucial as such opportunities exist only briefly before markets adjust.

**Example:**

If a share of Company X is priced at ₹15,000 on NSE and ₹15,020 on BSE, an arbitrageur can buy it on NSE and sell it on BSE simultaneously, earning a profit of ₹20 per share.

Thus, the strategy described is Arbitrage. **So, Option (b) is correct.**



63. Consider the following statements about the new series of Consumer Price Index:

1. The base year has been revised from 2012 to 2024.
2. The weightage of food items has seen a moderate increase.
3. Online media and streaming services have been added to the basket of items.

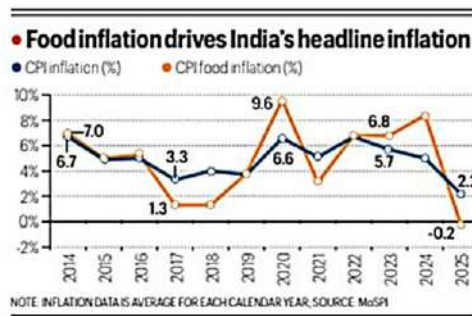
Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only**
- (d) 1, 2 and 3

**EXPLANATION:**

The Ministry of Statistics & Programme Implementation is releasing the Consumer Price Index (CPI) with Base year 2024 =100. The item basket and the corresponding weights are based on the Household Consumption Expenditure Survey 2023-24. The exercise is being done to enhance the coverage and representativeness of the inflation measure. The revision introduces more granular data, enabling policymakers, financial institutions, businesses and citizens to make precise data-driven decisions.

- **Base year:** Base revised from 2012 to 2024 using the Household Consumption Expenditure Survey 2023-24. **So, Statement 1 is correct.**
- The weight of food items is set to **drop by 37%** in CPI from 46%. A fall in the weight of food items in the CPI basket, in line with the latest consumption patterns of households, should reduce volatility in overall retail inflation. **So, Statement 2 is not correct.**



Key enhancements in Base Updation Exercise of Consumer Price Index (CPI) (Base 2024=100):

- First-time inclusion of **rural house rent** for improving coverage of rural housing consumption.
- Strengthened representation of modern consumption items such as **online media services** and fuels (CNG/PNG).
- Improved coverage of data available on digital and administrative sources, including telephone charges, rail fares, air fares, fuel, postal charges and **online media and streaming services (OTT subscriptions)**.

Thus, the new CPI series (Base 2024=100) has officially added online media/streaming services (OTT) and rural housing to the consumption basket. **So, Statement 3 is correct.**

64. Which one of the following statements best describes the 'B-READY' assessment?

- (a) It is an international benchmarking project developed by the World Bank to assess the business and investment climate across economies.**
- (b) It is a global index developed by the International Monetary Fund to assess the macroeconomic stability and fiscal discipline of countries.
- (c) It is an initiative of the World Economic Forum to rank countries based on technological readiness and innovation capacity.
- (d) It is an assessment framework by the International Labour Organisation to measure labour market flexibility and employment conditions across countries.

**EXPLANATION:**

Business Ready (B-READY) is a **World Bank Group corporate flagship report** that provides a quantitative **assessment of the business and investment climate worldwide**.

- It offers a comprehensive data set and analysis of the factors that strengthen the private sector, by advancing the interests of individual firms as well as those of workers, consumers, potential new enterprises, and the natural environment. **So, Option (a) is correct.**
- The World Bank Group's B-READY project is a benchmarking exercise aiming to provide a quantitative assessment of the business environment for private sector development.
- Its report will be **published annually** and cover most economies worldwide.
- The assessment will cover ten assessment topics following the typical life cycle of a firm from opening, operating (or expanding), and closing (or reorganising) a business.

**India's Participation in the Business Ready (B-READY) Project:**

- India has been included among the economies selected to take part in the World Bank's new Business Ready (B-READY) assessment—an initiative launched in May 2023 to evaluate the global business and investment landscape through a modernised and comprehensive methodology.
- India's B-Ready Report is expected to be published in the third phase in September 2026.
- The firm survey process was initiated in January 2025. Expert Consultations start in September 2025.

65. In the context of the budget of the Government of India, consider the following:

1. Salaries of employees
2. Subsidies for farmers
3. Interest payments
4. Repayment of loans
5. Digitisation of classrooms

Identify which of the above are **not** revenue expenditures:

- (a) 1, 2 and 3 only
- (b) 1, 2, 3 and 5 only
- (c) 4 and 5 only**
- (d) 1, 2, 3, 4 and 5

**EXPLANATION:**

The expenditures of the Government of India that do not lead to the creation of fixed assets or reduction of liabilities are called **revenue expenditures**. The government revenue expenditure under various accounting heads, includes:

- Paying interest on loans. **So, Statement 3 is correct.**
- Salaries and pensions of employees. **So, Statement 1 is correct.**
- Subsidies (for Farmers). **So, Statement 2 is correct.**
- Spends on different ministries and departments, etc.
- Grants made to state governments and other parties are also treated as revenue expenditures, even though these might be used for the creation of fixed assets.

**Capital expenditure** is the money spent by the Government on the development of machinery, equipment, buildings, health facilities, education, etc. It also includes the expenditure incurred on **acquiring fixed assets** like land and investments by the Government that give profits or dividends in future, as well as the expenditure incurred in the reduction of liabilities.

Capital spending is associated with investment or development spending, where expenditure has benefits extending years into the future. Capital expenditure includes money spent on the following:

- Acquiring fixed and intangible assets.
- Upgrading an existing asset (Digitisation of classrooms involves the acquisition, installation, and upgrading of physical assets). **So, Statement 5 is not correct.**
- Repairing an existing asset
- Repayment of loans (As it reduces a financial liability). **So, Statement 4 is not correct.**

66. Which of the following is **not** a potential consequence of a bank having a high proportion of its assets as Non-Performing Assets (NPAs)?
- Decreased depositor confidence
  - Increased scrutiny from the regulator
  - Decreased need for provisioning of NPAs**
  - Decreased bank profitability

**EXPLANATION:**

A **non-performing asset (NPA)** is a loan or debt instrument for which **the borrower has defaulted on the payments**. The lender of the funds hasn't received the borrower's principal and interest payments for an extended period of time. In such cases, the lender can repossess the collateral used to secure the loan to recover any losses.

**Potential consequence of a bank having a high proportion of its assets as Non-Performing Assets (NPAs):**

- **Decreased depositor confidence** - Rising NPAs undermine the bank's image, making the public lose trust in banks. The depositors may withdraw their deposits, causing liquidity issues for banks.
- **Stricter regulations** - Banks with high NPAs face increased scrutiny from regulators, limiting their operational flexibility.
- **Liquidity issues** - Increased NPAs restrict the bank's ability to lend, affecting overall economic growth.
- **Reduced Profitability** - NPAs directly affect a bank's income since the principal and interest are not being paid. This reduction in income impacts the bank's profitability and ability to lend.
- **Increased Provisioning** - Banks must set aside funds to cover potential losses from NPAs, which affects their liquidity and capital adequacy. Thus, when a bank has a high proportion of NPAs, the provisioning requirement increases rather than decreases.

Therefore, decreased provisioning of NPAs is not a potential consequence of a bank having a high proportion of its assets as Non-Performing Assets (NPAs). **So, Option (c) is correct.**

67. Consider the following:

- Ayush-based healthcare
- Renewable energy
- Intermediaries in the education sector
- Handloom industry

How many of the above is/are a part of the National Industrial Classification?

- Only one
- Only two
- Only three
- All four**

**EXPLANATION:**

The National Industrial Classification (NIC) is a fundamental tool used in statistical surveys, censuses, economic research, and policy formulation.

- India's classification system, first introduced in 1962, has been revised periodically in line with international standards and the changing economic landscape, leading to NIC 1970, NIC 1987, NIC 1990, NIC 1998, NIC 2004 and NIC 2008. The **NIC 2025** represents the latest updated national standard for classifying economic activities in India.
- The updated classification provides a comprehensive and contemporary framework for all economic activities, capturing the rapid transformation of the Indian economy driven by technological advancement, innovation, and the emergence of new sectors.

- The revised classification introduces **enhanced coverage of intermediation services across sectors such as energy, retail, logistics, healthcare, education, real estate and food services.** It also strengthens the representation of environmental and green economy activities, including carbon capture, waste management and environmental remediation, with clearer alignment to Sustainable Development Goals (SDGs) and the System of Environmental-Economic Accounting (SEEA).
- The revision reflects major structural, technological and organisational shifts in India's economy, including the **rapid growth of renewable energy**, fintech, e-commerce and digital intermediation. It also recognises important indigenous sectors like **Ayush-based healthcare and the handloom industry.**

Thus, Ayush-based healthcare, Renewable energy, Intermediaries in education sector and Handloom industry are part of the National Industrial Classification. **So, Option (d) is correct.**



The infographic is titled 'NATIONAL INDUSTRIAL CLASSIFICATION CODE 2025' and is presented by MoSPI. It is divided into several sections:

- ABOUT THE CODE:**
  - Standardised framework for classifying economic activities
- KEY CHANGES IN NIC-2025:**
  - Global Alignment with International Standard Industrial Classification (ISIC)
  - Policy Use: Supports policy-making and budget allocation
  - Background: First introduced in 1962 and revised periodically
  - Expanded coverage
  - Green economy
  - Six-Digit System Changed to six-digits (Example: 123456)
  - Global Harmonisation: Aligns with ISIC Revision 5
  - Digital Sector: New categories like cloud infrastructure
  - Platform Economy: Service aggregators & gig economy

68. Consider the following:

1. Biodiversity
2. Distance from the Sun
3. Volcanic Eruptions

How many of the above have affected the evolution of the atmosphere?

- (a) Only one
- (b) Only two
- (c) All three**
- (d) None

**EXPLANATION:**

Earth's atmosphere is a mixture of gases held in place by gravity. The atmosphere evolved over billions of years, starting with **volcanic outgassing** that released water vapour and other volatiles. Early life, such as photosynthetic organisms, transformed the atmosphere by reducing carbon dioxide and increasing oxygen levels. The ozone layer developed, shielding life from harmful solar radiation and enabling the spread of life onto land.

Several factors affect the evolution of the atmosphere. One of them is biodiversity.



- **Biodiversity:** Life on Earth has fundamentally altered the chemical composition of Earth's atmosphere. The evolution of the Earth's atmosphere is closely linked to the evolution of life.
- Biological processes interact strongly with physical and chemical processes to create the environment that keeps Earth habitable for life. For example, biological processes contribute significantly to **atmospheric carbon dioxide absorption by the oceans**, which in turn controls atmospheric carbon dioxide concentration on long time scales. Photosynthesis by phytoplankton (small marine plants) reduces the amount of carbon dioxide in the surface layer of the ocean, allowing more carbon dioxide to dissolve from the atmosphere.
  - Another key example is the **Great Oxygenation Event**, during which early cyanobacteria released large amounts of oxygen through photosynthesis, fundamentally transforming Earth's atmosphere. Additionally, the formation of **coral reefs and marine shells** locks carbon in calcium carbonate ( $\text{CaCO}_3$ ), effectively removing  $\text{CO}_2$  from the atmosphere and storing it in geological deposits.

Thus, Biodiversity affects the evolution of the atmosphere. **So, Statement 1 is correct.**

The distance of Earth from the Sun plays a crucial role in the evolution and retention of its atmosphere. It determines the amount of solar radiation received, which directly influences planetary temperature, atmospheric chemistry, and the ability to retain gases.

- **Earth lies in the habitable zone**, where temperatures are moderate enough to allow the presence of liquid water. This has been essential for chemical reactions and biological processes that shaped the atmosphere over time.
- Planets closer to the Sun (like Mercury) have lost much of their atmosphere due to intense solar radiation and solar winds, while those farther away have colder, thicker, or frozen atmospheres.
- Importantly, **solar winds**—streams of charged particles emitted by the Sun—can strip away atmospheric gases. **Earth's optimal distance**, combined with its strong magnetic field, protects the atmosphere from significant erosion by deflecting solar winds. In contrast, planets like Mars, with a weaker magnetic field and different solar wind interactions, have lost a substantial portion of their atmosphere over time.
- Additionally, appropriate solar energy drives processes such as **photosynthesis**, which contribute to oxygen production and carbon dioxide regulation. It also influences atmospheric circulation and the hydrological cycle, which play indirect roles in maintaining atmospheric stability.

Thus, Earth's optimal distance from the Sun has been a key factor in the long-term evolution and sustainability of its atmosphere. **So, Statement 2 is correct.**

Volcanic activity has played a fundamental role in the origin and evolution of Earth's atmosphere.

- In the early stages of Earth's history, **intense volcanism led to outgassing**, releasing gases such as water vapour, carbon dioxide, nitrogen, and sulfur compounds, which **formed the primitive atmosphere**.
- Over geological timescales, volcanic eruptions have continued to modify atmospheric composition by injecting gases and aerosols into the atmosphere. For instance, sulfur dioxide ( $\text{SO}_2$ ) released during eruptions reacts in the stratosphere to form sulfuric acid ( $\text{H}_2\text{SO}_4$ ) aerosols, which reflect incoming solar radiation and can cause **short-term global cooling**.
- Additionally, volcanic emissions contribute to the long-term cycling of gases like carbon dioxide, thereby influencing atmospheric composition and climate regulation.

Thus, volcanism has been a key driver in both the formation and subsequent evolution of Earth's atmosphere. **So, Statement 3 is correct.**

69. Consider the following statements:

**Statement I:**

The National Capital Region experiences smog-like conditions during January.

**Statement II:**

Long winter nights with clear skies and still air create a temperature inversion.

Which one of the following is correct with respect to the above statements?

- (a) **Both Statement I and Statement II are correct, and Statement II is the correct explanation for Statement I**
- (b) Both Statement I and Statement II are correct, and Statement II is not the correct explanation for Statement I
- (c) Statement I is correct, and Statement II is incorrect
- (d) Statement I is incorrect, and Statement II is correct

**EXPLANATION:**

During January, the National Capital Region (NCR) experiences increased smog due to continuous emissions of pollutants like PM<sub>2.5</sub> from vehicles, industries, and dust.

- Normally, these pollutants disperse through wind and vertical air circulation.
- However, in winter, low wind speeds reduce horizontal dispersion, while long nights and clear skies cause rapid cooling of the ground. This leads to temperature inversion, where a layer of warm air traps cooler air near the surface. This condition prevents vertical mixing of air.
- As a result, pollutants remain confined close to the ground and accumulate rapidly, causing dense smog.

Therefore, the National Capital Region experiences smog-like conditions during January due to the long winter nights with clear skies and still air that create a temperature inversion.

**Both Statement I and Statement II are correct, and Statement II is the correct explanation for Statement I.**

70. Consider the following statements regarding ocean bottom topography:

1. The Tonga Trench is located in the eastern part of the Atlantic Ocean.
2. The Kerguelen Plateau forms an important part of the Mid-Atlantic Ridge system.
3. The 90° East Ridge is a prominent aseismic ridge in the Indian Ocean that separates the Indian Plate from the Australian Plate.
4. Oceanic trenches are generally associated with divergent plate boundaries.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 3 only**
- (d) 1, 2 and 4 only

**EXPLANATION:**

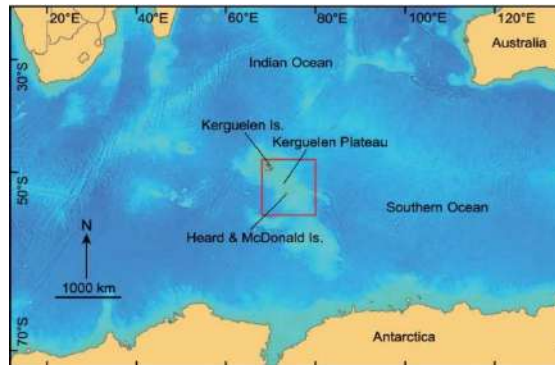
**The Tonga Trench** lies in the **southwestern Pacific Ocean**. It is the **second-deepest oceanic trench** in the world and the deepest in the Southern Hemisphere. **So, Statement 1 is not correct.**

- The trench's deepest point is Horizon Deep, situated 10,820 meters below sea level. This makes it the **second deepest location on Earth**, after **Challenger Deep**.
- The Tonga Trench-Arc system is a fast-moving convergent margin where the **Pacific plate subducts** westward beneath the **Indo-Australian Plate**.



**The Kerguelen Plateau** is located in the Indian Ocean and is the longest continually erupting supervolcano. From 90 to 120 million years ago, basaltic lava eruptions from fissures on the seabed led to the formation of a volcanic plateau that eventually rose above the sea level.

- The presence of soil layers and charcoal from previous vegetation in the basalt indicates that the Kerguelen Plateau was once above sea level. Due to the volcanic rock sinking slowly, the Kerguelen Plateau is currently oceanic, 1000-2000m below sea level.
- The Kerguelen Islands (French territory) and the Heard and McDonald Islands (Australian territory) are the only parts of the plateau that remain above the sea level. The plateau is situated in the **temperate zone of the Southern Hemisphere**. It is a **part of the sub-Antarctic shelf**.



Thus, the Kerguelen Plateau lies in the Indian Ocean and is not associated with the Mid-Atlantic Ridge system of the Atlantic Ocean. **So, Statement 2 is not correct.**

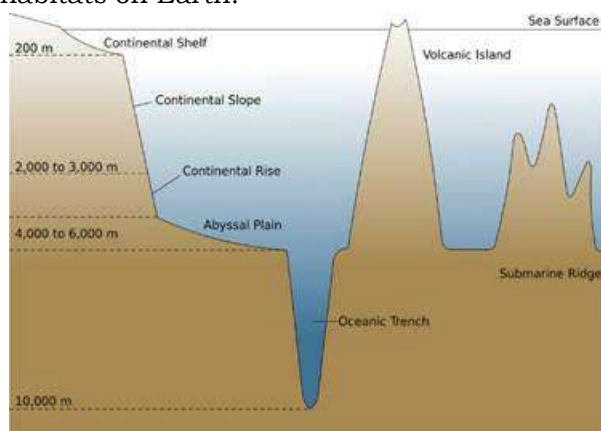
**The Ninety East Ridge (90°) is an aseismic ridge located on the floor of the Indian Ocean.** The ridge stretches for 5,000 km and has an average width of 200 m, beginning in the Bay of Bengal and extending south to the Southeast Indian Ridge (SEIR). Additionally, the ridge extends further north for several more kilometres but is hidden below sediments of the Bengal Fan.

- The northern segment of Ninety East Ridge is composed of a sequence of massive individual volcanoes, while the southern portion is tall and nearly continuous. The middle section of the ridge contains a mixture of small seamounts and straight segments.
- The **Ninety East Ridge divides the Indian Ocean into the West Indian Ocean and the eastern Indian Ocean**, and also separates the Nicobar Fan from the Bengal Fan.
- It is the most prominent feature in the eastern Indian Ocean and **separates the central Indian basin on the west (Indian plate) from the Wharton basin on the east (Australia plate)**. **So, Statement 3 is correct.**



**Ocean trenches** are long, narrow depressions on the seafloor. These chasms are the deepest parts of the ocean—and some of the deepest natural spots on Earth.

- Ocean trenches are found in every ocean basin on the planet, although the deepest ocean trenches ring the Pacific as part of the so-called “Ring of Fire” that also includes active volcanoes and earthquake zones.
- Ocean trenches are a result of tectonic activity, which describes the movement of the Earth’s lithosphere. In particular, **ocean trenches are a feature of convergent plate boundaries**, where two or more tectonic plates meet. At many convergent plate boundaries, dense lithosphere melts or slides beneath less-dense lithosphere in a process called subduction, creating a trench. **So, Statement 4 is not correct.**
- Ocean trenches occupy the deepest layer of the ocean, **the hadalpelagic zone**. The intense pressure, lack of sunlight, and frigid temperatures of the hadalpelagic zone make ocean trenches some of the most unique habitats on Earth.



71. Consider the following states:

1. Karnataka
2. Telangana
3. Maharashtra
4. Chhattisgarh
5. Madhya Pradesh

How many of the above states have the drainage basins of both the Krishna and Godavari?

- (a) Only two  
**(b) Only three**  
 (c) Only four  
 (d) All five

**EXPLANATION:**

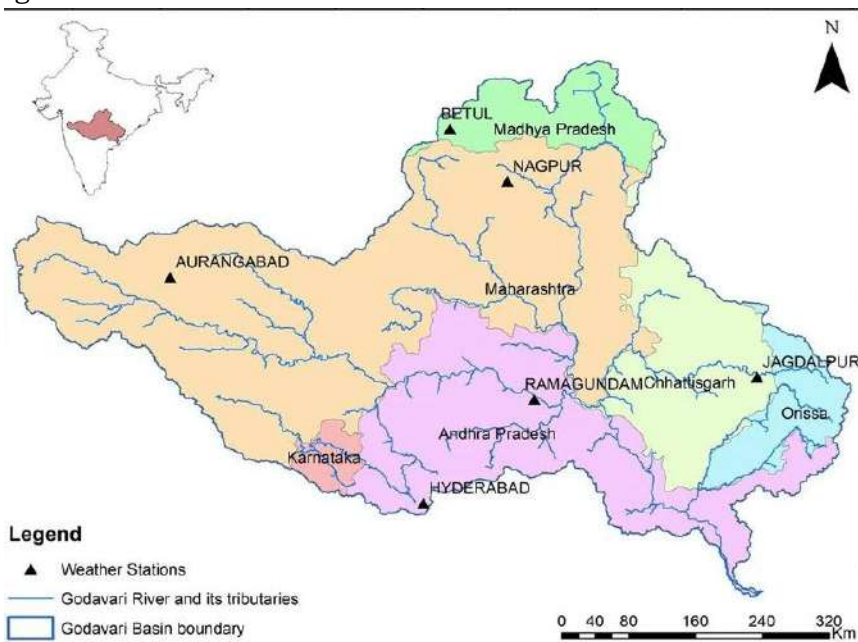
**Krishna River** rises in the Western Ghats at an elevation of about 1337 m just north of Mahabaleswar, Maharashtra and flows for about 1400 km before draining into the Bay of Bengal.

- The principal tributaries joining the Krishna are **the Ghataprabha, the Malaprabha, the Bhima, the Tungabhadra and the Musi.**
- The Krishna River basin lies mainly in the four states **Karnataka, Maharashtra, Telangana and Andhra Pradesh**, having a total area of 2,58,948 Sq.km which is nearly 8% of the total geographical area of the country.
- The basin has a maximum length and width of about 701 km and 672 km and lies between 73°17’ to 81°9’ east longitudes and 13°10’ to 19°22’ north latitudes. It is bounded by the Balaghat range on the north, by the Eastern Ghats on the south and the east and by the Western Ghats on the west.



**Godavari Basin** accounts for nearly 9.5% of the total geographical area of the country. It **extends over states of Maharashtra (48.7%), Andhra Pradesh & Telangana (23.7%), Chhattisgarh (12.4%) and Odisha (5.7%)** in addition to **smaller parts in Madhya Pradesh (7.8%) and Karnataka (1.4%) and the Union Territory of Pondicherry.**

- The Godavari basin is bounded on the north by the Satmala hills, the Ajanta range and the Mahadeo hills, on the east by the Eastern Ghats and on the west by the Western Ghats and on the south, it is bounded by the Balaghat and the Mahadeo ranges stretching forth from the eastern flank of the Western Ghats and the Anantgiri and other ranges of the hills.
- Except for the hills forming the watershed around the basin, the entire drainage basin of the river comprises rolling and undulating country – a series of ridges and valleys interspersed with low hill ranges.



Thus, **Karnataka, Telangana and Maharashtra** have the drainage basins of both Krishna and Godavari. **So, Statements 1, 2 and 3 are correct.**

72. Consider the following statements regarding seasons:

1. Seasonal changes are caused by the revolution of the Earth around the Sun on a tilted axis.
2. Spring is a transition season between cold winters and hot summers.
3. The Falkland Islands experience winter in the month of June, while Ireland experiences summer in the month of December.
4. The oceans always record a moderate temperature compared to that of the land.

Which of the statements given above are correct?

- (a) 1, 2 and 3 only  
**(b) 1, 2 and 4 only**  
 (c) 1, 3 and 4 only  
 (d) 1, 2, 3 and 4

**EXPLANATION:**

**The Earth is tilted 23.5 degrees** on its axis, which affects the distribution of the sun's energy across the surface of the planet. As the Earth revolves around the Sun in about **365¼ days**, this constant tilt causes different parts of the Earth to receive varying amounts of solar radiation throughout the year.

- Around June 22, the Northern Hemisphere is angled towards the sun and receives the most direct radiation and the most energy. This is the start of astronomical summer in the Northern Hemisphere and winter in the Southern Hemisphere.
- Six months later, on 21st December, the Earth has completed half a revolution around the sun. The Northern Hemisphere is now angled away from the sun and receives less energy than the Southern Hemisphere; this is the beginning of winter in the Northern Hemisphere and summer in the Southern Hemisphere.

Thus, Seasonal changes are caused by the revolution of the Earth around the Sun on a tilted axis. **So, Statement 1 is correct.**

**Spring**, in climatology, **season of the year between winter and summer** during which temperatures gradually rise.

- It is generally defined in the Northern Hemisphere as the transitional season extending from the vernal equinox (day and night equal in length), March 20 or 21, to the summer solstice (year's longest day), June 21 or 22, and in the Southern Hemisphere from September 22 or 23 to December 22 or 23.
- **The spring temperature transition from cold winter to hot summer** occurs only in middle and high latitudes. Near the Equator, temperatures vary little during the year. Spring is very short in the polar regions. **So, Statement 2 is correct.**

The Falkland Islands are an internally self-governing overseas territory of the United Kingdom in the South Atlantic Ocean. It lies about 480 km northeast of the southern tip of South America and a similar distance east of the Strait of Magellan.

- **The Falkland Islands experience cool summers**, with average highs around 13°C **in January and February**, and **mild winters, where temperatures drop to about 2°C from June to August.**

Ireland, a country of western Europe occupying five-sixths of the westernmost major island of the British Isles.

- Temperature is almost uniform over the entire island. Average air temperatures lie mainly between the limits of 4 and 7 °C in **January and February, the coldest months of the year. In July and August, the warmest months**, temperatures usually range between 14 and 16 °C, although occasionally considerably higher readings are recorded.
- The sunniest months are May and June, when there is sunshine for an average duration of 5.5 and 6.5 hours a day, respectively, over most of the country.
- Winters tend to be cool and windy, while summers, when the depression track is further north, and depressions are less deep, are mostly mild and less windy.

Thus, **Ireland experiences winter** in the months of December, January and February. **So, Statement 3 is not correct.**

Ocean waters get heated up by the solar energy just as land does. The process of heating and cooling of the oceanic water is slower than that of land.

- Water has a higher specific heat capacity than soil and rock, meaning it can absorb and store more heat without a large change in temperature.
- As a result, oceans warm up slowly during the day and cool down slowly at night, unlike land, which heats and cools rapidly. This moderating effect causes coastal areas to experience moderate temperatures compared to inland regions. **So, Statement 4 is correct.**

73. Bitra island sometimes seen in the news, is found in which of the following seas?

- (a) Sea of Japan
- (b) Java Sea
- (c) Arabian Sea**
- (d) Tyrrhenian Sea

**EXPLANATION:**

**Bitra is the smallest inhabited island** of the Union Territory of Lakshadweep, located in the **Arabian Sea**. It was the breeding ground for a number of sea birds, a favourite hunt of the Kiltan and Chetlat people. **So, Option (c) is correct.**

- The climate of Bitra is similar to the climatic conditions of Kerala. March to May is the hottest period of the year. The temperature ranges from 25°C to 35°C and the humidity ranges from 70 - 76 per cent for most of the year.
- The average rainfall received is 1600 mm a year. Monsoon prevails here from 15th May to 15th September.
- It was in the news as the Lakshadweep administration is considering the acquisition of Bitra from the inhabitants of the island, and transferring it to the Government of India for defence purposes.



74. Consider the following statements with respect to presiding officers of the Lok Sabha:

1. The office of Speaker and Deputy Speaker originated in India in 1921 under the provisions of the Government of India Act of 1919.
2. Both are removed by a resolution passed by a majority of the then total Lok Sabha membership (Effective majority), with 14 days' prior notice.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2**
- (d) Neither 1 nor 2

**EXPLANATION:**

The post of Speaker and Deputy Speaker originated in India in 1921 under the provisions of the Government of India Act of 1919 (Montague-Chelmsford Reforms). **So, Statement 1 is correct.**

- In 1921, the Deputy Speaker was called the Deputy President, but the Government of India Act of 1935 changed the nomenclature of Deputy President to Deputy Speaker.
- **Article 93** in the Constitution of India deals with the Speaker and Deputy Speaker of the House of the People.

Both the Speaker and Deputy Speaker remain in office during the life of the Lok Sabha. He/she is provided with a security of tenure.

- He/she can be removed only by a resolution passed by the Lok Sabha by an effective majority (a majority of all the then members of the House) and not by a simple majority (a majority of the members present and voting in the House).
- This motion of removal can be considered and discussed only when it has the support of at least 50 members. Such a resolution can be moved only after giving 14 days' advance notice.

Thus, both the speaker and deputy speaker are removed by a resolution passed by a majority of the then total Lok Sabha membership (Effective majority), with 14 days' prior notice. **So, Statement 2 is correct.**

75. Match List-I with List-II and select the correct answer using the codes given below:

	<b>List I (Features of the Indian Constitution)</b>		<b>List II (Country from which it was derived)</b>
A.	Prerogative Writs	1.	Australia
B.	Advisory Jurisdiction of the Supreme Court	2.	Canada
C.	Concurrent List in Union-State Relations	3.	USSR
D.	Ideals of justice in the Preamble	4.	United Kingdom

**Codes:**

- (a) A-3, B-4, C-1, D-2
- (b) A-3, B-4, C-2, D-1
- (c) A-4, B-2, C-1, D-3**
- (d) A-4, B-3, C-1, D-2

**EXPLANATION:**

The features of the Indian Constitution were borrowed from various sources around the world.

- **Prerogative Writs (UK):** The concept of writs like Habeas Corpus and Mandamus originated in English Common Law, where they were known as "**Prerogative Writs**" because they were issued by the King as the "fountain of justice". **(A-4)**
  - Other features from the United Kingdom include - Parliamentary government, Rule of Law, legislative procedure, single citizenship, cabinet system, parliamentary privileges and bicameralism.
- **Advisory Jurisdiction (Canada):** Under Article 143, the President can seek the opinion of the Supreme Court. This **Advisory feature of the Supreme Court** is a hallmark of the Canadian constitutional model. **(B-2)**
  - Other features from Canada include - Federation with a strong Centre, vesting of residuary powers in the Centre, and appointment of state governors by the Centre.
- **Concurrent List (Australia):** While the Government of India Act of 1935 provided a three-fold distribution of legislative powers, the specific language and idea of the **Concurrent List** and Joint Sitting of the two Houses were borrowed from the Australian Constitution. **(C-1)**

- Other features from Australia include - Freedom of trade, commerce and inter-course, and joint sitting of the two Houses of Parliament.
  - **Ideals of Justice (USSR):** The Preamble mentions Justice in three forms: Social, Economic, and Political. These were inspired by the Russian Revolution (1917). (Note: The ideals of Liberty, Equality, and Fraternity were borrowed from the French Constitution).
  - Fundamental duties and the ideal of justice (social, economic and political) in the Preamble are from the **USSR. (D-3)**
- So, Option (c) is correct. (A-4, B-2, C-1, D-3)**

76. Consider the following:

1. Independence of the Judiciary
2. Welfare state
3. Procedure Established by Law
4. Powers of the High Courts under Articles 226 and 227
5. Freedom and dignity of the individual

Which of the above are elements of the 'basic structure' of the Constitution?

- (a) 1, 2, 3 and 4 only  
**(b) 1, 2, 4 and 5 only**  
 (c) 1, 2, 3 and 5 only  
 (d) 1, 3, 4 and 5 only

**EXPLANATION:**

The Kesavananda Bharati case established the doctrine of the basic structure of the Indian Constitution. The basic structure of the doctrine holds that certain fundamental features of the Constitution cannot be amended or abrogated by Parliament through a constitutional amendment.

- This doctrine has served as a check on the power of the Parliament to amend the Constitution and has ensured that the Constitution remains a living document that is responsive to changing times while preserving its fundamental values and principles.
- The present position is that the Parliament under Article 368 can amend any part of the Constitution including the Fundamental Rights but without affecting the 'basic structure' of the Constitution. However, the Supreme Court is yet to define or clarify as to what constitutes the 'basic structure' of the Constitution. From the various judgements, the following have emerged as 'basic features' of the Constitution or elements of the 'basic structure' of the Constitution:
  - Supremacy of the Constitution
  - Sovereign, democratic and republican nature of the Indian polity
  - Secular character of the Constitution
  - Separation of powers between the legislature, the executive and the judiciary
  - Federal character of the Constitution
  - Unity and integrity of the nation
  - Welfare state (socio-economic justice). **Statement 2 is correct.**
  - Judicial review
  - Freedom and dignity of the individual. **Statement 5 is correct.**
  - Parliamentary system
  - Rule of law
  - Harmony and balance between Fundamental Rights and Directive Principles
  - Principle of equality
  - Free and fair elections
  - Independence of Judiciary. **Statement 1 is correct.**
  - Limited power of Parliament to amend the Constitution

- Effective access to justice
- Principles (or essence) underlying fundamental rights
- Powers of the Supreme Court under Articles 32, 136, 141 and 142
- Powers of the High Courts under Articles 226 and 227. **Statement 4 is correct.**

Procedure established by law is not an element of the Basic structure of the Constitution. **So, Statement 3 is not correct.**

77. With reference to Money Bills and Financial Bills, consider the following statements:

1. Both can be introduced only on the recommendation of the President.
2. Both can be introduced only in the Lok Sabha.
3. The Rajya Sabha has no power to amend either of these Bills.

How many of the above statements is/are **not** correct?

- (a) Only one
- (b) Only two
- (c) All three**
- (d) None

#### **EXPLANATION:**

**Financial bills** are those bills that deal with fiscal matters, that is, revenue or expenditure. However, the Constitution uses the term 'financial bill' in a technical sense. Financial bills are of three kinds:

- Money bills—Article 110
- Financial bills (I)—Article 117 (1)
- Financial bills (II)—Article 117 (3)

**Money Bill** - A Bill is said to be a Money Bill if it only contains provisions related to taxation, borrowing of money by the government, expenditure from or receipt to, the Consolidated Fund of India. Bills that only contain provisions that are incidental to these matters would also be regarded as Money Bills.

- A **Money Bill** may only be introduced in the Lok Sabha on the recommendation of the President. It must be passed in the Lok Sabha by a simple majority of all members present and voting. Following this, it may be sent to the Rajya Sabha for its recommendations, which the Lok Sabha may reject if it chooses to. If such recommendations are not given within 14 days, it will be deemed to be passed by Parliament.

**Financial Bills** - A Bill that contains some provisions related to taxation and expenditure, and additionally contains provisions related to any other matter, is called a Financial Bill. Therefore, if a Bill merely involves expenditure by the government, and addresses other issues, it will be a financial bill.

- A **financial bill (I)** is a bill that contains not only any or all the matters mentioned in Article 110, but also other matters of general legislation. Financial bill (I) may only be introduced in the Lok Sabha, on the recommendation of the President. The Bill must be passed by both Houses of Parliament, after the President has recommended that it be taken up for consideration in each House.
- Hence, a **financial bill (II)** contains provisions involving expenditure from the Consolidated Fund of India, but does not include any of the matters mentioned in Article 110. It is treated as an ordinary bill and in all respects, it is governed by the same legislative procedure which is applicable to an ordinary bill. It can be introduced in either House of Parliament and the recommendation of the President is not necessary for its introduction.

**Introduced on the recommendation of the President:**

- **Money Bills:** Require prior recommendation of the President.
- **Financial Bill (I):** Require prior recommendation of the President.
- **Financial Bill (II):** Do not require prior recommendation for introduction (only for consideration). **So, Statement 1 is not correct.**

**Introduced in the Lok Sabha or Rajya Sabha:**

- **Money Bills:** Only in Lok Sabha.
- **Financial Bill (I):** Only in Lok Sabha.
- **Financial Bill (II):** Can be introduced in either House. **So, Statement 2 is not correct.**

**The Rajya Sabha's power to amend these Bills:**

- **Money Bills:** Rajya Sabha cannot amend, only recommend.
- **Financial Bill (I) and Financial Bill (II):** Rajya Sabha can amend/reject (like an ordinary bill, except for some restrictions). **So, Statement 3 is not correct.**

78. Which one of the following best describes the concept of equality provided in the Indian Constitution?

- It is a condition in which all individuals are treated identically by the State in all situations, without permitting any distinction, thereby ensuring uniform application of laws.
- It is the absence of special privileges for any sections of society, and the guarantee of equal opportunities for all individuals without any discrimination.**
- It is the complete absence of preferential treatment for any section of society so as not to violate the principle of equality before law.
- It is a system where equality is achieved by guaranteeing identical social and economic outcomes for all individuals, irrespective of their initial conditions or background.

**EXPLANATION:**

The term 'equality' means **the absence of special privileges to any section of society, and the provision of adequate opportunities for all individuals without any discrimination. So, Option (b) is correct.**

The Preamble secures to all citizens of India equality of status and opportunity. This provision embraces three dimensions of equality—civic, political, and economic.

The following provisions of the chapter on Fundamental Rights ensure civic equality:

- Equality before the law (Article 14).
- Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth (Article 15).
- Equality of opportunity in matters of public employment (Article 16).
- Abolition of untouchability (Article 17).
- Abolition of titles (Article 18).

79. Consider the following statements:

- Ethics Committees were initially constituted during the tenure of the first Lok Sabha.
- The Ethics Committee of the Lok Sabha consists of 30 members, whereas that of the Rajya Sabha consists of 20 members.
- Ethics Committees are responsible for preparing Codes of Conduct for members of their respective Houses.

How many of the above given statements is/are correct?

- Only one**
- Only two
- All three
- None

**EXPLANATION:**

An Ethics Committee in Parliament is a body that monitors and enforces the ethical conduct of members (MPs). Both the Lok Sabha and the Rajya Sabha have their own Ethics Committees.

- It enforces the code of conduct of members of Parliament. It examines the cases of misconduct and recommends appropriate action. Thus, it is engaged in maintaining discipline and decorum in Parliament.

One of their key functions is to formulate and enforce a Code of Conduct for MPs. **So, Statement 3 is correct.**

The Ethics Committees are relatively recent bodies. In 1996, a Presiding Officers' Conference held in Delhi first mooted the idea of ethics panels for the two Houses. The Ethics Committee was constituted in the Rajya Sabha in 1997 and in the Lok Sabha in 2000, not during the first Lok Sabha (1952-57).

**So, Statement 1 is not correct.**

The Lok Sabha Ethics Committee **consists of 15 members** appointed by the Speaker for one year.

The Rajya Sabha Ethics Committee has **10 members** nominated by the Chairman. **So, Statement 2 is not correct.**

80. Under Article 143(2) of the Constitution, the President may refer a dispute arising out of any "pre-constitution treaty, agreement, covenant, engagement, or sanad" to the Supreme Court. Regarding this, the Supreme Court:

- (a) May, in its discretion, decline to provide an opinion.
- (b) Is under a constitutional obligation to deliver its opinion, which is binding on the President.
- (c) Is under a legal obligation to deliver its opinion, which is binding on the President.
- (d) Is under a constitutional obligation to deliver its opinion, the President is not bound to follow it.**

**EXPLANATION:**

The Constitution (**Article 143**) authorises the President to seek the opinion of the Supreme Court in the two categories of matters:

- On any question of law or fact of public importance which has arisen or which is likely to arise.
- **On any dispute arising** out of any pre-constitution treaty, agreement, covenant, engagement, sanad or other similar instrument, **which is excluded from the original jurisdiction** of the Supreme Court.

In the first case, the Supreme Court may tender or refuse to tender its opinion to the President. But, in the second case, **the Supreme Court must tender its opinion to the President.** In both cases, the opinion expressed by the Supreme Court is **only advisory and not a judicial pronouncement.** **Hence, it is not binding on the President;** he/she may follow or may not follow the opinion. However, it facilitates the government to have an authoritative legal opinion on a matter to be decided by it.

Thus, the Supreme Court is under a constitutional obligation to deliver its opinion when such a reference is made under Article 143(2). However, the President is not bound to act on that opinion. The advisory opinion is not enforceable like a judgment; it is recommendatory in nature. **So, Option (d) is correct.**

81. With reference to India's emerging quantum technology ecosystem, consider the following pairs:

<b>Sl. No.</b>	<b>Startup</b>	<b>Primary Technical Focus</b>
1.	QNu Labs	Quantum-safe communication networks
2.	QPiaI India	Superconducting quantum processors
3.	QuPrayog	Optical atomic clocks
4.	Pristine Diamonds	Lithium-ion battery materials

Which of the pairs given above are correctly matched?

- (a) 1, 2 and 3 only**
- (b) 1 and 4 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

**EXPLANATION:**

**QNu Labs**, incubated at IIT Madras Research Park in 2016, is revolutionising cybersecurity with quantum-safe solutions, positioning India as a global leader in quantum cryptography. In 2018, QNu launched QKD (Quantum Key Distribution), placing India on the global quantum map.

QNu Labs aims to build and deploy a Quantum Communication Network that is Made in India, Made for the World, with the world's first end-to-end quantum- safe heterogeneous network. **So, Pair (1) is correct.**

**QpiAI** has launched a 25-qubit superconducting quantum computer, dubbed QpiAI-Indus. The system is India's first full-stack quantum computing platform and forms part of the Bangalore-based startup's contributions under the country's National Quantum Mission (NQM).

According to QpiAI, the quantum computer comprises quantum processors built on superconducting qubits, and a cryogenic setup necessary for operating them at near millikelvin temperatures. **So, Pair (2) is correct.**

**QuPrayog** was founded in the year 2024. QuPrayog develops atomic clocks, optical frequency combs, and tunable lasers for applications in timekeeping, metrology, quantum computing, telecommunications, defence, and scientific research. **So, Pair (3) is correct.**

**Pristine Diamonds Pvt. Ltd. (Ahmedabad):** Designing diamond-based materials for quantum sensing, a promising avenue in quantum materials science, not related to Lithium-ion battery materials. **So, Pair (4) is not correct.**

82. With reference to biosimilars and generic drugs, consider the following statements:

1. Generic drugs are chemically identical to their reference drugs, whereas biosimilars are similar but not identical to their reference biologics.
2. Biosimilars are typically more complex to manufacture than generic drugs.
3. Biosimilars have a higher risk of immunogenicity compared to generic drugs due to their biological origin.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3**

**EXPLANATION:**

**Generic Drugs:**

- They are chemically identical to their branded counterparts (reference drug) and are sold at substantially lower prices.
- They are low-cost equivalents of brand-name medications with simple chemical structures.
- Generic drugs use the same active ingredient and thus have the same efficacy.

**Biosimilars:**

- A biosimilar is a biologic product that is highly similar to an already authorized biologic (the reference product), with no clinically meaningful differences in safety, purity, or efficacy.
- Because biologics are produced in living systems and show natural variability, a biosimilar is not an exact copy of its reference product; instead, it is developed through a comparability process to ensure it matches the reference product's key attributes within an acceptable range.
- If approved, a biosimilar is expected to perform as safely and effectively as the reference product.
- While biosimilars are highly similar to their reference biologic medications, they may not have identical efficacy due to the inherent differences in their molecular structures; however, these minor differences are not clinically meaningful and do not compromise patient safety or treatment effectiveness. **So, Statement 1 is correct.**

Biosimilars are complex biological medicines that require a sophisticated development and manufacturing process.

- The complex process of developing biosimilars is more intricate and costly than that of generics.
- According to the National Library of Medicine, developing a **biosimilar can take** between **seven and eight years** and cost more than \$100 million with clinical studies and extensive testing.
- In contrast, a **generic drug** can be **developed for much less**, around 1-4 million, as clinical trials are not required because the dosage and ingredients have already been tested by the brand name.
- These cost approximately \$1-2 million and can be developed in about two years, depending on the drug. **So, Statement 2 is correct.**

**Immunogenicity** refers to the ability of a substance to trigger an adaptive immune response in the body.

- Biosimilars have a higher risk of immunogenicity compared to generic drugs due to their biological origin and structural complexity.
- Biosimilars are derived from living cells and consist of large, complex protein molecules that cannot be replicated exactly because of inherent variability in biological systems and manufacturing processes.
- Even minor differences in structure, such as variations in protein folding or glycosylation patterns, may be recognized by the immune system as foreign, triggering immune responses like antibody formation or hypersensitivity.
- In contrast, generic drugs are small, chemically synthesized molecules that are structurally identical to their reference drugs, resulting in a much lower likelihood of immune reactions.

Thus, the biological nature and slight variability of biosimilars make them more prone to immunogenicity than generic drugs. **So, Statement 3 is correct.**

83. With reference to the composition of the Universe, arrange the following in descending order of abundance:

1. Dark Energy
2. Dark Matter
3. Matter (Baryonic Matter)
4. Anti-matter

Select the correct answer using the codes given below:

- (a) 1 - 2 - 3 - 4
- (b) 2 - 1 - 3 - 4
- (c) 1 - 3 - 2 - 4
- (d) 2 - 3 - 1 - 4

**EXPLANATION:**

In the composition of the Universe,

- **Dark Energy** is the most abundant component of the universe, **making up about 68% of the universe's total composition.**  
Scientists believe it is responsible for the accelerated expansion of the universe by exerting a repulsive effect that pushes galaxies farther apart. Although its exact nature remains unknown, dark energy dominates the large-scale structure and future evolution of the cosmos.
- **Dark Matter** is the second most abundant component, **constituting roughly 27% of the universe.**  
Unlike ordinary matter, it does not emit, absorb, or reflect light, making it invisible to direct observation. Its presence is inferred through gravitational effects on galaxies and galaxy clusters, where it acts as an unseen framework holding cosmic structures together.
- **Baryonic Matter, or normal matter**, accounts for only **about 5% of the universe.** This includes all visible matter such as stars, planets, gases, dust, and living organisms. It is made up of familiar

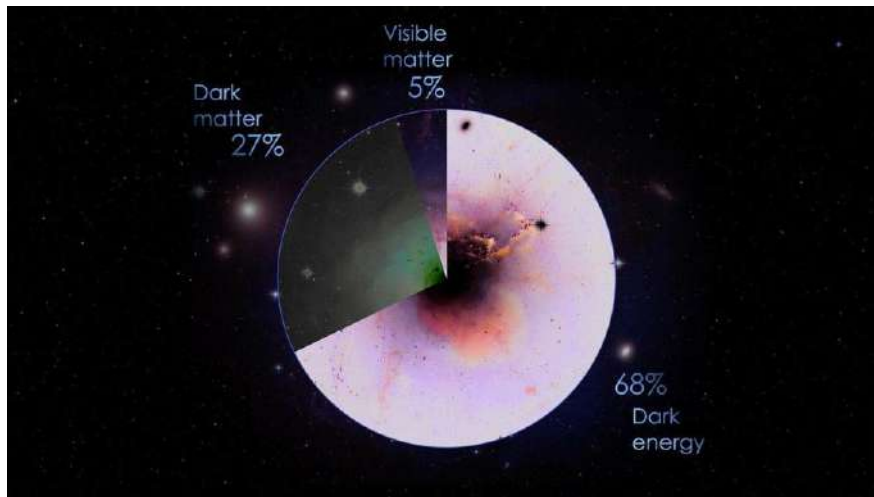
atomic particles like protons, neutrons, and electrons, forming everything directly observable through scientific instruments.

➤ **Anti-matter** is the **least abundant component** and exists only in **extremely small quantities in the present universe.**

Most anti-matter is believed to have annihilated with matter shortly after the Big Bang, leaving behind a matter-dominated cosmos.

Therefore, in descending order of abundance, the composition of the universe is **Dark Energy** → **Dark Matter** → **Baryonic Matter** → **Anti-matter.**

**So, Option (a) is correct.**



84. With reference to Sustainable Aviation Fuel (SAF), consider the following statements:

1. SAF can be used as a "drop-in fuel" with conventional Aviation Turbine Fuel without requiring major modifications to aircraft engines.
2. The Hydroprocessed Esters and Fatty Acids (HEFA) pathway is among the most widely used technologies for SAF production globally.
3. Used Cooking Oil (UCO) can serve as a feedstock for SAF production.

How many of the above given statements is/are correct?

- (a) Only one
- (b) Only two
- (c) All three**
- (d) None

**EXPLANATION:**

Sustainable Aviation Fuel (SAF) is a renewable jet fuel made from sustainable resources or waste materials that meet strict sustainability criteria.

- SAF is almost chemically and physically identical to **conventional jet fuel, allowing it to be used as a "drop-in" fuel without requiring any modifications to existing aircraft engines** or fueling infrastructure. **So, Statement 1 is correct.**
- SAF can reduce carbon dioxide emissions by up to 80% over its full life cycle, a major step toward decarbonizing global aviation.

**Hydroprocessed Esters and Fatty Acids (HEFA), which account for 80-90% of global Sustainable Aviation Fuel (SAF) production** today.

- HEFA runs lipids such as fats and oils through a refinery process with hydrogen to create Synthetic Paraffinic kerosene (SPK). SPK is a clean liquid fuel that burns nearly identically to conventional jet fuel, making it an attractive option. **So, Statement 2 is correct.**

- HEFA is the most technologically mature pathway that uses waste oils or used cooking oils (UCO)/fats as a feedstock. Currently, all operational SAF facilities globally are based on HEFA. Used Cooking Oil (UCO) to Sustainable Aviation Fuel (SAF) using the Hydroprocessed Esters and Fatty Acids (HEFA) process is among the most economically promising methods for the decarbonization of aviation now.

This two-stage catalytic conversion chemical transformation process is initiated with the pre-treatment of gathered used cooking oil to filter out contaminants.

- In the initial stage, hydrogenation removes oxygen molecules from free fatty acids and triglycerides in UCO and converts them into long-chain hydrocarbons.
- In the second stage, isomerization is used to crack these hydrocarbons into branched-chain, shorter molecules that have the exact freezing point and combustion requirements for jet fuel.

Thus, Used Cooking Oil (UCO) can serve as a feedstock for sustainable aviation fuel (SAF) production.

**So, Statement 3 is correct.**

85. With reference to plant tissues, consider the following statements:

1. Collenchyma cells have unevenly thickened cell walls at the corners.
2. Sclerenchyma cells are living at maturity and provide mechanical support.
3. Xylem parenchyma is involved in the storage and lateral conduction of water.

Which of the statements given above is/are correct?

**(a) 1 and 3 only**

(b) 2 only

(c) 1, 2 and 3

(d) 1 only

**EXPLANATION:**

The plant body comprises several types of tissues, broadly classified into:

- **Simple tissues** – consist of similar types of cells and appear homogeneous (parenchyma, collenchyma, sclerenchyma).
- **Complex tissues** – consist of more than one type of cell (xylem and phloem).

**Collenchyma:**

- Collenchyma is a supporting tissue composed of elongated living cells with unevenly thickened, non-lignified primary walls.
- It is found in regions of primary growth, mainly at the periphery of stems, leaves, and floral parts, often just below the epidermis or near vascular bundles.
- The cell walls are unevenly thickened (especially at the corners) and rich in cellulose and pectin, providing mechanical support. **So, Statement 1 is correct.**
- The cells are living at maturity and show plasticity, allowing them to deform under stress and regain shape.
- Types of collenchyma include angular, tangential, annular, and lacunar, based on the pattern of wall thickening.

**Sclerenchyma:** Sclerenchyma consists of cells with thick, lignified secondary walls and lack a living protoplast at maturity. **So, Statement 2 is not correct.**

**Xylem Parenchyma:** Xylem parenchyma stores food (starch, tannins, etc.) and helps in radial/lateral conduction of water. **So, Statement 3 is correct.**

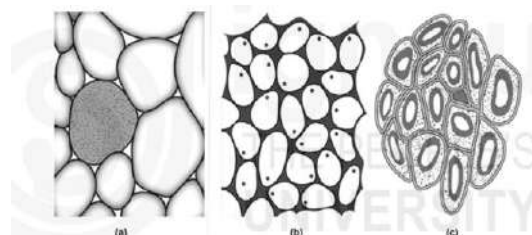


Fig. 1.1: Diagrammatic representations of cells a) Parenchyma; b) Collenchyma; c) Sclerenchyma.

86. Consider the following statements:

1. Selective Catalytic Reduction (SCR) converts nitrogen oxides (NO<sub>x</sub>) into harmless diatomic nitrogen and water.
2. The Indian BS-VI and Euro 6 emission standards are broadly aligned in terms of emission limits.
3. BS-VI fuel is characterised by a five-fold reduction in sulphur content compared to BS-IV standards.

Which of the statements given above are correct?

- (a) 1 and 2 only  
 (b) 2 and 3 only  
 (c) 1 and 3 only  
**(d) 1, 2 and 3**

**EXPLANATION:**

**Selective Catalytic Reduction (SCR)** is a process used to **convert Nitrogen Oxides (NO<sub>x</sub>) into diatomic nitrogen (N<sub>2</sub>) and water**. This is achieved with the help of a reducing agent, usually ammonia (NH<sub>3</sub>), Ammonium hydroxide (NH<sub>4</sub>OH), or urea (CO(NH<sub>2</sub>)<sub>2</sub>), which is added to the contaminated flue or exhaust gas stream and reacts with a catalyst. When using urea, nitrogen (N<sub>2</sub>) and carbon dioxide (CO<sub>2</sub>) are produced. **So, Statement 1 is correct.**

Bharat Stage (BS) emission norms are India's standards for regulating pollution from motor vehicles. They set legal limits on exhaust emissions of pollutants such as carbon monoxide, hydrocarbons, nitrogen oxides and particulate matter. Each successive BS tightens these limits, pushing manufacturers to adopt cleaner engine technologies, better exhaust treatment systems and cleaner fuel.

- In 2016, the Centre had announced that the country would skip the BS-V norms altogether and adopt BS-VI norms by 2020.
- Indian BS-VI (Bharat Stage 6) emission standards are **largely aligned** with **European Euro 6** norms. **So, Statement 2 is correct.**

The main difference between BS-IV and BS-VI (which is comparable to Euro 6) is in the amount of sulphur in the fuel. BS-VI fuel is estimated to bring around an 80% reduction in sulphur content — from 50 parts per million (ppm) to 10 ppm. This shift represents a fivefold reduction, which is crucial for reducing emissions. **So, Statement 3 is correct.**

87. Match List-I with List-II and select the correct answer using the codes given below:

	<b>List I (Type of RNA)</b>		<b>List II (Primary Function)</b>
A.	mRNA	1.	Gene silencing via RNA interference (cleavage of target mRNA)
B.	tRNA	2.	Carries amino acids to the ribosome during translation
C.	rRNA	3.	Structural and catalytic components of the ribosome
D.	miRNA	4.	Regulates gene expression by inhibiting translation
E.	siRNA	5.	Carries genetic information from DNA to the ribosome

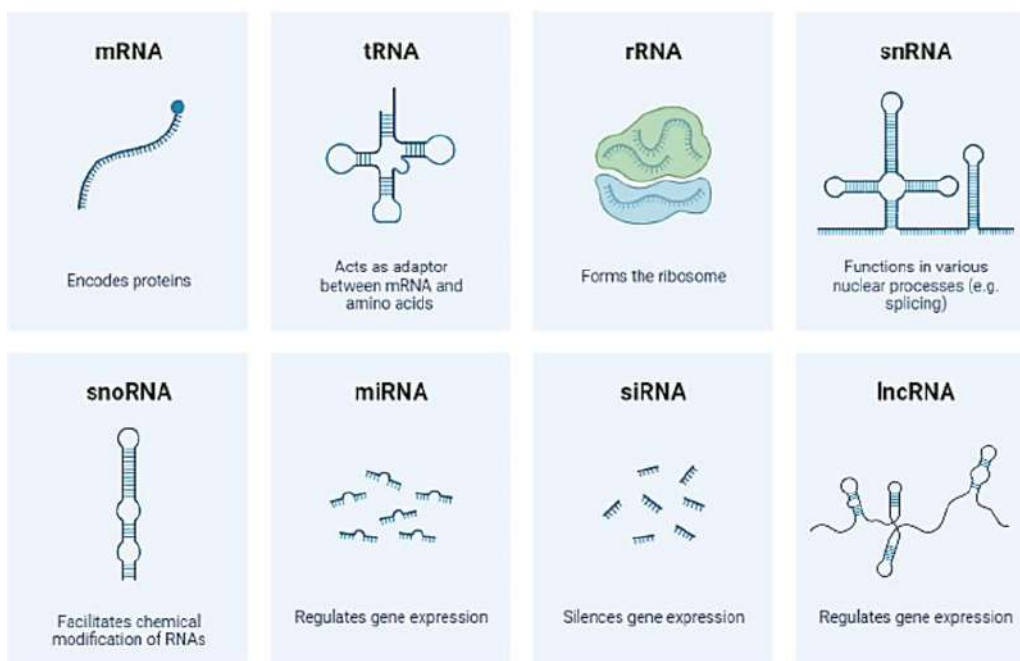
**Codes:**

- (a) **A-5, B-2, C-3, D-4, E-1**
- (b) A-5, B-3, C-2, D-1, E-4
- (c) A-2, B-5, C-3, D-4, E-1
- (d) A-5, B-2, C-4, D-3, E-1

**EXPLANATION:**

- **Messenger RNA (mRNA):** mRNA is a single-stranded RNA molecule that acts as an intermediary in transferring genetic information from DNA to protein synthesis. Through transcription and RNA splicing, mRNA carries coding information from genes to the ribosome, where it is translated into a specific sequence of amino acids. **(A-5)**
- **Transfer RNA (tRNA):** tRNA is a key molecule involved in protein synthesis, acting as an adapter between mRNA and the amino acid sequence of proteins. The main function of tRNA is to transport amino acids to the ribosome during protein synthesis. **(B-2)**
- **Ribosomal RNA (rRNA):** rRNA is a non-coding RNA that plays a crucial role in protein synthesis. It constitutes the main component of the ribosome, which is responsible for translating genetic information into proteins. rRNA is the structural and catalytic heart of the ribosome. **(C-3)**
- **MicroRNA (miRNA):** miRNA is a class of single-stranded RNA fragments, 21-25 nucleotides in length and is widely present as a post-transcriptional regulatory factor in eukaryotes. Interacts with mRNA molecules to regulate gene expression, controlling their translation. Involved in regulating a variety of cellular activities, including cell growth, differentiation, apoptosis, etc., and is associated with various diseases. **(D-4)**
- **Small Interfering RNA (siRNA):** Small interfering RNA, sometimes called short interfering RNA or silencer RNA, is a double-stranded RNA, 20-25 nucleotides in length. When siRNA enters a cell, it can bind to target mRNA, leading to the cleavage of mRNA into shorter fragments, thereby preventing the production of the corresponding protein. Combines with the RNA-induced silencing complex (RISC), which cleaves mRNA that matches it, leading to a decrease or cessation of gene expression. **(E-1). So, Option (a) is correct. (A-5, B-2, C-3, D-4, E-1)**

**Types of RNA Produced in Cells**



88. Which one of the following organisations is associated with the Davos Compact on Antimicrobial Resistance?

- (a) World Health Organisation
- (b) Doctors Without Borders
- (c) United Nations Children's Fund
- (d) World Economic Forum**

**EXPLANATION:**

The Davos Compact on Antimicrobial Resistance (AMR) 2025 was launched by the **World Economic Forum (WEF)**. **So, Option (d) is correct.**

The Davos Compact on Antimicrobial Resistance (AMR) is a collective commitment to mobilise resources and drive systemic change in addressing AMR. The Compact, supported by the Unified Coalition for the AMR Response (UCARE), brings together governments, international organisations, the private sector, and civil society to ensure sustainable investment, innovation, and access to antimicrobial treatments, vaccines, and diagnostics.

- The UCARE initiative aims to operationalize the goals of the Davos Compact. It is designed as a multi-year initiative with two engagement tracks, which are to be launched in phases, and two cross-cutting themes. Starting with Innovation and Access, supported by the Global Future Council on AMR.
- The goal of the UCARE is to unlock sustainable and synergistic financing from both public and private sources to reduce the global deaths associated with AMR, saving more than 100 million lives by 2050.

89. Consider the following nuclear-related events:

1. Establishment of the Vienna Convention on Civil Liability for Nuclear Damage.
2. India's first nuclear reactor, Apsara, achieved criticality.
3. Establishment of the International Atomic Energy Agency.
4. The first nuclear test conducted by China.

Arrange the above given events in chronological order by using the codes given below:

- (a) 4-2-1-3
- (b) 2-3-1-4**
- (c) 1-2-3-4
- (d) 3-2-4-1

**EXPLANATION:**

**The Vienna Convention on Civil Liability for Nuclear Damage, adopted in 1963**, establishes a nuclear liability and compensation regime similar to that provided for under the Paris Convention on Third Party Liability in the Field of Nuclear Energy. The Vienna Convention is open to any state.

- The Vienna Convention on Civil Liability aims at harmonising the national law of the Contracting Parties by establishing some minimum standards to provide financial protection against damage resulting from certain peaceful uses of nuclear energy.
- The Convention is designed to ensure that all Contracting Parties have laws and regulations in place conforming to the legal regime for civil liability for nuclear damage provided for in the Convention.

**India's first nuclear reactor, Apsara, achieved criticality on August 4, 1956** and was **the first research reactor in Asia** to achieve criticality. It was a pool-type reactor of 1 MW power with highly enriched uranium as fuel (4.5 kg) in the form of plates. Light water was used as both moderator and coolant. The maximum neutron flux was around 10<sup>13</sup> neutrons/cm<sup>2</sup>/s.

- It was mainly used for the production of isotopes, basic research, shielding experiments, neutron activation analysis, neutron radiography and for testing neutron detectors. Apsara was permanently shutdown in June, 2009.

**The International Atomic Energy Agency (IAEA) was established in 1957** for the **purpose of promoting increased use of nuclear power for civil purposes** without entailing the further spread of nuclear arms. When the Nuclear Non-Proliferation Treaty (NPT) entered into force in 1970, the IAEA became the most important instrument for ensuring that the treaty was complied with.

- All non-nuclear-weapon states that have acceded to the NPT must accept monitoring by the IAEA of their nuclear power stations and other nuclear facilities.

**China has had nuclear weapons since the 1960s.** The **country tested its first nuclear weapon in 1964** and conducted its last test in 1996, and in total, China reportedly conducted 45 nuclear test explosions in the Lop Nor area in western China.

- The country did not join the Non-Proliferation Treaty (NPT) until 1992. Since China developed nuclear weapons before the NPT was negotiated in 1968, the country is defined as an official nuclear-weapon state by the NPT. That means that China are allowed to keep their nuclear weapons while it pursues effective measures towards disarmament.
- China has signed but not ratified the Comprehensive Test Ban Treaty (CTBT).
- China has not joined the UN Treaty on the Prohibition of Nuclear Weapons.

**Timeline of the above given events:**

**(2)** India's first nuclear reactor, Apsara, achieved criticality → **1956**

**(3)** Establishment of International Atomic Energy Agency (IAEA) → **1957**

**(1)** Establishment of Vienna Convention on Civil Liability for Nuclear Damage → **1963**

**(4)** First nuclear test conducted by China → **1964**

Thus, nuclear events in chronological order: **2-3-1-4. So, Option (b) is correct.**

90. The Hangzhou Strategic Action Plan (2026–2035) is the guiding framework for which of the following?

- UN Convention on Biological Diversity
- UN Convention to Combat Desertification
- The Stockholm Convention on Persistent Organic Pollutants
- Man and the Biosphere Programme**

**EXPLANATION:**

The **Hangzhou Strategic Action Plan (2026–2035)** is the guiding framework for UNESCO's **Man and the Biosphere (MAB) Programme** and its **World Network of Biosphere Reserves (WNBR)**,

- The Hangzhou MAB Strategic Action Plan aims to conserve biodiversity, enhance ecosystem resilience and contribute to a positive climate future while promoting just, equitable and sustainable societies with Indigenous Peoples and Local Communities at the heart of implementation.
- The MAB Programme positions itself as a driver of this transformation, integrating sustainable development, peace, security and human rights into its framework.
- The programme's World Network of Biosphere Reserves (WNBR), established in 1976, now encompasses 759 reserves across 136 countries. These sites function as models for integrating conservation, sustainable development and logistical support through functional zoning and collaborative governance. **So, Option (d) is correct.**

91. With reference to PM<sub>2.5</sub>, consider the following statements:

- It can remain suspended in the air for weeks.
- It can travel long distances in the air.
- It can penetrate into the lung alveoli and enter the bloodstream.

How many of the above given statements is/are correct?

- (a) Only one
- (b) Only two
- (c) All three**
- (d) None

**EXPLANATION:**

Particulate Matter 2.5 (PM2.5), or fine-particle air pollution, consists of airborne particles measuring less than 2.5 micrometres in aerodynamic diameter, and is most often produced as a result of combustion.

- The atmospheric lifetime of a PM particle varies significantly depending on its size, composition, and meteorological conditions.
- **Fine particles (PM2.5) can remain suspended for days to weeks**, allowing for long-range transport over thousands of kilometres. **So, Statement 1 is correct.**
- Coarser particles (PM10) have a much shorter lifetime, typically hours to a day, and deposit relatively close to their source due to gravitational settling.

This difference in lifetime is a key reason PM2.5 is a regional to global pollution concern.

PM2.5 pollution **can travel long distances through strong winds**, up to hundreds of thousands of miles from their source.

PM2.5 can be carried to coastal waters and river basins, where they change the nutrient balance. When particle pollution settles on crops and forests, it can damage the vegetation. **So, Statement 2 is correct.**

PM2.5 (particles with a diameter of 2.5 micrometres or less): these particles are so small that they can get deep into the lung alveoli and enter the bloodstream. There is sufficient evidence that exposure to PM2.5 over long periods (years) can cause adverse health effects. **So, Statement 3 is correct.**

92. Consider the following statements regarding "CITES" (Convention on International Trade in Endangered Species of Wild Fauna and Flora):

1. It aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
2. Species listed in Appendix I are those that are not necessarily threatened with extinction, but in which trade must be controlled to avoid utilisation incompatible with their survival.
3. Although CITES is legally binding on the Parties, it does not take the place of national laws.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 3 only**
- (c) 2 and 3 only
- (d) 1, 2 and 3

**EXPLANATION:**

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. **So, Statement 1 is correct.**

CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The World Conservation Union).

Appendices I, II and III to the Convention are lists of species accorded different levels or types of protection from over-exploitation.

- **Appendix I shall include all species threatened with extinction** which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in

order not to endanger their survival further and must only be authorised in exceptional circumstances.

➤ **Appendix II** shall include:

- **All species which although not necessarily now threatened with extinction** may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilisation incompatible with their survival; and
- Other species which must be subject to regulation in order that trade in specimens of certain species may be brought under effective control.

This statement actually describes Appendix II, not Appendix I. **So, Statement 2 is not correct.**

➤ **Appendix III** is a list of species included at the request of a Party that already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation. International trade in specimens of species listed in this Appendix is allowed only on presentation of the appropriate permits or certificates.

**Parties of the Convention:**

CITES is an international agreement to which States and regional economic integration organisations adhere voluntarily. States that have agreed to be bound by the Convention ('joined' CITES) are known as Parties.

- Although CITES is legally binding on the Parties – in other words, they have to implement the Convention – it does not take the place of national laws. Rather, it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level. **So, Statement 3 is correct.**
- For many years CITES has been among the conservation agreements with the largest membership, with now 185 Parties.

93. Consider the following statements:

1. Zanskar ponies, an indigenous mountain pony from Ladakh, can carry loads at high altitudes.
2. Black Kites are raptors specialising in anti-drone operations and surveillance.
3. Double-humped Bactrian camels are known for their capability to operate in extreme, high-altitude cold deserts.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 3 only
- (d) **1, 2 and 3**

**EXPLANATION:**

The 2026 Republic Day parade highlighted India's military prowess, with a special focus on animal logistics and natural defence systems.

The contingent features **two majestic Bactrian camels, four Zanskar Ponies, four Black Kites (Raptors)** - Ingenious and Vigilant Birds, ten Indian breed Army dogs (**Mudhol Hound, Rampur Hound, Chippiparai, Kombai, and Rajapalayam**), along with six conventional military dogs already in service.

- **Zanskari**, a native pony breed of Leh-Ladakh in the Trans-Himalayan region of India, is well adapted to high-altitude regions. This breed of horses is known for their ruggedness, ability to withstand extreme cold climates, work tirelessly, and carry loads at high altitudes. **So, Statement 1 is correct.**



**Raptors** (Black Kites) parade included four specially trained raptors (black kites) used by the Army for bird-strike control, surveillance, and as part of an innovative, bio-inspired anti-drone strategy. These birds are trained to intercept small unmanned aerial vehicles (UAVs). **So, Statement 2 is correct.**



**Double-humped Bactrian camels named Galwan and Nubra** marched in India's Republic Day Parade 2026 on Kartavya Path, highlighting the Indian Army's use of indigenous, high-altitude pack animals for logistics in extreme, cold desert conditions. Hailing from Ladakh's Nubra Valley, these camels can endure extreme temperatures and carry up to 250 kilograms, representing a blend of tradition, security, and environmental adaptation. **So, Statement 3 is correct.**



94. The surface charge (zeta potential) of nanoparticles influences toxicity primarily because:

- (a) It determines the melting point of nanoparticles.
- (b) It affects interaction with cell membranes and proteins.**
- (c) It controls nanoparticle colour and optical properties.
- (d) It prevents nanoparticles from entering cells.

**EXPLANATION:**

Nanoparticles (NPs) are considered to be reactive due to their small size, large relative surface area, and high surface energy.

- Reactivity offers Nanoparticles great potential for interacting with biological components such as cells. It is assumed that nanoparticle interactions with cells have a significant impact on mitochondrial and cell membrane viability, oxidative stress, and pro-inflammatory gene activation.
- NPs with positive zeta potentials caused severe cell membrane damage. In the physiological environment, protein coronas surrounding NPs may reduce their interactions with cell membranes, and NPs can be engulfed into lysosomes. **So, Option (b) is correct.**

95. Consider the following:

1. Greenland ice sheet
2. Permafrost
3. Extinction of desert fauna
4. Atlantic Meridional Overturning Circulation
5. Monsoon

Which of the above have been identified as climate tipping points by the Intergovernmental Panel on Climate Change?

- (a) 1, 2, 3 and 4 only
- (b) 2, 3, 4 and 5 only
- (c) 1, 2, 4 and 5 only**
- (d) 1, 2, 3, 4 and 5

**EXPLANATION:**

The Intergovernmental Panel on Climate Change (IPCC) defines tipping points as “critical thresholds in a system that, when exceeded, can lead to a significant change in the state of the system, often with an understanding that the change is irreversible.”

The IPCC identifies several tipping points of climate change. Here are the 7 most likely to be crossed this century due to human activity:

- **Greenland ice sheet** - As the **world’s second-largest ice sheet**, the Arctic holds enough water that, if melted completely, could raise sea levels by **7.2 metres (22 feet)**. A 1.5 °C increase in average temperatures could be the threshold at which the region’s ice sheet melting would become irreversible. **So, Statement 1 is correct.**
- **Permafrost** - Permanently frozen layer below the Earth’s surface – which covers parts of **Siberia, Alaska, northern Canada, and the Tibetan plateau** – also holds the largest global carbon reserve from plants and animals that died and decomposed over thousands of years. Scientists estimate that it contains about 1,400 billion tons of carbon, nearly double the amount present in the atmosphere.
  - As the climate warms and permafrost begins to thaw, carbon dioxide and methane are released into the atmosphere. The spread of these highly toxic gases, scientists warn, would add up to 0.3 °C to global warming and could lead to humanity reaching other tipping points of climate change much faster. **So, Statement 2 is correct.**

- **Ocean circulation and temperature (Atlantic meridional overturning circulation -AMOC)** - The AMOC acts as a conveyor belt, redistributing heat throughout the Earth's climate system by bringing it from the tropics all the way to Greenland and carrying cold water back south.
    - A slowdown of the AMOC could have consequences around the world: rainfall in the Sahel region could reduce, hampering crop production; the summer monsoon in Asia could weaken; regional SLR [sea level rise] could increase around the Atlantic, and there might be more winter storms in Europe." **So, Statement 4 is correct.**
  - **Monsoons** - Farmers across the tropics, from the Amazon region in South America to West Africa and India, count on seasonal monsoon cycles to grow their crops.
    - As global warming affects their strength, timing, and duration, farmers are forced to relocate their agricultural practices elsewhere. This mass climate change-induced migration would inevitably decrease productivity and threaten food security not only in these regions but pretty much across the whole world, disrupting the livelihoods of over a billion people. **So, Statement 5 is correct.**
  - **Amazon Rainforests**
  - **Antarctic ice sheets**
  - **Coral reef die-offs**
- The Intergovernmental Panel on Climate Change (IPCC) does not classify the extinction of desert fauna as a tipping element. **So, Statement 3 is not correct.**

96. What causes Itai-Itai disease?
- (a) Lung Disease caused by silica dust
  - (b) Heavy metal poisoning**
  - (c) Salmonella typhi bacteria in water bodies
  - (d) A disease caused by radiation pollution

**EXPLANATION:**

- Silicosis** (sil-eh-KOH-sis) is a type of interstitial lung disease that can occur from breathing in very tiny silicon dioxide particles (silica dust). **So, Option (a) is not correct.**
- Silica is nontoxic if you drink it or eat it.
  - But inhaling certain kinds of silica dust can cause problems with the respiratory system.
  - It damages the immune cells in the tiny air sacs in the lungs (alveolar macrophages). Alveolar macrophages are part of the respiratory system's core line of defence. The main silicosis symptoms include:
    - Long-lasting (persistent) cough, especially coughing up phlegm
    - Inflammation in your lung tissue
    - Scarring in your lung tissue (pulmonary fibrosis)
  - There's no cure. But there are ways to manage symptoms.
- Itai-Itai** disease is defined as a severe health condition characterised by renal disease and debilitating bone and joint pain, caused by **cadmium (Cd) poisoning** from contaminated food and drinking water in the Jinzu River delta region of Japan. Therefore, Itai-Itai disease is caused by the heavy metal Cadmium (Cd) poisoning. **So, Option (b) is correct.**
- This syndrome is noted as the worst mass cadmium poisoning recorded globally, affecting over 7000 people.
  - The cause has been ascribed to the inflow of effluent from a zinc mine located in the upper reaches of the Jinzu River in the Toyama Prefecture, Japan, with the Cd contained therein contaminating the surrounding rice paddies and fields; the inhabitants were then exposed to Cd through ingestion of rice and other produce grown there.
- Typhoid** fever is an illness caused by the bacterium *Salmonella Typhi* (S. Typhi). **So, Option (c) is not correct.**



- It infects the small intestines (gut) and causes high fever, stomach pain and other symptoms.
- Typhoid fever is also called enteric fever.
- Typhoid fever gets its name from a high fever that can last for weeks if left untreated.
- This fever usually spreads through food or water contaminated with S. Typhi.
- It is treated with antibiotics.

**Ionising radiation** has sufficient energy to affect the atoms in living cells and thereby damage their genetic material (DNA).

- Fortunately, the cells in our bodies are extremely efficient at repairing this damage. However, if the damage is not repaired correctly, a cell may die or eventually become cancerous.
- A very high level of radiation exposure delivered over a short period of time can cause symptoms such as nausea and vomiting within hours and can sometimes result in death over the following days or weeks. This is known as acute **radiation syndrome**, commonly known as "**radiation sickness.**" **So, Option (d) is not correct.**
- It takes a very high radiation exposure to cause acute radiation syndrome—more than 0.75 grey (75 rad) in a short time span (minutes to hours).
- This level of radiation would be like getting the radiation from 18,000 chest X-rays distributed over your entire body in this short period.
- Acute radiation syndrome is rare and comes from extreme events like a nuclear explosion or accidental handling, or rupture of a highly radioactive source.

97. With reference to the Common Emerald Dove, consider the following statements:

1. It is a terrestrial bird found only in lowland habitats.
2. It is generally monogamous.
3. It is the state bird of both Tamil Nadu and Karnataka.

How many of the above given statements is/are correct?

- (a) Only one**  
(b) Only two  
(c) All three  
(d) None

**EXPLANATION:**

The common emerald dove (*Chalcophaps indica*), also called Asian emerald dove or grey-capped emerald dove, is a widespread resident breeding pigeon native to the tropical and subtropical parts of the Indian Subcontinent and Southeast Asia. The dove is also known by the names of green dove and green-winged pigeon.

- The Common Emerald Dove is not restricted to lowland habitats; This is a common species in tropical forests and similar dense wet woodlands, farms and mangroves. **So, Statement 1 is not correct.**
- The Common Emerald Dove builds a scant stick nest in a tree up to five meters high and lays two cream-colored eggs. They are monogamous, and pairs typically stay together for life.
- Classified as "Least Concern" by the IUCN, the Common Emerald Dove is not considered threatened. Its adaptability to various habitats contributes to its stable population.

**So, Statement 2 is correct.**



- The **common emerald dove** (*Chalcophaps indica*) is the **state bird** of Tamil Nadu.
- The **state bird of Karnataka** is **the Indian Roller** (*Coracias benghalensis*), also commonly known as the Neelkanth. Known for its vibrant blue feathers and acrobatic aerial displays, this bird is frequently seen perched on roadside trees and wires in rural areas. **So, Statement 3 is not correct.**



98. With reference to the Taj Trapezium Zone, consider the following statements:

1. The Taj Trapezium Zone Pollution (Prevention and Control) Authority is set up under the Air (Prevention and Control of Pollution) Act of 1981.
2. The Zone is aimed at protecting the Taj Mahal, Agra Fort, and Fatehpur Sikri.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only**
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**EXPLANATION:**

The Taj Trapezium Zone Pollution (Prevention and Control) Authority was formally constituted by the Government of India in 1998 under Section 3 of the Environment (Protection) Act, 1986, not the Air (Prevention and Control of Pollution) Act of 1981. **So, Statement 1 is not correct.**

Taj Trapezium Zone (TTZ) is a defined area of 10,400 sq km **around the Taj Mahal to protect the monument from pollution.**

The Supreme Court of India delivered a ruling on December 30, 1996, regarding industries covered under the TTZ, in response to a PIL seeking to protect the Taj Mahal from environmental pollution. It banned the use of coal/ coke in industries located in the TTZ with a mandate for switching over from coal/ coke to natural gas, and relocating them outside the TTZ or shutting down.

- The TTZ comprises monuments including **three World Heritage Sites, the Taj Mahal, Agra Fort and Fatehpur Sikri.**
- TTZ is so named since it is located around the Taj Mahal and is shaped like a trapezoid. **So, Statement 2 is correct.**

99. Consider the following statements:

1. Since the inception of the modern Olympic Games in 1896, Hockey has been included in all its editions.
2. The Indian hockey team won the Olympic gold medal in its first appearance in 1928.
3. The Target Olympic Podium Scheme provides financial assistance and international exposure to hockey players in India.

How many of the above given statements is/are **not** correct?

- (a) **Only one**  
(b) Only two  
(c) All three  
(d) None

**EXPLANATION:**

The inaugural Olympic hockey competition was held at the 1908 London Olympics, marking its first appearance in the Olympic Games.

- However, hockey was dropped from the 1912 Stockholm Games, reappeared in 1920 Antwerp, and was again omitted in 1924 Paris.
- Following the formation of the International Hockey Federation in 1924, it was reintroduced in Amsterdam in 1928.
- The only sports that have featured in all Olympic Summer Games since 1896 are gymnastics, athletics, cycling, fencing and swimming. **So, Statement 1 is not correct.**

In the 1928 Amsterdam Olympics, India created history by winning its first Olympic gold medal in hockey on its debut appearance at Amsterdam.

- This achievement marked a major milestone in Indian sports history.
- It also began an era of unmatched dominance in Olympic hockey.
- India went on to win six consecutive Olympic gold medals from 1928 to 1956. **So, Statement 2 is correct.**

The **Target Olympic Podium Scheme (TOPS)** is a flagship initiative of the Ministry of Youth Affairs and Sports aimed at improving India's Olympic performance.

- It was launched in 2014 and later revamped in 2018 to provide stronger technical and administrative support to athletes.
- Under this scheme, elite athletes, including hockey players, receive financial assistance, specialized coaching, and international exposure.
- Both men's and women's hockey teams are included among the supported groups.
- The scheme also offers monthly allowances and other training-related support to help athletes compete at the highest level. **So, Statement 3 is correct.**

100. The recently published book 'Redlines Redrawn' deals with which of the following events?

- (a) Kargil War  
(b) Operation Vijay  
(c) Uri surgical strikes  
(d) **Operation Sindoore**

**EXPLANATION:**

**Operation SINDOOR** was a significant demonstration of India's military and strategic power, executed through a combination of military and non-military means. This multi-dimensional operation effectively neutralised terrorist threats, deterred Pakistani aggression, and firmly enforced India's zero-tolerance policy towards terrorism. The operation maintained strategic restraint while gaining international support.



- The recently published book, **Redlines Redrawn: Operation Sindoor and India's New Normal**, presents a multi-domain account of Operation Sindoor, analysing the crisis through military, diplomatic, and information warfare perspectives.
- Released at the India International Centre by **India's Chief of Army Staff General Upendra Dwivedi**, the book highlights the use of the DIME framework—diplomacy, information, military, and economic power—in ensuring national success. The operation is described as an 88-hour conflict reflecting India's evolving “dynamic response” strategy. The book emphasises jointness among armed forces and the growing importance of narrative warfare. It also aims to counter misinformation with an accurate, evidence-based account. **So, Option (d) is correct.**

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