

ForumIAS

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# Prelims Marathon

4<sup>th</sup> Week August, 2025

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HISTORY  
ECONOMICS  
POLITY  
SCIENCE AND TECHNOLOGY  
GEOGRAPHY AND ENVIRONMENT

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## Conservation Projects

1. With reference to **Project Tiger**, consider the following statements:

1. It was launched in 1973 as a Centrally Sponsored Scheme of the Ministry of Environment, Forest and Climate Change.
2. The programme is administered by the Wildlife Institute of India (WII).
3. One of its objectives is to preserve areas of biological importance as part of India's natural heritage.

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

**Answer: (b)**

**Explanation**

- Project Tiger was launched in **1973** as a **Centrally Sponsored Scheme (CSS)** of the **MoEF&CC**.
- The programme is **administered by the National Tiger Conservation Authority (NTCA)**, not the Wildlife Institute of India (WII).
- An important objective is the **preservation of areas of biological importance as natural heritage**, representing ecosystem diversity in tiger habitats.

**Source: Environment( Factly Forum IAS)**

2. Consider the following statements regarding the **Rhisotope Project**:

1. It is a conservation initiative launched in South Africa in 2021 to combat rhino poaching.
2. The project involves inserting radioactive isotopes into rhino horns so that they can be detected at borders using radiation scanners.

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

**Answer: (c)**

**Explanation:**

- It began in **South Africa in 2021** by the University of the Witwatersrand with IAEA support.
- Radioisotopes make rhino horns traceable via Radiation Portal Monitors (RPMs).

**Source: Environment( Factly Forum IAS)**

3. With reference to the **Sea Turtle Conservation Project (1999)**, consider the following statements:

1. The project was launched by the Ministry of Environment & Forests in collaboration with UNDP, with the Wildlife Institute of India as the implementing agency.
2. The project is implemented in 10 coastal States of India with special emphasis on Odisha.

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

**Answer: (c) Both 1 and 2**

**Explanation:**

- The Sea Turtle Conservation Project was launched in **November 1999** by the **Ministry of Environment & Forests (MoEF)** in collaboration with **UNDP**, with the **Wildlife Institute of India (WII), Dehradun** as the implementing agency.
- The project is implemented in **10 coastal States of India**, with **special focus on Odisha**, since Odisha is the largest nesting ground for Olive Ridley turtles.

**Source: Environment( Factly Forum IAS)**

4. With reference to **Project Lion (2020)**, consider the following statements:

1. The project focuses on securing the future of Asiatic lions through landscape ecology-based conservation.
2. It seeks to establish India as a global hub for big cat health research and treatment.
3. The project is being implemented by the CITES.

Which of the statements given above is/are correct?

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

**Answer: (b)**

**Explanation:**

- Project Lion emphasises landscape ecology, habitat restoration, and disease management and aims to make India a hub for big cat health research.
- Implementation is led by the **State Government of Gujarat along with other stakeholders**, and other stakeholders like the Central Zoo Authority.

**Source: Environment( Factly Forum IAS)**

5. With reference to **Project Snow leopard(2020)**, consider the following statements:

1. The project was launched in 2009 by the Ministry of Environment, Forest and Climate Change.
2. The project is implemented in the Himalayan states, including Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh only.

Which of the statements given above is/are correct?

- a) One only  
b) Two only  
c) Both 1 and 2  
d) Neither 1 nor 2

**Answer: c**

**Explanation:**

- *Project Snow Leopard* was launched in **2009** by the Ministry of Environment, Forest and Climate Change – MoEFCC to safeguard snow leopards and their habitats.
- The project is implemented in **5 states**. This includes: **Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.**

6. Consider the following statements regarding **Project Elephant**:

1. Project Elephant was launched as a Centrally Sponsored Scheme in 1992.
2. The objectives of Project Elephant include securing elephant corridors, mitigating human–elephant conflict, and ensuring veterinary care for both wild and captive elephants.
3. At present, Project Elephant is being implemented in only those states which have elephant populations in the wild.

Which of the statements given above is/are correct?

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

**Answer: (a) 1 and 2 only**

**Explanation:**

- Project Elephant was launched in 1992 as a **Centrally Sponsored Scheme** of the Ministry of Environment and Forests.
- It provides both financial and technical support to States/UTs for protecting wild Asian elephants.

- The objectives indeed include conservation of elephant habitats and corridors, mitigation of man–elephant conflict, protection from poaching, veterinary care (both wild and captive elephants), and promoting research.
- Project Elephant is **not limited to states that have wild elephants**. It also extends to States/UTs where there are captive elephants and facilities like rescue centres (e.g., Haryana, Punjab, Gujarat).

Source: Environment( Factly Forum IAS)

7. With reference to Indian Rhino Vision 2020, consider the following statements:

1. The project aimed to increase the wild population of the Greater One-Horned Rhino to at least 3,000 individuals across seven protected areas of Assam by 2020.
2. Under the project, rhinos were translocated from Kaziranga National Park and Pabitora Wildlife Sanctuary to Manas National Park.
3. Indian Rhino Vision 2020 was implemented solely by the Assam Forest Department without the involvement of any international partners.

Which of the statements given above is/are **correct**?

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

Answer: (a) 1 and 2 only

Explanation:

- IRV 2020 was launched in **2005**, with the goal of achieving a **wild population of at least 3,000 greater one-horned rhinos across seven protected areas of Assam by 2020**.
- Rhinos were indeed **moved from Kaziranga National Park and Pabitora Wildlife Sanctuary to Manas National Park**, which had lost its rhinos earlier due to poaching.
- The project was a **collaborative effort**, not limited to the Assam Forest Department. Partners included the **International Rhino Foundation (IRF)**, **World Wide Fund for Nature (WWF)**, **Bodoland Territorial Council**, and the **US Fish & Wildlife Service**.

Source: Environment( Factly Forum IAS)

8. With reference to Project Dolphin, consider the following statements:

1. Project Dolphin launched in 2022.
2. The project is being funded by the Ministry of Environment, Forest and Climate Change.
3. Project Dolphin covers both freshwater and marine dolphin species and not just the Gangetic river dolphin.

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

- (a) One only  
(b) Two only  
(c) All three  
(d) None

Answer: (b)

Explanation:

- **Project Dolphin** is a flagship conservation initiative that focuses on the protection of both riverine and marine dolphin species. It is **designed as a 10-year programme and was first announced in 2020**.
- The project is **funded by MoEFCC** and executed through the **Wildlife Institute of India**.
- Project Dolphin aims to conserve **both riverine (Gangetic dolphin, India's National Aquatic Animal) and marine/oceanic dolphins**, not just freshwater species.

Source: Environment( Factly Forum IAS)

9. With reference to the Crocodile Conservation Project in India, consider the following statements:

1. The Crocodile Conservation Project was launched in 1975.
2. The project focused only on the Mugger crocodile conservation.

3. Under the project, crocodile eggs were collected from the wild, incubated in controlled hatcheries, and the juveniles were reared and released back into protected habitats.

Which of the statements given above is/are **correct**?

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

**Answer: (c) 1 and 3 only**

**Explanation:**

- The Crocodile Conservation Project was launched in **1975** with support from **UNDP/FAO**, following the recommendations of **Dr. H.R. Bustard**, an FAO expert.
- The programme started in **Odisha (1975)** with **Gharial and Saltwater crocodile conservation**, followed later by the Mugger crocodile programme.
- The project adopted a **rear-and-release strategy** – collecting eggs from wild nests, incubating and hatching them in controlled hatcheries, rearing juveniles, and releasing them back into protected natural habitats.

**Source: Environment( Factly Forum IAS)**

**10. Consider the following statements regarding Project Cheetah:**

1. India is the first country in the world to introduce cheetahs through a translocation programme from Africa.
2. The project also has socio-economic objectives, such as enhancing livelihood opportunities for local communities through eco-tourism.
3. The Cheetah Reintroduction Project in India formally commenced in 2023.

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

- (a) **One only**  
(b) **Two only**  
(c) **All three**  
(d) **None**

**Answer: (b) Two only**

**Explanation:**

- India became the **first country in the world** to reintroduce cheetahs through a **translocation project from Namibia and South Africa**.
- Beyond ecology, the project aims to **enhance eco-tourism and provide livelihood opportunities** for local communities near release sites.
- The Cheetah Reintroduction Project in India was formally **launched on 17 September 2022** with the objective of reviving the cheetah population, a species that had been declared extinct in the country in 1952.

**Source: Environment( Factly Forum IAS)**

## Climate Change

**1. Consider the following statements:**

**Statement I:** The greenhouse effect is a naturally occurring phenomenon that maintains the Earth's surface temperature suitable for life.

**Statement II:** In the absence of the natural greenhouse effect, the average temperature of the Earth's surface would be around  $-19^{\circ}\text{C}$ , making the planet frozen and lifeless.

**Choose the correct answer using the options given below:**

- (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.

**Answer: (a) Both Statement I and Statement II are correct and Statement II is the correct explanation of Statement I.**

**Explanation:**

- The greenhouse effect keeps Earth's lower atmosphere warm, ensuring temperatures suitable for living organisms.
- Without it, Earth's average temperature would be **-19°C instead of the current 15°C**, leading to a frozen, lifeless planet.
- Hence, **Statement II correctly explains Statement I.**

**Source: Environment (Factly Forum IAS)**

**2. Consider the following statements regarding Earth's energy balance:**

1. The Sun emits energy in short wavelengths because of its high temperature.
2. Around 30% of the incoming solar energy is directly reflected back into space by the atmosphere, clouds, and Earth's surface.
3. The Earth re-emits absorbed energy as infrared radiation with longer wavelengths compared to incoming solar radiation.

Which of the above statements is/are correct?

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

**Answer: (d) 1, 2 and 3**

**Explanation:**

- The **Sun**, being extremely hot, emits energy primarily in **shortwave radiation** (visible and ultraviolet), which penetrates the atmosphere.
- About **30% of solar radiation** is reflected back to space due to the combined effect of **atmosphere, clouds, and Earth's surface (albedo effect)**.
- The **Earth**, being cooler than the Sun, re-radiates energy in the form of **longwave infrared radiation**, which has longer wavelengths than incoming solar energy.

**Source: Environment (Factly Forum IAS)**

**3. Which of the following are considered greenhouse gases (GHGs) in Earth's atmosphere?**

1. Carbon dioxide (CO<sub>2</sub>)
2. Methane (CH<sub>4</sub>)
3. Nitrous oxide (N<sub>2</sub>O)
4. Ozone (O<sub>3</sub>)
5. Water vapor (H<sub>2</sub>O)

**Select the correct answer using the code given below:**

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

**Answer: (d) 1, 2, 3, 4 and 5**

**Explanation:**

- Major greenhouse gases include carbon dioxide, methane, nitrous oxide, ozone, and water vapour, all of which trap heat in Earth's lower atmosphere and contribute to the greenhouse effect.
- While gases like nitrogen (N<sub>2</sub>) and oxygen (O<sub>2</sub>) dominate the atmosphere, they are not greenhouse gases since they do not absorb significant infrared radiation.

**Source: Environment (Factly Forum IAS)**

**4. With reference to fluorinated gases, consider the following statements:**

1. Hydrofluorocarbons (HFCs) were introduced as substitutes for ozone-depleting substances, and they also eliminate global warming risks.
2. Perfluorocarbons (PFCs) are naturally occurring gases released mainly from volcanic eruptions.
3. Fluorinated gases are among the most potent and longest-lasting greenhouse gases released by human activities.

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

- (a) One only
- (b) Two only
- (c) Three only
- (d) None

**Answer: (a) One only**

**Explanation:**

- HFCs do not harm the ozone layer, but they do contribute significantly to global warming due to their high GWPs.
- PFCs are synthetic gases produced as industrial by-products, not natural or volcanic.
- Fluorinated gases are indeed the most potent and longest-lasting greenhouse gases emitted by human activities.

**Source: Environment (Factly Forum IAS)**

**5. With reference to Black Carbon (BC), consider the following statements:**

1. Black carbon is a greenhouse gas that remains in the atmosphere for several decades.
2. Black carbon increases Earth's albedo when deposited on snow and ice, thereby reducing warming.
3. Black carbon is a short-lived pollutant that strongly absorbs sunlight, warms the atmosphere directly, and accelerates the melting of snow and glaciers.

**Which of the above statements is/are correct?**

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

**Answer: (c) 3 only**

**Explanation:**

- Black carbon is not a greenhouse gas, it is a particulate pollutant (soot). Unlike CO<sub>2</sub>, it has a short lifetime (days to weeks), not decades.
- Deposition of black carbon reduces albedo (snow becomes darker), which increases warming and accelerates melting.
- BC is a short-lived pollutant, the strongest absorber of sunlight, warms the air directly, and accelerates glacier and snow melt.

**Source: Environment (Factly Forum IAS)**



**6. With reference to Brown Carbon (BrC), consider the following statements:**

1. Brown carbon refers to light-absorbing organic matter present in atmospheric aerosols, often originating from sources like biomass burning and agricultural fires.
2. Unlike black carbon, which is particulate soot from incomplete combustion, brown carbon primarily consists of light-absorbing organic substances such as humic-like matter and tarry materials.

**Which of the above statements is/are correct?**

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

**Answer: (c) Both 1 and 2**

**Explanation:**

- Brown carbon is a light-absorbing organic component of aerosols, with biomass burning and agricultural fires as major sources.
- Unlike black carbon (soot, dust), brown carbon consists of organic aerosols like humic-like substances, tarry combustion products, and bioaerosols.

**Source: Environment (Factly Forum IAS)**

**7. What is Greenhouse Gas Protocol?**

- (a) It is an international accounting tool for government and business leaders to understand, quantify and manage greenhouse gas emissions
- (b) It is an initiative of the United Nations to offer financial incentives to developing countries to reduce greenhouse gas emissions and to adopt eco-friendly technologies
- (c) It is an inter-governmental agreement ratified by all the member countries of the United Nations to reduce greenhouse gas emissions to specified levels by the year 2022
- (d) It is one of the multilateral REDD+ initiatives hosted by the World Bank

**Answer: (a) It is an international accounting and reporting standard that provides methods and guidance for governments and businesses to measure and manage greenhouse gas emissions.**

**Explanation:**

- The Greenhouse Gas Protocol (GHG Protocol) was developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).
- It is widely used as the global standard framework to measure and manage GHG emissions across private and public sector organizations.
- It is not a UN treaty, REDD+ initiative, or financial incentive mechanism.

**Source: Environment (Factly Forum IAS)**

**8. With reference to Global Warming Potential (GWP), consider the following statements:**

1. Global Warming Potential (GWP) measures the amount of energy a greenhouse gas absorbs over a specific period of time, usually 100 years, compared to carbon dioxide.
2. A greenhouse gas with a higher GWP absorbs less energy per unit mass than one with a lower GWP.

**Which of the above statements is/are correct?**

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

**Answer: (a) 1 only**

**Explanation:**

- GWP is a comparative measure of how much energy a gas traps in the atmosphere over a chosen time horizon (usually 100 years) relative to CO<sub>2</sub>.
- Gases with higher GWP absorb *more* energy per unit mass than those with lower GWP, hence contributing more to global warming.

**Source: Environment (Factly Forum IAS)**

**8. With reference to the Greenhouse Gas Emission Intensity (GEI) Targets Rules, 2025, consider the following statements:**

1. The GEI Targets Rules, 2025, establish India's first compliance-based domestic carbon market under the Carbon Credit Trading Scheme (CCTS), 2023.
2. The rules apply to high-emission sectors such as aluminium, cement, chlor-alkali, and pulp & paper, covering both Carbon Dioxide (CO<sub>2</sub>) and Perfluorocarbons (PFCs).
3. Obligated entities that fail to meet targets will be charged twice the average traded carbon price, which will be determined by the Central Pollution Control Board (CPCB).

Which of the above statements is/are correct?

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

**Answer: (a) 1 and 2 only**

**Explanation:**

- The GEI Targets Rules, 2025 create India's first compliance-based carbon market under the **Carbon Credit Trading Scheme (CCTS), 2023**.
- The rules apply to **aluminium, cement, chlor-alkali, and pulp & paper sectors**, covering CO<sub>2</sub> and PFCs (CF<sub>4</sub>, C<sub>2</sub>F<sub>6</sub>, C<sub>4</sub>F<sub>10</sub>, C<sub>6</sub>F<sub>14</sub>).
- Non-compliant entities pay **twice the average traded carbon price**, but the price is determined by the **Bureau of Energy Efficiency (BEE)**, while **CPCB collects the compensation**.

**Source: Environment (Factly Forum IAS)**

**9. Which of the following gases are commonly released during the combustion of coal in thermal power plants?**

1. Carbon dioxide
2. Oxides of nitrogen
3. Oxides of sulphur

**Select the correct answer using the code given below:**

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

**Answer: (d) 1, 2 and 3**

**Explanation:**

- **Carbon dioxide (CO<sub>2</sub>):** Produced in large quantities as coal is carbon-rich and undergoes complete combustion.

- **Oxides of Nitrogen (NO<sub>x</sub>):** High combustion temperatures in thermal power plants lead to the formation of nitrogen oxides.
- **Oxides of Sulphur (SO<sub>2</sub>, SO<sub>3</sub>):** Coal contains sulfur impurities, which produce sulfur oxides when burned.

Source: Environment (Factly Forum IAS)

10. In the context of mitigating the impending global warming due to anthropogenic emissions of carbon dioxide, which of the following can be the potential sites for carbon sequestration?

1. Abandoned and uneconomic coal seams
2. Depleted oil and gas reservoirs
3. Subterranean deep saline formations

Select the correct answer using the code given below:

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

Answer: (d) 1, 2 and 3

Explanation:

- **Abandoned coal seams** → Can store CO<sub>2</sub> in micropores of coal; sometimes methane recovery is also possible.
- **Depleted oil and gas reservoirs** → Suitable for injecting CO<sub>2</sub> because of existing geological traps and proven sealing capacity.
- **Deep saline formations** → Among the largest potential reservoirs for long-term CO<sub>2</sub> storage, due to their vast porous rock structures saturated with brine.

Source: Environment (Factly Forum IAS)

## Climate Change Organisations

1. With reference to the United Nations Framework Convention on Climate Change (UNFCCC), which of the following statements is/are correct?

1. It was adopted in 1992 to address global climate change through international cooperation.
2. It legally binds all member countries to reduce greenhouse gas emissions to specific targets.
3. The Conference of the Parties (COP) is the supreme decision-making body of the UNFCCC.

Select the correct answer using the code given below.

- A. 1 only
- B. 1 and 3 only
- C. 2 and 3 only
- D. 1, 2, and 3

Correct Answer: B (1 and 3 only)

Explanation:

- **Statement 1: Correct.** The UNFCCC was adopted in 1992 to promote international cooperation to combat climate change by limiting global temperature rise and addressing its impacts.

- **Statement 2: Incorrect.** The UNFCCC itself does not legally bind countries to specific emission reduction targets; binding commitments were introduced under the Kyoto Protocol for certain countries.

- **Statement 3: Correct.** The Conference of the Parties (COP) is the supreme decision-making body of the UNFCCC, meeting annually to review progress and make decisions.

Source- Shankar IAS

2. **With reference to the Kyoto Protocol, which of the following statements is/are correct?**

1. It is an international treaty that commits state parties to reduce greenhouse gas emissions based on the principle of common but differentiated responsibilities.
2. It includes mechanisms like Clean Development Mechanism (CDM) and Joint Implementation (JI) to assist countries in meeting their emission targets.
3. It was extended beyond its initial commitment period (2008–2012) through the Doha Amendment.

**Select the correct answer using the code given below.**

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2, and 3

**Correct Answer: D (1, 2, and 3)**

**Explanation:**

- **Statement 1: Correct.** The Kyoto Protocol, adopted in 1997, commits state parties to reduce greenhouse gas emissions based on the principle of common but differentiated responsibilities, recognizing that developed countries have greater responsibility.

- **Statement 2: Correct.** It includes flexible mechanisms like the Clean Development Mechanism (CDM) and Joint Implementation (JI) to help countries meet emission targets.

- **Statement 3: Correct.** The Doha Amendment extended the Kyoto Protocol's commitment period beyond 2012 to 2020.

3. **With reference to REDD and REDD+, which of the following statements is/are correct?**

4. REDD stands for Reducing Emissions from Deforestation and Forest Degradation.
5. REDD+ includes conservation, sustainable management of forests, and enhancement of forest carbon stocks.
6. It is exclusively managed by the Intergovernmental Panel on Climate Change (IPCC).

**Select the correct answer using the code given below.**

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2, and 3

**Correct Answer: B (1 and 2 only)**

**Explanation:**

- **Statement 1: Correct.** REDD stands for Reducing Emissions from Deforestation and Forest Degradation, aimed at reducing emissions from forest loss.

- **Statement 2: Correct.** REDD+ expands on REDD by including conservation, sustainable forest management, and enhancement of forest carbon stocks.

- **Statement 3: Incorrect.** REDD+ is not exclusively managed by the IPCC; it is a UNFCCC initiative, with support from other organizations like the Forest Carbon Partnership Facility.

4. **With reference to the Intergovernmental Panel on Climate Change (IPCC), which of the following statements is/are correct?**

1. The IPCC was established to provide scientific assessments on climate change, its impacts, and mitigation strategies.
2. It directly implements climate change policies and enforces emission reduction targets.

**Select the correct answer using the code given below.**

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

**Correct Answer: A (1 only)**

**Explanation:**

- **Statement 1: Correct.** The IPCC was established in 1988 to provide scientific assessments on climate change, its impacts, risks, and mitigation strategies, informing policymakers.
- **Statement 2: Incorrect.** The IPCC does not implement policies or enforce emission reduction targets; it provides scientific data and recommendations.

5. **With reference to the Global Environment Facility (GEF), which of the following statements is/are correct?**

1. It serves as a financial mechanism for several environmental conventions, including the UNFCCC and the Convention on Biological Diversity.
2. It exclusively funds projects related to renewable energy development in developed countries.

**Select the correct answer using the code given below.**

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

**Correct Answer: A (1 only)**

**Explanation:**

- **Statement 1: Correct.** The GEF serves as a financial mechanism for multiple environmental conventions, including the UNFCCC and the Convention on Biological Diversity, funding projects in developing countries.
- **Statement 2: Incorrect.** The GEF does not exclusively fund renewable energy projects in developed countries; it focuses on global environmental issues, primarily in developing nations.

6. **With reference to Climate Smart Agriculture, which of the following statements is/are correct?**

1. It aims to increase agricultural productivity while reducing greenhouse gas emissions.
2. It promotes practices like crop rotation and integrated pest management to enhance resilience to climate change.

**Select the correct answer using the code given below.**

- A. 1 only
- B. 2 only



- C. Both 1 and 2
- D. Neither 1 nor 2

**Correct Answer: A (1 only)**

**Explanation:**

- **Statement 1: Correct.** The GEF serves as a financial mechanism for multiple environmental conventions, including the UNFCCC and the Convention on Biological Diversity, funding projects in developing countries.
- **Statement 2: Incorrect.** The GEF does not exclusively fund renewable energy projects in developed countries; it focuses on global environmental issues, primarily in developing nations

7. **Which of the following are mechanisms or initiatives under the UNFCCC to address climate change?**

1. Clean Development Mechanism (CDM)
2. Joint Implementation (JI)
3. Emissions Trading
4. Carbon Sequestration

**Select the correct answer using the code given below.**

- A. 1 and 2 only
- B. 1, 2, and 3 only
- C. 2, 3, and 4 only
- D. 1, 2, 3, and 4

**Correct Answer: B (1, 2, and 3 only)**

**Explanation:**

- **Statement 1: Correct.** The Clean Development Mechanism (CDM) allows developed countries to invest in emission reduction projects in developing countries to meet their targets.
- **Statement 2: Correct.** Joint Implementation (JI) enables developed countries to undertake emission reduction projects in other developed countries (page 260).
- **Statement 3: Correct.** Emissions Trading allows countries to trade emission allowances to meet their reduction targets under the Kyoto Protocol (page 260).
- **Statement 4: Incorrect.** Carbon Sequestration is a process, not a specific UNFCCC mechanism, though it is supported by initiatives like REDD+ (page 227).

8. **Which of the following are key features of the Green Economy as promoted by international climate change organizations?**

1. Low carbon and resource-efficient economic growth
2. Social inclusiveness and poverty reduction
3. Increased dependence on fossil fuels
4. Creation of green jobs and sustainable infrastructure

**Select the correct answer using the code given below.**

- A. 1 and 2 only
- B. 1, 2, and 4 only
- C. 2, 3, and 4 only
- D. 1, 3, and 4 only

**Correct Answer: B (1, 2, and 4 only)**

**Explanation:**



- **Statement 1: Correct.** A Green Economy promotes low-carbon and resource-efficient economic growth.
  - **Statement 2: Correct.** It emphasizes social inclusiveness and poverty reduction as key components.
  - **Statement 3: Incorrect.** A Green Economy aims to reduce dependence on fossil fuels, not increase it.
  - **Statement 4: Correct.** It focuses on creating green jobs and developing sustainable infrastructure.
9. Which of the following are objectives of the Climate Finance Architecture under international climate change frameworks?
1. Mobilizing funds for mitigation and adaptation projects
  2. Supporting capacity building in developing countries
  3. Promoting technology transfer for climate resilience
  4. Enforcing mandatory emission cuts for countries
- Select the correct answer using the code given below.**
- A. 1 and 3 only  
B. 1, 2, and 3 only  
C. 2, 3, and 4 only  
D. 1, 2, 3, and 4

**Correct Answer: B (1, 2, and 3 only)**

**Explanation:**

- **Statement 1: Correct.** The Climate Finance Architecture mobilizes funds for mitigation and adaptation projects in developing countries.
- **Statement 2: Correct.** It supports capacity building in developing countries to enhance climate resilience.
- **Statement 3: Correct.** It promotes technology transfer to support climate adaptation and mitigation.
- **Statement 4: Incorrect.** The Climate Finance Architecture does not enforce mandatory emission cuts; it facilitates voluntary commitments and support.

10. Under the UNFCCC, the term 'climate forcing' refers to the perturbation in the Earth's energy balance caused by which of the following?
- a) Natural variations in solar radiation
  - b) Anthropogenic greenhouse gases and aerosols
  - c) Volcanic eruptions and orbital changes
  - d) Oceanic currents and atmospheric circulation patterns

**Correct Answer: B (Anthropogenic greenhouse gases and aerosols)**

**Explanation:** Climate forcing, measures the change in Earth's energy balance due to human-induced factors like greenhouse gases and aerosols, distinct from natural forcings; this concept is integral to IPCC assessments and UNFCCC discussions on radiative forcing.

## Structure Relief and Physiographic Divisions Of India

1. Consider the following statements regarding the geological structure of India:

1. The Peninsular Plateau is primarily composed of ancient crystalline igneous and metamorphic rocks formed during the Precambrian era.
2. The Himalayan mountains are young fold mountains formed by the collision of the Indian Plate with the Eurasian Plate.
3. The Indo-Gangetic Plain is a geosynclinal depression filled with sediments eroded from the Himalayas and the Peninsular Plateau.

**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

**Correct Answer: D**

**Explanation:**

**Statement 1: Correct.** The Peninsular Plateau is made of ancient rocks like gneisses and granites from the Precambrian era, forming one of the oldest landmasses.

**Statement 2: Correct.** The Himalayas are young fold mountains resulting from the tectonic collision between the Indian and Eurasian Plates.

**Statement 3: Correct.** The Indo-Gangetic Plain is a depositional basin filled with sediments eroded from the Himalayas and Peninsular Plateau.

2. **In the context of the Himalayan physiographic divisions, consider the following statements:**

1. The Great Himalayas, or Himadri, have an average elevation above 6,000 meters and contain India's highest peaks.
2. The Shiwalik range is composed of unconsolidated sediments, making it prone to erosion and landslides.
3. The Trans-Himalayan zone, including the Karakoram range, is primarily formed of volcanic rocks.

**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

**Correct Answer: A**

**Explanation:**

**Statement 1: Correct.** The Himadri or Great Himalayas average over 6,000 meters, hosting peaks like Everest and Kanchenjunga.

**Statement 2: Correct.** The Shiwaliks, the outermost range, consist of loose sediments like sandstone, leading to frequent erosion and landslides.

**Statement 3: Incorrect.** The Trans-Himalayas, including Karakoram, are mainly composed of sedimentary and metamorphic rocks from the Tethys geosyncline, not primarily volcanic rocks.

3. **With reference to the Peninsular Plateau of India, consider the following statements:**

1. The Deccan Plateau slopes eastward, leading major rivers to drain into the Bay of Bengal.
2. The Aravalli range forms the northwestern boundary of the Central Highlands.
3. The Chotanagpur Plateau is known for its rich coal and iron ore deposits.

**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

**Correct Answer:** D

**Explanation:**

**Statement 1: Correct.** The Deccan Plateau tilts eastward, causing rivers like Godavari and Krishna to flow into the Bay of Bengal.

**Statement 2: Correct.** The Aravalli range marks the northwestern boundary of the Central Highlands, separating them from the Thar Desert.

**Statement 3: Correct.** The Chotanagpur Plateau is a mineral-rich region, known for significant coal and iron ore deposits.

4. **Consider the following statements about the Northern Plains of India:**

1. The Bhabar zone consists of coarse pebbles where rivers disappear into the subsurface.
2. The Bangar region is more fertile than the Khadar due to older alluvium deposits.

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

**Correct Answer:** A

**Explanation:**

**Statement 1: Correct.** The Bhabar is a narrow (8-16 km) zone of coarse gravel where Himalayan rivers lose velocity and percolate underground.

**Statement 2: Incorrect.** The Khadar, with newer alluvium from annual flooding, is more fertile than the older, less frequently replenished Bangar alluvium.

5. **Consider the following statements about the Indian Desert:**

1. The Thar Desert features crescent-shaped barchan dunes due to wind action.
2. The Luni River is the only significant river, draining into the Rann of Kutch.

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

**Correct Answer:** C

**Explanation:**

**Statement 1: Correct.** The Thar Desert is characterized by barchan (crescent-shaped) dunes formed by wind action in arid conditions.

**Statement 2: Correct.** The Luni River is the only major river in the Thar, originating in the Aravallis and draining into the Rann of Kutch.

6. **Consider the following statements about India's Coastal Plains:**

1. The Eastern Coastal Plain is wider due to deltaic deposition by rivers like the Krishna and Kaveri.
2. The Western Coastal Plain is characterized by submerged coastlines forming backwaters and lagoons.

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

**Correct Answer: C**

**Explanation:**

**Statement 1: Correct.** The Eastern Coastal Plain is broader (80-100 km) due to extensive delta formation by rivers like Krishna and Kaveri.

**Statement 2: Correct.** The Western Coastal Plain, narrower in width, features submerged coastlines with lagoons and backwaters, notably in Kerala.

7. **Which of the following factors influence the physiographic characteristics of the Himalayan region?**

- 1. Tectonic collision between the Indian and Eurasian Plates.
- 2. Glacial and fluvial erosion forming deep valleys and gorges.
- 3. Deposition of sediments from the Peninsular Plateau.
- 4. Formation of longitudinal valleys like the Dun valleys.
- 5. Basaltic lava flows from volcanic activity.

**Select the correct answer using the code given below.**

- A. 1 and 2 only
- B. 1, 2 and 4 only
- C. 3 and 5 only
- D. 1, 3 and 4 only

**Correct Answer: B**

**Explanation:**

**Statement 1: Correct.** The Himalayas formed due to the collision of the Indian and Eurasian Plates.

**Statement 2: Correct.** Glacial and river erosion have shaped deep valleys and gorges in the Himalayas.

**Statement 3: Incorrect.** Sediments from the Peninsular Plateau primarily contribute to the Indo-Gangetic Plain, not the Himalayas.

**Statement 4: Correct.** Longitudinal valleys like the Dun and Kashmir valleys are key Himalayan features.

**Statement 5: Incorrect.** Basaltic lava flows are associated with the Deccan Plateau, not the Himalayas.

8. **How does the Peninsular Plateau differ from the Indo-Gangetic Plains in terms of physiographic features?**

- 1. The Peninsular Plateau has rugged topography, while the Indo-Gangetic Plains are flat and depositional.
- 2. Rivers in the Peninsular Plateau are seasonal, unlike the perennial rivers of the Indo-Gangetic Plains.
- 3. The Peninsular Plateau is rich in mineral deposits, while the Indo-Gangetic Plains are fertile for agriculture.
- 4. The Peninsular Plateau is tectonically more active than the Indo-Gangetic Plains.

**Select the correct answer using the code given below:**

- A. 1 and 3 only
- B. 2 and 4 only
- C. 1, 2 and 3 only
- D. 1, 2, 3 and 4

**Correct Answer: C**

**Explanation:**

**Statement 1: Correct.** The Peninsular Plateau is rugged with hills and plateaus, while the Plains are flat due to alluvial deposition.

**Statement 2: Correct.** Peninsular rivers like Godavari are seasonal, unlike the perennial Himalayan rivers in the Plains.

**Statement 3: Correct.** The Plateau has minerals like coal and iron, while the Plains are agriculturally fertile.

**Statement 4: Incorrect.** The Peninsular Plateau is tectonically stable, unlike the seismically active Himalayas.

**9. Which of the following statements describe the physiographic features of India's island territories?**

1. The Andaman and Nicobar Islands are tectonic in origin, linked to the Arakan Yoma range.
2. The Lakshadweep Islands are coral atolls formed on submerged volcanic ridges.
3. The Andaman Islands support tropical rainforests, while Lakshadweep has coral-based vegetation.
4. The Andaman and Nicobar Islands are separated from the mainland by the Andaman Sea.

Select the correct answer using the code given below.

- A. 1 and 2 only
- B. 1, 2 and 3 only
- C. 3 and 4 only
- D. 2 and 4 only

**Correct Answer: B**

**Explanation:**

**Statement 1: Correct.** The Andaman and Nicobar Islands are tectonic, extensions of the Arakan Yoma range.

**Statement 2: Correct.** Lakshadweep Islands are coral atolls formed on submerged volcanic ridges.

**Statement 3: Correct.** Andamans have dense rainforests, while Lakshadweep has sparse, coral-based vegetation like coconut palms.

**Statement 4: Incorrect.** The Andaman and Nicobar Islands are separated from each other by the Ten Degree Channel, not from the mainland by the Andaman Sea alone.

**10. Which of the following physiographic divisions of India is the oldest, composed primarily of Archaean rocks and tectonically stable?**

- A. The Himalayas
- B. The Indo-Gangetic Plain
- C. The Peninsular Plateau
- D. The Coastal Plains

**Correct Answer: C**

**Explanation:**

The Peninsular Plateau, formed of Archaean rocks like gneisses and granites, is the oldest and most tectonically stable division, unlike the young Himalayas or depositional Plains and Coastal Plains.

## Drainage System of India

**1. Consider the following statements regarding the Indus River System:**

1. The Indus originates near Lake Mansarovar in Tibet and flows through India before entering Pakistan.
2. The Jhelum and Chenab are its major tributaries, joining it directly in Pakistan.



3. The Sutlej River forms the headwaters of the Indus, originating from the Rakshastal Lake.

**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

**Correct Answer:** A

**Explanation:**

**Statement 1: Correct.** The Indus originates near Lake Mansarovar in Tibet, flows through Ladakh in India, and then enters Pakistan.

**Statement 2: Correct.** The Jhelum and Chenab are major left-bank tributaries that join the Indus directly in Pakistan.

**Statement 3: Incorrect.** The Sutlej is a tributary of the Indus, not its headwater; it originates from Rakshastal Lake but joins the Indus later.

2. **In the context of the Ganga River System, consider the following statements:**

- 1. The Ganga is formed by the confluence of the Bhagirathi and Alaknanda rivers at Devprayag.
- 2. The Yamuna, the largest tributary of the Ganga, originates from the Gangotri Glacier.
- 3. The Son River, a right-bank tributary, drains a significant portion of the Peninsular Plateau.

**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

**Correct Answer:** B

**Explanation:**

**Statement 1: Correct.** The Ganga is formed by the confluence of the Bhagirathi and Alaknanda at Devprayag in Uttarakhand.

**Statement 2: Incorrect.** The Yamuna originates from the Yamunotri Glacier, not the Gangotri Glacier, which is the source of the Bhagirathi.

**Statement 3: Correct.** The Son, a right-bank tributary, drains parts of the Peninsular Plateau, including the Chotanagpur region.

3. **With reference to the Brahmaputra River System, consider the following statements:**

- 1. The Brahmaputra, known as Tsangpo in Tibet, enters India through a narrow gorge in Arunachal Pradesh.
- 2. The Dibang and Lohit are major left-bank tributaries joining the Brahmaputra in Assam.
- 3. The Brahmaputra forms the world's largest river island, Majuli, in Assam.

**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

**Correct Answer:** B

**Explanation:**

**Statement 1: Correct.** The Brahmaputra, called Tsangpo in Tibet, enters India through a gorge in Arunachal



Pradesh.

**Statement 2: Incorrect.** The Dibang and Lohit are right-bank tributaries of the Brahmaputra, not left-bank.

**Statement 3: Correct.** The Brahmaputra forms Majuli, the world's largest river island, in Assam, though it is shrinking due to erosion.

4. **Consider the following statements about the Peninsular river systems:**

1. The Godavari, the largest Peninsular river, originates in the Western Ghats near Nashik.
2. The Krishna River forms a large delta on the eastern coast before draining into the Arabian Sea.

**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

**Correct Answer: A**

**Explanation:**

**Statement 1: Correct.** The Godavari originates in the Western Ghats near Nashik, Maharashtra, and is the largest Peninsular river.

**Statement 2: Incorrect.** The Krishna forms a delta on the eastern coast but drains into the Bay of Bengal, not the Arabian Sea.

5. **Consider the following statements about the Narmada River:**

1. The Narmada flows through a rift valley between the Vindhya and Satpuras, forming a linear basin.
2. The Narmada is one of the few major rivers in India that flows eastward into the Bay of Bengal.

**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

**Correct Answer: A**

**Explanation:**

**Statement 1: Correct.** The Narmada flows through a rift valley between the Vindhya and Satpuras, creating a linear basin.

**Statement 2: Incorrect.** The Narmada flows westward and drains into the Arabian Sea, not eastward into the Bay of Bengal.

6. **Consider the following statements about the drainage patterns in India:**

1. The rivers of the Himalayan system typically exhibit dendritic drainage patterns due to uniform terrain.
2. The rivers of the Peninsular Plateau often show radial drainage patterns in regions like the Chotanagpur Plateau.

**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

**Correct Answer:** C

**Explanation:**

**Statement 1: Correct.** Himalayan rivers like the Ganga and its tributaries show dendritic (tree-like) drainage due to relatively uniform terrain.

**Statement 2: Correct.** Peninsular rivers, especially in areas like the Chotanagpur Plateau, exhibit radial drainage due to domed uplands.

7. **Which of the following factors influence the drainage characteristics of Indian rivers?**

1. Tectonic activity shaping rift valleys for rivers like the Narmada and Tapi.
2. Seasonal monsoon rainfall affecting the flow of Peninsular rivers.
3. Glacial melt contributing to the perennial nature of Himalayan rivers.
4. Coral reef formations influencing river mouths in coastal plains.
5. Erosion of ancient Gondwana rocks in the Peninsular region.

Select the correct answer using the code given below.

- A. 1 and 2 only
- B. 1, 2 and 3 only
- C. 3 and 4 only
- D. 1, 2, 3 and 5 only

**Correct Answer:** B

**Explanation:**

**Statement 1: Correct.** Tectonic activity has created rift valleys for rivers like Narmada and Tapi, shaping their drainage.

**Statement 2: Correct.** Monsoon rainfall causes seasonal flow in Peninsular rivers like Godavari and Krishna.

**Statement 3: Correct.** Glacial melt ensures the perennial flow of Himalayan rivers like the Ganga and Brahmaputra.

**Statement 4: Incorrect.** Coral reefs do not significantly influence river mouths in India's coastal plains.

**Statement 5: Incorrect.** While Gondwana rocks form the Peninsular Plateau, their erosion does not directly shape drainage patterns.

8. **Which of the following statements describe the characteristics of the east-flowing Peninsular rivers?**

1. East-flowing rivers like the Mahanadi and Godavari form extensive deltas due to gentle slopes and high sediment load.
2. These rivers have larger catchment areas compared to west-flowing rivers like the Narmada and Tapi.
3. Most east-flowing rivers originate in the Western Ghats and are monsoon-dependent.
4. East-flowing rivers generally have shorter courses than Himalayan rivers due to the stable Peninsular terrain.

Select the correct answer using the code given below.

- A. 1 and 3 only
- B. 1, 2 and 4 only
- C. 2 and 3 only
- D. 1, 2, 3 and 4

**Correct Answer:** B

**Explanation:**

**Statement 1: Correct.** East-flowing rivers like Mahanadi and Godavari form large deltas due to gentle slopes and sediment deposition.

**Statement 2: Correct.** East-flowing rivers have larger catchment areas compared to the shorter west-flowing rivers like Narmada.

**Statement 3: Incorrect.** While many originate in the Western Ghats, some like the Mahanadi originate in the Central Highlands.

**Statement 4: Correct.** Peninsular rivers have shorter courses than Himalayan rivers due to the stable, less dissected terrain.

9. Which of the following statements highlight the significance of India's river systems in specific contexts?

1. The Ganga-Brahmaputra delta is one of the most fertile regions, supporting dense agricultural activity.
2. The Indus Water Treaty governs the sharing of Indus system waters between India and Pakistan.
3. The Kaveri River dispute primarily involves water sharing between Karnataka and Tamil Nadu.
4. The Brahmaputra River is a major source of hydropower due to its steep gradient in the Himalayan region.

Select the correct answer using the code given below.

- A. 1 and 2 only
- B. 1, 2 and 3 only
- C. 3 and 4 only
- D. 1, 2, 3 and 4

**Correct Answer: D**

**Explanation:**

**Statement 1: Correct.** The Ganga-Brahmaputra delta is highly fertile, supporting intensive agriculture in West Bengal and Bangladesh.

**Statement 2: Correct.** The Indus Water Treaty (1960) allocates waters of the Indus and its tributaries between India and Pakistan.

**Statement 3: Correct.** The Kaveri dispute is a major inter-state issue between Karnataka and Tamil Nadu over water sharing.

**Statement 4: Correct.** The Brahmaputra's steep gradient in the Himalayas makes it a significant source for hydropower projects.

10. Which of the following rivers is the only major west-flowing Peninsular river that forms an estuary instead of a delta?

- A. Godavari
- B. Krishna
- C. Narmada
- D. Kaveri

**Correct Answer: C**

**Explanation:**

The Narmada River, flowing westward through a rift valley, forms an estuary at its mouth in the Arabian Sea due to its steep gradient and low sediment load, unlike the delta-forming east-flowing rivers like Godavari and Krishna.

## Weather Climate and Season in India

1. Consider the following statements regarding the Indian monsoon:

1. The southwest monsoon is primarily driven by the differential heating of the Indian landmass and the Indian Ocean.
2. The Inter-Tropical Convergence Zone (ITCZ) shifts northward during the summer, facilitating monsoon rainfall over India.
3. The Tibetan Plateau's heating creates a high-pressure system that strengthens the monsoon winds.

**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

**Correct Answer: A**

**Explanation:**

**Statement 1:** Correct. The southwest monsoon results from differential heating between the warmer Indian landmass and the cooler Indian Ocean, creating a low-pressure system over land.

**Statement 2:** Correct. The northward shift of the ITCZ during summer brings moisture-laden winds to India, triggering monsoon rainfall.

**Statement 3:** Incorrect. The Tibetan Plateau's heating creates a low-pressure system, not a high-pressure system, which enhances monsoon circulation.

**2. In the context of India's climatic zones, consider the following statements:**

1. The Tropical Wet Evergreen climate is found in the Western Ghats and parts of Northeast India, characterized by heavy rainfall exceeding 250 cm annually.
2. The Tropical Dry climate, prevalent in parts of Rajasthan, experiences high temperatures and scanty rainfall due to rain shadow effects.
3. The Subtropical Humid climate of the Himalayan foothills is marked by cold winters and minimal seasonal temperature variation.

**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

**Correct Answer: A**

**Explanation:**

**Statement 1:** Correct. The Tropical Wet Evergreen climate, found in the Western Ghats and Northeast India, receives over 250 cm of rainfall annually, supporting dense forests.

**Statement 2:** Correct. The Tropical Dry climate in Rajasthan, a rain shadow region, has high temperatures and low rainfall (less than 50 cm).

**Statement 3:** Incorrect. The Subtropical Humid climate in the Himalayan foothills has cold winters but significant seasonal temperature variation, not minimal.

**3. With reference to the El Niño and La Niña phenomena affecting India's climate, consider the following statements:**

1. El Niño weakens the trade winds, leading to reduced monsoon rainfall in India.
2. La Niña strengthens the monsoon by enhancing moisture flow from the Pacific Ocean.
3. The Indian Ocean Dipole (IOD) has no significant impact on monsoon variability during El Niño years.

**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

**Correct Answer:** A

**Explanation:**

**Statement 1:** Correct. El Niño weakens trade winds, reducing monsoon rainfall in India by disrupting moisture flow.

**Statement 2:** Correct. La Niña strengthens monsoon rainfall by enhancing moisture-laden winds from the Pacific.

**Statement 3:** Incorrect. The Indian Ocean Dipole significantly influences monsoon variability, often mitigating or exacerbating El Niño's effects.

4. **Consider the following statements about the retreating monsoon in India:**

1. The retreating monsoon occurs when the ITCZ shifts southward, leading to the withdrawal of southwest monsoon winds.
2. Tamil Nadu receives significant rainfall during the retreating monsoon due to cyclonic activity in the Bay of Bengal.

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

**Correct Answer:** C

**Explanation:**

**Statement 1:** Correct. The retreating monsoon begins as the ITCZ shifts south, causing the southwest monsoon winds to withdraw, typically from September to October.

**Statement 2:** Correct. Tamil Nadu receives heavy rainfall during the retreating monsoon (October–December) due to cyclonic disturbances in the Bay of Bengal.

5. **Consider the following statements about the factors influencing India's climate:**

1. The Himalayan mountain range acts as a barrier, preventing cold Siberian winds from entering India.
2. The Thar Desert's aridity is primarily due to its location in the rain shadow of the Western Ghats.

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

**Correct Answer:** A

**Explanation:**

**Statement 1:** Correct. The Himalayas block cold Siberian winds, contributing to milder winters in northern India.

**Statement 2:** Incorrect. The Thar Desert's aridity is due to its location in the rain shadow of the Aravalli range, not the Western Ghats.



6. **Consider the following statements about jet streams and India's weather:**

1. The Subtropical Westerly Jet Stream influences India's winter weather by bringing western disturbances.
2. The Easterly Jet Stream is active during the southwest monsoon, aiding the onset of rainfall.

**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

**Correct Answer:** C

**Explanation:**

**Statement 1:** Correct. The Subtropical Westerly Jet Stream drives western disturbances, causing winter rainfall in northwest India.

**Statement 2:** Correct. The Easterly Jet Stream, active during summer, strengthens the southwest monsoon, facilitating rainfall across India.

7. **Which of the following factors influence the seasonal weather patterns in India?**

1. Differential heating between the Indian landmass and surrounding oceans.
2. Movement of the Inter-Tropical Convergence Zone (ITCZ) across the subcontinent.
3. Volcanic eruptions in the Andaman and Nicobar Islands altering monsoon patterns.
4. Western disturbances causing rainfall in northwest India during winter.
5. Monsoon trough fluctuations affecting rainfall distribution.

**Select the correct answer using the code given below.**

- A. 1 and 2 only
- B. 1, 2, 4 and 5 only
- C. 3 and 4 only
- D. 1, 3 and 5 only

**Correct Answer:** B

**Explanation:**

**Statement 1:** Correct. Differential heating drives the monsoon by creating a low-pressure system over land.

**Statement 2:** Correct. The ITCZ's movement triggers the onset and retreat of the monsoon.

**Statement 3:** Incorrect. Volcanic eruptions in the Andaman and Nicobar Islands do not significantly affect India's monsoon patterns.

**Statement 4:** Correct. Western disturbances bring winter rainfall to northwest India.

**Statement 5:** Correct. Monsoon trough fluctuations influence rainfall distribution across India.

8. **Which of the following statements describe the characteristics of India's monsoon rainfall?**

1. The southwest monsoon contributes about 70–90% of India's annual rainfall.
2. The onset of the monsoon typically begins in Kerala by early June due to moisture-laden winds from the Arabian Sea.
3. The monsoon break phase is caused by the northward shift of the monsoon trough, reducing rainfall in northern India.
4. The Western Ghats receive orographic rainfall due to the ascent of moist air from the Arabian Sea.

**Select the correct answer using the code given below.**

- A. 1 and 2 only
- B. 1, 2 and 4 only



- C. 2 and 3 only
- D. 1, 3 and 4 only

**Correct Answer:** B

**Explanation:**

**Statement 1:** Correct. The southwest monsoon accounts for 70–90% of India's annual rainfall.

**Statement 2:** Correct. The monsoon typically begins in Kerala by early June, driven by Arabian Sea winds.

**Statement 3:** Incorrect. The monsoon break occurs due to the southward shift or weakening of the monsoon trough, not northward.

**Statement 4:** Correct. The Western Ghats receive heavy orographic rainfall as moist air rises over the mountains.

9. **Which of the following statements highlight the regional variations in India's climate?**

1. The coastal plains of Tamil Nadu receive significant rainfall during the northeast monsoon due to cyclonic activity.
2. The Gangetic Plain experiences a hot and dry pre-monsoon season due to intense solar heating.
3. The Northeast region has a cold desert climate similar to Ladakh due to high altitude.
4. The Deccan Plateau has a semi-arid climate with moderate rainfall during the southwest monsoon.

**Select the correct answer using the code given below.**

- A. 1 and 2 only
- B. 1, 2 and 4 only
- C. 3 and 4 only
- D. 2 and 3 only

**Correct Answer:** B

**Explanation:**

**Statement 1:** Correct. Tamil Nadu's coastal plains receive heavy rainfall during the northeast monsoon due to cyclones in the Bay of Bengal.

**Statement 2:** Correct. The Gangetic Plain experiences hot and dry conditions in the pre-monsoon season due to intense solar heating.

**Statement 3:** Incorrect. The Northeast has a humid subtropical climate with heavy rainfall, unlike Ladakh's cold desert climate.

**Statement 4:** Correct. The Deccan Plateau has a semi-arid climate with moderate monsoon rainfall.

10. **Which of the following phenomena is primarily responsible for the heavy orographic rainfall in the Western Ghats during the southwest monsoon?**

- A. El Niño
- B. Western Disturbances
- C. Monsoon Trough
- D. Ascent of Moisture-Laden Winds

**Correct Answer:** D

**Explanation:**

The heavy orographic rainfall in the Western Ghats is caused by the ascent of moisture-laden southwest monsoon winds, which rise over the mountains, cool, and condense to produce rainfall.

