



**PMF IAS**

# **UPSC CIVIL SERVICES (PRELIMINARY) EXAMINATION, 2025**



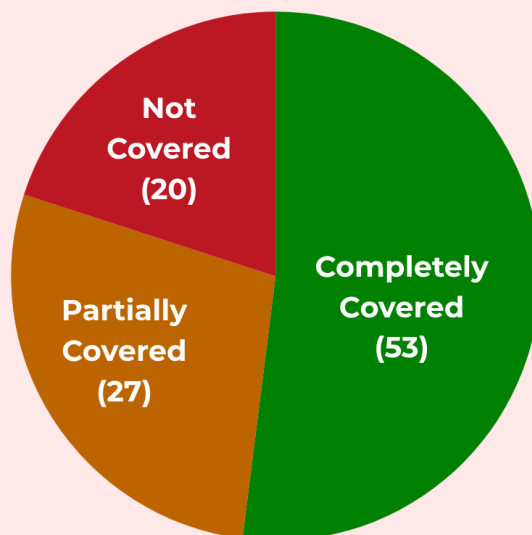
## **Answer Key, Explanations & PMF IAS Source Tracing**



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# UPSC CSE Prelims 2025 – Answer Key (Set D) with Explanation and PMF IAS Source Tracing

1, 3, 5, 6, 13, 14, 24,  
32, 37, 40, 43, 44,  
55, 78, 85, 86, 93,  
95, 99, 100



10, 18, 20, 22, 41,  
46, 47, 48, 49, 50,  
52, 53, 62, 64, 63,  
66, 68, 70, 81, 82,  
84, 88, 89, 90, 91,  
94, 96, 98

2, 4, 7, 8, 9, 11, 12,  
15, 16, 17, 19, 21, 23,  
25, 26, 27, 28, 29,  
30, 31, 33, 34, 35,  
36, 38, 39, 42, 45,  
51, 54, 56, 57, 58,  
59, 60, 61, 65, 67,  
69, 71, 72, 73, 74,  
75, 76, 77, 79, 80,  
83, 87, 92, 97

| PMF IAS Source                | Completely Covered | Partially Covered |
|-------------------------------|--------------------|-------------------|
| <b>ALL PMF IAS Sources</b>    | <b>53</b>          | <b>27</b>         |
| <b>Test Series 2025</b>       | <b>32</b>          | <b>16</b>         |
| <b>Current Affairs</b>        | <b>25</b>          | <b>13</b>         |
| <b>Prelims Magnum</b>         | <b>12</b>          | <b>17</b>         |
| <b>Infographics</b>           | <b>09</b>          | <b>05</b>         |
| <b>History Books</b>          | <b>12</b>          | <b>00</b>         |
| <b>Art &amp; Culture Book</b> | <b>05</b>          | <b>00</b>         |
| <b>Geography Books</b>        | <b>04</b>          | <b>05</b>         |





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# UPSC CSE 2026

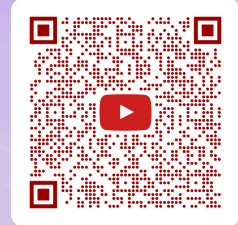
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## 1) "Sedition has become my religion" was the famous statement given by Gandhiji at the time of:

- a) the Champaran Satyagraha
- b) publicly violating Salt Law at Dandi
- c) attending the Second Round Table Conference in London
- d) the launch of the Quit India Movement

**Answer: (b) publicly violating Salt Law at Dandi**

### Explanation

- On 6<sup>th</sup> April, 1930 at Dandi Gandhi declare, "The British rule in India has brought about moral, material, cultural and spiritual ruination of this great country. I regard this rule as a curse. I am out to destroy this system of Government..... Sedition has become my religion"

**Covered in the PMF IAS History Book? No**

## 2) The famous female figurine known as 'Dancing Girl', found at Mohenjo-daro, is made of:

- a) carnelian
- b) clay
- c) bronze
- d) gold

**Answer: (c) bronze**

**Covered in the PMF IAS Art and Culture Book? Yes, Completely Covered**

### Dancing Girl

- It is a female statue made of **bronze** discovered from **Mohenjo-daro** and is one of the finest examples of the Harappan craftsmen in metal casting and artistic refinery.
- The figure is depicted without clothes, with bangles on her left hand and a hairstyle with hair tied in a bun.
- This figure stands with her right hand at her waist and her left hand on her left thigh ('**tribhanga**' dance posture), which shows the proficiency of the artists in metal casting during that period.

**Covered in the PMF IAS History Book? Yes, Completely Covered**





## Bronze Statues

- Statues, whether in **stone**, **bronze** or **terracotta**, found in Harappan sites, are not abundant but **refined**.
- The Harappan artisans made beautiful images of metal. **Bronze statues** were made using the '**lost wax**' technique, and both animal and human figures have been found.
- As bronze was scarce, a **few bronze sculptures** were found. The most famous are:

- Dancing girl**: A woman dancer of about **4-inch height** made of bronze has been found in **Mohen-jodaro**. It is popularly known as '**Dancing Girl**'.
- Daimabad man**

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional TEST 01 Ancient India)**

### 618) Consider the following statements about Bronze Figures of Harappan Civilization:

The bronze statues were made using 'lost wax technique' or 'cire perdue'.

The bronze dancing girl from Kalibangan is the world's oldest bronze sculpture.

Bronze dancing girl stands in a 'tribhanga' dancing posture with the right hand on her hip.

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

- Only one
- Only two
- All three
- None

**Statement 2 is incorrect and statement 3 is correct**

The **Dancing Girl** found in **Mohenjo-daro** is the **world's oldest bronze sculpture**.

This **four inch figure depicts** a naked **girl** wearing **only ornaments**, which include **bangles** in the left arm, and **amulet** and **bracelet** on the right arm.

She stands in a '**tribhanga**' **dancing posture** with the **right hand on her hip**.



- ❖ Bronze statue of dancing girl
- ❖ Bronze buffalo
- ❖ Steatite statue of a bearded priest
- ❖ Seal of pashupati
- ❖ The great granary
- ❖ Assembly hall

### 3) Who provided legal defence to the people arrested in the aftermath of the Chauri Chaura incident?

- a) C. R. Das
- b) Madan Mohan Malaviya and Krishna Kant
- c) Dr. Saifuddin Kitchlew and Khwaja Hasan Nizami
- d) M. A. Jinnah

**Answer: (b): Madan Mohan Malaviya and Krishna Kant**

**Covered in the PMF IAS History Book? No**

### 4) Subsequent to which one of the following events, Gandhiji, who consistently opposed untouchability and appealed for its eradication from all spheres, decided to include the upliftment of 'Harijans' in his political and social programme?

- a) The Poona Pact
- b) The Gandhi-Irwin Agreement (Delhi Pact)

- c) Arrest of Congress leadership at the time of the Quit India Movement
- d) Promulgation of the Government of India Act, 1935

**Answer: (a): The Poona Pact**

## Explanation

- After the Poona Pact, Gandhiji appealed for the eradication of untouchability from all spheres and decided to include the upliftment of 'Harijans' in his political and social programme.
- ❖ Harijan Sevak Sangh (All-India Anti-Untouchability League) was established on 30 September 1932.
- ❖ Harijan, the weekly paper, was started on 11 February 1933.

New Course

# History Foundation

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**Dr Vishwjeet Kavar**  
Author of  
1. PMF IAS Ancient and Medieval India  
2. PMF IAS Modern Indian History Book

**Covered in the PMF IAS History Book? Yes, Completely Covered**



### Depressed Classes

- Caste, an integral aspect of the Hindu social system, contributed to establishing a **social hierarchy**. In the name of maintaining **ritual purity**, a significant portion of Hindu society was labelled as **untouchables**.
- The term "**Depressed Classes**" refers to these so-called **untouchables** occupying the **lowest rung** of the Hindu caste hierarchy. They were considered **outside** the **four castes**.

### Gandhi's Efforts to Remove Untouchability

- **Until Gandhi** emerged as the leader of the INC, the nationalist leaders **refrained** from **discussing** issues pertaining to **removing social disabilities**.

### Gandhi's South African Experience

- The time **Gandhi** spent in **South Africa** deeply influenced his perspective.

MIH – 326

Civil Disobedience Movement (1930-34)

PMF IAS

### All the points given here are from post-Poona Pact

- Gandhi faced **discrimination** in South Africa. Upon his return to India, this **first-hand experience** of prejudice allowed him to **better understand** the **hardships** faced by the depressed classes, particularly due to untouchability. Hence, **from the beginning** of his activism in India, **Gandhi focused on improving the social status** of depressed people and **eliminating untouchability**.
- In Gandhi's opinion, '**Untouchability** has made **Indians untouchables in the whole world**, and those who wanted to see the condition of untouchable Indians should go to South Africa and realise what untouchability meant.'
- From the beginning, Gandhi brought the **issue of untouchability** to the **centre of Indian politics**. The **Satyagraha Ashram**, founded by Gandhi in 1915, resolved to **abolish untouchability**.
- Instead of using terms like 'untouchables', 'panchamas', 'antyaja', etc., Gandhi coined the term '**Harijan**', meaning '**Children of God**', because, in his opinion, other expressions were derogatory.
- Gandhi actively organised satyagraha campaigns to ensure their **entry into temples** and **access to public facilities** like wells, tanks, roads, and schools.

### Swaraj and Untouchability

- Gandhi declared that **Swaraj would not come** for a hundred years **if untouchability was not eliminated**. He believed that Indians had to address untouchability to deserve freedom.

### Gandhi's Approach to Eliminate Untouchability

- According to Gandhi, **eliminating untouchability** requires **a change in daily behaviour**, not just symbolic gestures. He suggested bringing Harijans to temples, but if they face discrimination, one should boycott such places.
- Gandhi believed that **avoiding places promoting untouchability**, even temples, was necessary to show a true commitment to the cause and demonstrate that such practices are against the principles of righteousness.

### Gandhi's Nationwide Tour

- While Gandhi was in prison, to combat untouchability:
  - ❖ **Harijan Sevak Sangh** (All-India Anti-Untouchability League) was established on **30 September 1932**.
  - ❖ **Harijan**, the **weekly paper**, was started on **11 February 1933**.
- After his release in May 1933, Gandhi devoted himself almost wholly to the **campaign against untouchability**.
- On November 7, 1933, Gandhi embarked on a **country-wide tour** covering 12,500 miles and lasted nine months. During his visits to Delhi, **Gandhiji stayed** at **Harijan Colony**, Kingsway Camp many times. He also laid a foundation stone of the **temple in Harijan Colony**. This was done solely for one purpose: to remove untouchability completely from society.

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test Full Length)**

**60) Consider the following statements regarding the ideological clash between Mahatma Gandhi and Dr. B.R. Ambedkar over separate electorates for Scheduled Castes:**

1. Gandhi opposed separate electorates for Scheduled Castes as he believed it would fragment Hindu society and weaken the independence movement.
2. Dr. Ambedkar supported separate electorates to ensure political representation and safeguard against majority tyranny.
3. The Poona Pact replaced separate electorates with reserved seats for Scheduled Castes in joint electorates, enhancing their political representation.

***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

**Statement 1 is correct**

- Early in his life, Gandhi adhered to traditional Hindu views on caste, supporting practices like social segregation and promoting the idea of caste duties. He was against concepts like inter-dining and inter-caste marriage.
- Over time, he evolved to **reject untouchability**, advocating for the dignity and rights of untouchables, whom he began to refer to as "**Harijans**" (children of God).
- Gandhi believed a united Hindu community was vital for India's independence, seeing divisions as harmful.
- He argued that **separate electorates** for Scheduled Castes would **fragment Hindu society** and weaken anti-colonial efforts. He feared this would facilitate British "**divide and rule**," undermining the independence movement.

**Statement 2 is correct**

- **Ambedkar** argued that separate electorates were **essential for meaningful political representation**, allowing Scheduled Castes to elect their leaders.
- He saw separate electorates as necessary to **rectify historical injustices** and empower marginalised communities.
- Ambedkar asserted that separate electorates would safeguard Scheduled Castes' interests against the "tyranny of the majority."

**Statement 3 is correct**

- **Poona Pact** emerged from the conflict between **Gandhi** and **Ambedkar** over separate electorates following Gandhi's hunger strike 1932.
- It **replaced** the demand for separate electorates with **reserved seats for Scheduled Castes** in legislative bodies, facilitating participation in joint electorates.

## 5) Consider the following fruits:

- I. Papaya
- II. Pineapple
- III. Guava

***How many of the above were introduced in India by the Portuguese in the sixteenth and seventeenth centuries?***

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

***Answer: (c): All three***



**Covered in the PMF IAS History Book? No**

**Partially covered in the PMF IAS 2024 PYQ Answer Key**

**30) Consider the following:**

1. Cashew
2. Papaya
3. Red sanders

***How many of the above trees are actually native to India?***

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

---

**Explanation**

- **Cashew:** It is native to **Brazil**. It was introduced to India by the Portuguese.
- **Papaya:** It is native to **Central America** and **southern Mexico**. It was introduced to India and other parts of the world by Spanish and Portuguese explorers.
- **Red Sanders:** It is **endemic to the Eastern Ghats** of India.

**6) Consider the following countries:**

- I. United Kingdom
- II. Denmark
- III. New Zealand
- IV. Australia
- V. Brazil

***How many of the above countries have more than four time zones?***

- a) All the five
- b) Only four
- c) Only three

d) Only two

**Answer: b): Only four**

### Explanation

---

- The United Kingdom (9 time zones), Denmark (5 time zones), New Zealand (5 time zones), and Australia (9 time zones) have more than four time zones, while Brazil has exactly four.

**Covered in the PMF IAS Book? NO**

### 7) Consider the following statements:

- I. Anadyr in Siberia and Nome in Alaska are a few kilometres from each other, but when people are waking up and getting set for breakfast in these cities, it would be different days.
- II. When it is Monday in Anadyr, it is Tuesday in Nome.

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

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

**Answer: a): I only**

### Explanation

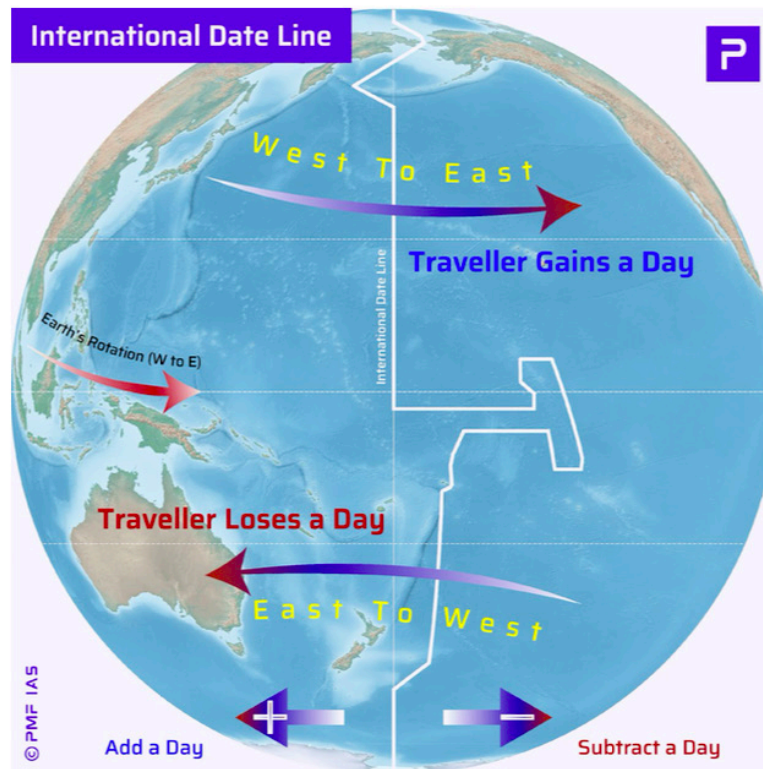
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- Anadyr, Russia, is in the Chukotka Autonomous Okrug, near the eastern tip of Siberia.
- Nome, Alaska, is on the western coast of Alaska.
- The Diomed Islands, located in the Bering Strait, are relevant here: Little Diomed (USA) and Big Diomed (Russia) are ~3.8 km apart, with the International Date Line (IDL) running between them.
- The International Date Line curves from the normal 180° meridian at the Bering Strait, and at the island groups of Polynesia, Melanesia and Micronesia.
- Statement I is correct because Anadyr (UTC+12:00) is one day ahead of Nome (UTC-09:00) due to the International Date Line, so breakfast time occurs on different days.
- Statement II is incorrect, as Monday in Anadyr corresponds to Sunday in Nome, not Tuesday.

**Covered in the PMF IAS? Yes, Completely Covered (Physical Geography Book Page No. 250)**

## The International Date Line (IDL)

- The International Date Line is an imaginary line that passes through the Pacific Ocean. **Along the International Date Line, the date changes by exactly one day when it is crossed. A traveller crossing the date line from east to west loses a day, and while crossing the dateline from west to east, he/she gains a day.**
- **Explanation:**  $180^{\circ}$  E is GMT+12 and  $180^{\circ}$  W is GMT-12, hence the difference between  $180^{\circ}$  E and  $180^{\circ}$  W is 24 hours. That is, the time difference on either side of IDL is 24 hours. So, the date changes as soon as one crosses IDL.



**Covered in the PMF IAS Test Series? Yes, Completely Covered (Comprehensive Test 02)**



**47) With reference to the International Date Line, consider the following statements:**

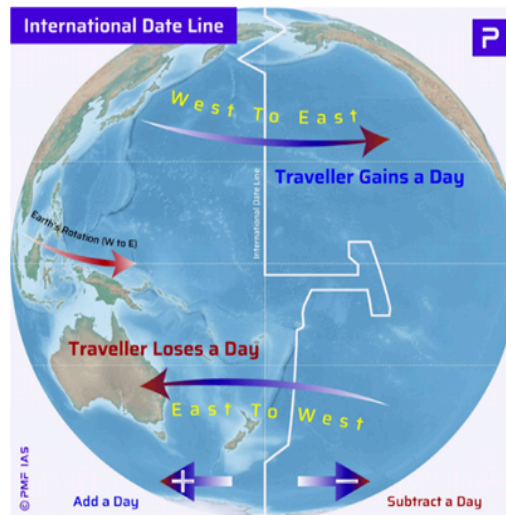
1. A traveller crossing the international date line eastward can have more than 24 hours on the same date.
2. Countries are free to select the dates they observe because there is no legal international status for the international date line.

**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

**Statement 1 is correct**

- The **international date line (IDL)** is an imaginary line that runs along the earth's surface from the north pole to the south pole in the middle of the Pacific Ocean.



- When you cross it, you **either gain or lose a day depending on which way you are traveling**. If you are traveling **westward, you jump to the next day**, and if you are traveling **eastward, you jump to the previous day**.
- For example, if a traveller moves eastward across the Pacific Ocean from Wake Island to the Hawaiian Islands on June 25, they will jump backward to June 24 as soon as they cross the IDL. If, however, they are traveling in the opposite direction, they will arrive at Wake Island on June 26.

**Statement 2 is correct**

- Despite its name, the international date line has **no legal international status** and countries are free to choose the dates that they observe.
- While the date line generally runs north to south from pole to pole, it zigzags around political borders such as eastern Russia and Alaska's Aleutian Islands.

**Answer: (c) Both 1 and 2 | Difficulty Level: Easy**

Reference: PMFIAS- Physical Geography- Latitudes and Longitudes

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**8) Who among the following was the founder of the 'Self-Respect Movement'?**

- a) 'Periyar' E. V. Ramaswamy Naicker
- b) Dr. B. R. Ambedkar
- c) Bhaskarrao Jadhav
- d) Dinkarrao Javalkar

**Answer:** (a): 'Periyar' E. V. Ramaswamy Naicker

## Explanation

- Periyar, belonged to a merchant family in Tamil Nadu, founded the Self-Respect Movement in 1925 to uplift the Dravidians and expose the control of Brahmins over all aspects of Hindu life through tyrannical and deceptive methods.

**Covered in the PMF IAS History Book? Yes, Completely Covered**



## ANTI-CASTE MOVEMENT



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### BIRTH

- E.V. Ramaswamy Naicker (**Periyar**) was born on 17 September 1879 in Erode, Madras presidency.

### SELF-RESPECT MOVEMENT

- Periyar founded the **Self-Respect Movement** in 1925 to uplift the lower castes.

### PERSONAL LIFE

- Periyar was an ascetic in his early life and studied **Sanskrit scriptures**.
- In 1920, Periyar became a **member of Congress**.
- In 1925, Periyar left the congress when he felt that the party was only serving the **interests of Brahmins**.

### SOCIAL REFORMS

- Periyar stood fiercely against caste and religion.
- Periyar criticised hindu scriptures including **Manusmriti**, the **Bhagavad Gita** and the **Ramayana** which he considered to be the basis to establish the authority of Brahmins over lower castes.
- Periyar was against child marriage and enforced widowhood. He encouraged **inter-caste marriages** and participated in **inter-caste dining**.

### E.V. RAMASWAMY NAICKER (PERIYAR)

### JOURNALS

-  **Kudi Arasu**
-  **Puratchi**
-  **Viduthalai**

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**Covered in the PMF IAS CA? Yes, Completely Covered**  
(<https://www.pmfiias.com/current-affairs-for-upsc-civil-services-exam-september-28-2024/#gs1-mih-movements-100-years-of-self-respect-movement-srm>)

**Covered in the PMF IAS Test Series? Yes, Completely Covered (September CA 2024 Test)**

**32) Consider the statements regarding Self-Respect Movement (SRM) and E. V. Ramasamy:**

1. SRM was a continuation of the Dravidian Movement.
2. Periyar identified the notion of self-respect along with Equality, Freedom and Communism as important concepts.
3. Self-respect marriage was a marriage between two individuals of different castes.

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

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

**Explanation**

**Statements 1 and 2 are correct**

- 2024 marked the start of the **hundredth year** of the **Self-Respect Movement**.
- The SRM founded in **1925** by **E. V. Ramasamy (Periyar)**, was a continuation of the attempt to **secularise** and **modernise** the **Tamizh society** that began with the **Dravidian Movement**.
- The movement being called '**Suyamariyathai**' or **Self-Respect** symbolises that '**Maanam**' or **honour** is a basic human instinct distinguishing human from other animals.
- Periyar identified the notion of **self-respect** with three other important concepts: '**Samathuvam**' (Equality), '**Suthanthiram**' (Freedom) and '**Samadharmam**' (Communism).
- The movement challenged the **ideological hegemony** of the Indian Independence struggle by demanding that equality between sexes and eradicating caste be put on an equal footing with national liberation.
- September has been celebrated as '**Dravidian Month**' to commemorate the Dravidian Movement.

**Covered in PMF IAS Prelims Magnum? Yes, Completely Covered.**



### Shortcomings to calling them a government

- After the World Wars (in which the British emerged victorious), this support vanished.
- Both these governments never controlled Indian territory.
- The Kabul government was a government only on paper until its dissolution in 1919.

### 8.16. {MIH – Movements} 100 years of Self-Respect Movement (SRM) \*\*

- ❖ 2024 marks the start of the hundredth year of the Self-Respect Movement.
- The SRM founded in 1925 by E. V. Ramasamy (Periyar), was a continuation of the attempt to secularise and modernise the Tamizh society that began with the Dravidian Movement.
- The movement being called 'Suyamariyathai' or Self-Respect symbolises that 'Maanam' or honour is a basic human instinct distinguishing humans from other animals.
- Periyar identified the notion of self-respect with three other important concepts:
  1. 'Samathuvam' (Equality)
  2. 'Suthanthiram' (Freedom)
  3. 'Samadharmam' (Communism)

History

A&C and History – 63

## 9) Consider the following pairs:

| Country        | Resource-rich in |
|----------------|------------------|
| I. Botswana    | Diamond          |
| II. Chile      | Lithium          |
| III. Indonesia | Nickel           |

**In how many of the above rows is the given information correctly matched?**

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

**Answer: c): All three**

### Explanation

- **Botswana** is a leading global producer of diamonds, **Chile** is the second-largest lithium producer with significant reserves, and **Indonesia** is the world's top nickel producer.

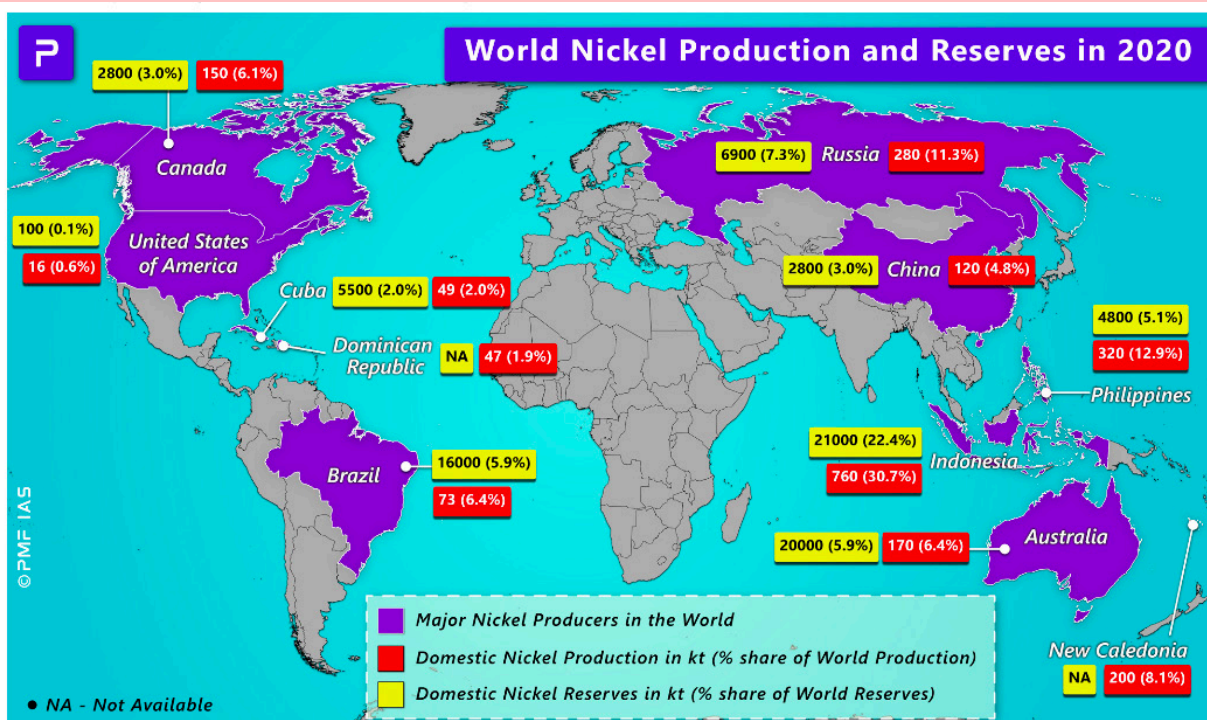
**Covered in the PMF IAS Book? Yes, Completely Covered (EG-Mineral Resources Book – PDF Page no. 88, 95 and 126)**

### Distribution of Diamond Reserves and Production in the World

- The global reserves of industrial diamonds are estimated to be around **1,400 million carats**.
- Total world production of diamonds - **106 million carats in 2020**.

| World's Reserves (2021) |          | World's Production (2021) |            |
|-------------------------|----------|---------------------------|------------|
| Country                 | Reserves | Country                   | Production |
| 1. <b>Russia</b>        | 46%      | 1. <b>Russia</b>          | 33%        |
| 2. <b>Botswana</b>      | 22%      | 2. <b>Botswana</b>        | 17%        |
| 3. <b>Congo</b>         | 11%      | 3. <b>Canada</b>          | 14%        |
| 4. S. Africa            | 9%       | 4. DRC                    | 10%        |
| 5. Australia            | 2%       | 5. Australia              | 9%         |
| World Total             | 1400     |                           |            |

- Botswana** is the leading diamond-producing country in terms of value and the **second largest in terms of volume**. The two important mines are **Orapa** and **Jwaneng**.
- Australia is famous for its pink, purple, and red diamonds.
- Kimberley Diamond Mine** in South Africa is well known.



| India's Nickel Ore Reserves in MT |          |      | World's Nickel Metal Reserves in MT |          | World's Nickel Metal Production in 2017 in TT |          |
|-----------------------------------|----------|------|-------------------------------------|----------|---|----------|
| State                             | Reserves |      | Country                             | Reserves | Country                                       | Reserves |
| 1. <b>Odisha</b>                  | 175      | 93%  | 1. <b>Indonesia</b>                 | 21       | 1. <b>Indonesia</b>                           | 339      |
| 2. Jharkhand                      | 9        | 4.7% | 2. Australia                        | 19       | 2. Philippines                                | 315      |
| 3. Nagaland                       | 5        | 2.6% | 3. Brazil                           | 11       | 3. Russia                                     | 221      |
| Total                             | 189 MT   |      | World Total                         | 89 MT    |   |          |

## Distribution of Lithium in the World

### Lithium Triangle

- The Lithium Triangle comprises lithium-rich regions near the borders of **Argentina**, **Bolivia**, and **Chile**.
- The area is thought to hold around **54% of the world's lithium reserves**.



EG-MR-126

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

## Lithium

- **Non-ferrous**, soft, silvery-white alkali metal, **highly reactive**, **flammable** (needs inert storage), **least dense metal**. Found as **Pegmatitic minerals** (igneous, **never occurs freely** in nature).
- **Metallic lustre** → Corrodes quickly in the air to dull silvery grey → black. Termed '**white gold**' due to demand for batteries.
- Top **Producers** of lithium: **1<sup>st</sup> Australia** > **2<sup>nd</sup> Chile** > **3<sup>rd</sup> China** > **4<sup>th</sup> Argentina** > **5<sup>th</sup> Zimbabwe**.

## 10) Consider the following pairs:

| Region | Country |
|--------|---------|
|--------|---------|

|             |        |
|-------------|--------|
| 1. Mallorca | Italy  |
| 2. Normandy | Spain  |
| 3. Sardinia | France |

***In how many of the above rows is the given information correctly matched?***

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

***Answer: d): None***

## Explanation

- **Mallorca (Spain):** Also known as Majorca, Mallorca is the largest of the Balearic Islands, which are part of Spain, and the seventh largest island in the Mediterranean Sea.
- **Sardinia (Italy):** Sardinia is the second-largest island in the Mediterranean Sea, after Sicily, and one of the twenty regions of Italy.
- **Normandy (France):** Normandy is a region of northern France. It was in news due to Normandy format in 2023.

***Covered in the PMF IAS Book? Yes, Partially (World Geography Book – Europe Chapter, Page no 148)***

|                             |  |
|-----------------------------|--|
| Major Islands/Island groups | <ul style="list-style-type: none"> <li>• Novaya Zemlya (Russia),</li> <li>• Franz Josef Land (Russia),</li> <li>• <b>Svalbard</b> (Norway),</li> <li>• <b>Iceland</b>,</li> <li>• <b>The Faroe Islands</b> (Denmark),</li> <li>• Zealand (Denmark),</li> <li>• The Channel Islands (British Crown Dependency),</li> <li>• The Shetland (U.K.),</li> <li>• The British Isles (Ireland, Great Britain and the Isle of Man),</li> <li>• The Balearic Islands (Spain),</li> <li>• Corsica (France),</li> <li>• <b>Sardinia</b> (Italy),</li> <li>• <b>Sicily</b> (Italy),</li> <li>• Aeolian Islands (Italy),</li> <li>• <b>Malta</b> (sovereign nation in the Mediterranean)</li> <li>• Crete (Greece)</li> </ul> |
|-----------------------------|--|



**11) Suppose the revenue expenditure is ₹80,000 crores and the revenue receipts of the Government are ₹60,000 crores. The Government budget also shows borrowings of ₹10,000 crores and interest payments of ₹6,000 crores. Which of the following statements are correct?**

- I. Revenue deficit is ₹20,000 crores.
- II. Fiscal deficit is ₹10,000 crores.
- III. Primary deficit is ₹4,000 crores.

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

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

**Answer: (d): I, II and III**

### **Explanation**

---

- Revenue Deficit = Revenue Expenditure – Revenue Receipts;
- $(80000 - 60000 = 20000)$
- Fiscal Deficit = Total Expenditure – Total Receipts except Borrowing and Other liabilities;
- $(80000 - 60000 - 10000 \text{ (exclude borrowings)}) \text{ assuming capital expenditure "0"} = 10000$
- Primary Deficit = Fiscal Deficit – Interest Payment;
- $(20000 - 10000 - 6000) = 4000$

**Covered in the PMF IAS CA? YES, Completely Covered in Economic Survey Summary ([https://t.me/pmflas\\_channel/3414](https://t.me/pmflas_channel/3414))**

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Test – Budget and Economic Survey)**

**62) Consider the following pairs:**

| Deficit Type                 | Definition  |
|------------------------------|---|
| 1. Budget Deficit            | Revenue Deficit – Grant in Aid for Creation of Capital Assets |
| 2. Revenue Deficit           | Total Expenditure – Total Receipts                            |
| 3. Effective Revenue Deficit | Revenue Expenditure – Revenue Receipts                        |
| 4. Fiscal Deficit            | Total Expenditure – Total Receipts except Borrowings          |

**How many of the pairs are correct?**

- a) Only one
- b) Only two
- c) Only three

- d) All four

**Explanation**

**Pairs 1, 2 and 3 are incorrect, but pair 4 is correct**

| Deficit Type                 | Definition  |
|------------------------------|---|
| 1. Budget Deficit            | Total Expenditure – Total Receipts                              |
| 2. Revenue Deficit           | Revenue Expenditure – Revenue Receipts                          |
| 3. Effective Revenue Deficit | Revenue Deficit – Grant in Aid for Creation of Capital Assets   |
| 4. Fiscal Deficit            | Total Expenditure – Total Receipts except Borrowings            |
| 5. Primary Deficit           | Fiscal Deficit – Interest Payment                               |
| 6. Monetised Deficit         | Borrowings from RBI + Draw down balance of government from RBI. |

**12) India is one of the founding members of the International North-South Transport Corridor (INSTC), a multimodal transportation corridor, which will connect:**

- a) India to Central Asia to Europe via Iran
- b) India to Central Asia via China
- c) India to South-East Asia through Bangladesh and Myanmar
- d) India to Europe through Azerbaijan

**Answer: (a): India to Central Asia to Europe via Iran**

**Explanation**

- The International North-South Transport Corridor (INSTC) is a multi-modal transportation network that connects India to Russia and Europe through Iran, the Caspian Sea, and Central Asia.

**Covered in PMF IAS? Yes, Completely Covered**

<https://www.pmfias.com/current-affairs-for-upsc-civil-services-exam-may-15-2024/#gs2-ir-india-iran-10-year-contract-for-chabahar-port>



**13) Consider the following statements:**

- I. Statement I: Of the two major ethanol producers in the world, i.e., Brazil and the United States of America, the former produces more ethanol than the latter.
- II. Statement II: Unlike in the United States of America where corn is the principal feedstock for ethanol production, sugarcane is the principal feedstock for ethanol production in Brazil.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement I and Statement II are correct and Statement II explains Statement I
- b) Both Statement I and Statement II are correct but Statement II does not explain Statement I
- c) Statement I is correct but Statement II is not correct
- d) Statement I is not correct but Statement II is correct

***Answer: (d): Statement I is not correct but Statement II is correct***

### **Explanation**

---

- **Statement 1 is not correct:** United States produced approximately 16.2 billion gallons of ethanol in 2024, accounting for 52% of global production followed by Brazil (28%).
- **Statement 2 is correct:** United States primarily utilizes corn for ethanol production while Brazil mainly uses sugarcane, with a growing share from corn ethanol

***Covered in the PMF IAS CA? NO***

**14) The World Bank warned that India could become one of the first places where wet-bulb temperatures routinely exceed 35°C. Which of the following statements best reflect(s) the implication of the above-said report?**

- I. Peninsular India will most likely suffer from flooding, tropical cyclones and droughts.
- II. The survival of animals including humans will be affected as shedding of their body heat through perspiration becomes difficult.

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

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

***Answer: (b) II only***

### **Explanation**

---



- The World Bank's warning about India potentially experiencing wet-bulb temperatures exceeding 35 °C is detailed in the report titled "Climate Investment Opportunities in India's Cooling Sector", published in November 2022.
- Wet-bulb temperature combines heat and humidity. At 35 °C wet-bulb, the human body cannot cool itself by sweating, leading to heat stress and eventual death, even in ideal conditions.
- It signifies climate extremes becoming lethal, especially for outdoor workers, the elderly, and low-income populations in vulnerable regions.

**Covered in the PMF IAS CA? Yes. Concept Covered**

**[\(https://www.pmfias.com/wet-bulb-temperature/\)](https://www.pmfias.com/wet-bulb-temperature/)**

**Covered in the PMF IAS Test Series? Yes. Concept Covered (MAY -2024 CA TEST)**

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**54) Which of the following best describes "Wet Bulb Temperature"?**

- a) The temperature of the air when all the water in the atmosphere has evaporated.
- b) The lowest temperature that can be reached by evaporating water into the air at constant pressure.

- c) The average temperature of air and water combined during the evaporation process.
- d) The temperature at which water condenses from the air at a given humidity level.

**Explanation**

- India is experiencing a severe heatwave coupled with high **wet bulb temperatures**.
- The Dry bulb, Wet bulb and Dew point temperatures help understand the state of humid air.

**Option (b) is correct**

- It is also known as "**isobaric wet-bulb temperature**," "**thermodynamic wet-bulb temperature**," and "**adiabatic saturation temperature**."
- Wet bulb temperature is a meteorological term for the **lowest temperature** that can be reached by evaporating water into the air **at constant pressure**.
- It is measured by **covering a thermometer bulb** with a **wet cloth** and letting the water evaporate.
- As the water evaporates, it cools the thermometer, showing the wet bulb temperature.
- This temperature helps measure **humidity** affecting things like comfort, farming and weather patterns.
- **Difference** between **Dry bulb** and **Wet bulb temperatures** depends on the **humidity** of the air.
- At 100% relative humidity, the wet-bulb temperature is equal to the dry-bulb temperature; at **lower humidity**, the wet-bulb temperature is lower than the dry-bulb temperature.

**15) A country's fiscal deficit stands at ₹50,000 crores. It is receiving ₹10,000 crores through non-debt creating capital receipts. The country's interest liabilities are ₹1,500 crores. What is the gross primary deficit?**

- a) ₹48,500 crores
- b) ₹51,500 crores
- c) ₹58,500 crores
- d) None of the above

**Answer: (a): ₹48,500 crores**

**Explanation**

- Use the formula:

- ❖ Gross primary deficit = Fiscal deficit - Interest liabilities.
- ❖ Substitute the given values:
- ❖ Gross primary deficit = 50,000 - 1,500
- ❖ Gross primary deficit = ₹ 48,500 crores

**Covered in the PMF IAS CA? YES, Completely Covered in Economic Survey Summary**

([https://t.me/pmfias\\_channel/3414](https://t.me/pmfias_channel/3414))

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Test – Budget and Economic Survey)**

**62) Consider the following pairs:**

| Deficit Type                 | Definition  |
|------------------------------|---|
| 1. Budget Deficit            | Revenue Deficit – Grant in Aid for Creation of Capital Assets |
| 2. Revenue Deficit           | Total Expenditure – Total Receipts                            |
| 3. Effective Revenue Deficit | Revenue Expenditure – Revenue Receipts                        |
| 4. Fiscal Deficit            | Total Expenditure – Total Receipts except Borrowings          |

**How many of the pairs are correct?**

- a) Only one
- b) Only two
- c) Only three

- d) All four

**Explanation**

**Pairs 1, 2 and 3 are incorrect, but pair 4 is correct**

| Deficit Type                 | Definition  |
|------------------------------|---|
| 1. Budget Deficit            | Total Expenditure – Total Receipts                              |
| 2. Revenue Deficit           | Revenue Expenditure – Revenue Receipts                          |
| 3. Effective Revenue Deficit | Revenue Deficit – Grant in Aid for Creation of Capital Assets   |
| 4. Fiscal Deficit            | Total Expenditure – Total Receipts except Borrowings            |
| 5. Primary Deficit           | Fiscal Deficit – Interest Payment                               |
| 6. Monetised Deficit         | Borrowings from RBI + Draw down balance of government from RBI. |

## 16) Which of the following statements with regard to recommendations of the 15th Finance Commission of India are correct?

- I. It has recommended grants of ₹4,800 crores from the year 2022–23 to the year 2025–26 for incentivizing States to enhance educational outcomes.
- II. 45% of the net proceeds of Union taxes are to be shared with States.
- III. ₹45,000 crores are to be kept as performance-based incentive for all States for carrying out agricultural reforms.
- IV. It reintroduced tax effort criteria to reward fiscal performance.

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

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

**Answer: (c): I, III and IV (Elimination using point II)**

### Explanation

- 15<sup>th</sup> Finance Commission recommendations related to the question.
- **Statement I is correct:** It has recommended grants of Rs. 4,800 crore (Rs. 1,200 crore each year) from 2022-23 to 2025-26 to incentivise the States to enhance educational outcomes.
- **Statement II is incorrect:** The Fifteenth Finance Commission recommended that 41% of the net proceeds of Union taxes should be shared with the states.
- **Statement III is correct:** The Fifteenth Finance Commission has recommended that Rs. 45,000 crore be kept as performance-based incentive for all the States for carrying out agricultural reforms.
- **Statement IV is correct:** "Tax and fiscal efforts" is one of the criteria (2.5%) for devolution.

**Covered in the PMF IAS CA? Yes. Covered Completely (eliminate the second statement)**

<https://www.pmfias.com/finance-commission/>

<https://www.pmfias.com/issues-in-financial-devolution/>



## What is the basis for allocation?

- The share of States from the divisible pool (**vertical devolution**) stands at **41%** as per the **recommendation of the 15th FC**.
- The distribution among the States (**horizontal devolution**) is based on various criteria. (See the figure below)

**Table 1 :** The criteria for horizontal devolution among States over the last five FCs

| Criteria                 | 11th FC<br>2000-05 | 12th FC<br>2005-10 | 13th FC<br>2010-15 | 14th FC<br>2015-20 | 15th FC<br>2021-26 |
|--------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Income Distance          | 62.5               | 50                 | 47.5               | 50                 | 45                 |
| Population (1971 Census) | 10                 | 25                 | 25                 | 17.5               | -                  |
| Population (2011 Census) | -                  | -                  | -                  | 10                 | 15                 |
| Area                     | 7.5                | 10                 | 10                 | 15                 | 15                 |
| Forest cover             | -                  | -                  | -                  | 7.5                | -                  |
| Forest and ecology       | -                  | -                  | -                  | -                  | 10                 |
| Infrastructure index     | 7.5                | -                  | -                  | -                  | -                  |
| Fiscal discipline        | 7.5                | 7.5                | 17.5               | -                  | -                  |
| Demographic performance  | -                  | -                  | -                  | -                  | 12.5               |
| Tax effort               | 5                  | 7.5                | -                  | -                  | 2.5                |
| <b>Total</b>             | <b>100</b>         | <b>100</b>         | <b>100</b>         | <b>100</b>         | <b>100</b>         |

**Covered in the PMF IAS Test Series? Yes, Completely Covered (CA JUNE 2024 Test)**

**70) Consider the following statements regarding tax devolution to states in India:**

1. Article 270 of the Constitution of India mandates the distribution of tax revenue collected by the Union between the Union and the States.
2. Article 271 of the Constitution states that the Prime Minister shall, by order, specify the proportion of taxes to be assigned to the States.
3. The 15th Finance Commission recommends a 42% share of central taxes for states.

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

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

**Explanation**

**Statement 1 is correct**

- **Article 270** of the Indian Constitution deals with the **distribution of taxes** between the **Union** (Central Government) and the **States**.
- **Article 270(1)** specifically states that "...all taxes and duties referred to in clause (a) of Article 266, shall be levied and collected by the Government of India and shall be distributed between the Union and the States in the manner provided in clause (2)".

**Statement 2 is incorrect**

- Clause (2) of Article 270 provides that the **President** shall, by order, specify the **proportion of taxes** to be assigned to the States.
- Hence, Article 270(1) and 270 (2) ensures that tax revenue collected by the Union is shared with the States, enabling them to fund their developmental activities.

**Statement 3 is incorrect**

- The **15th Finance Commission**, headed by Chairman **N.K. Singh**, submitted its report in November 2020.
- The Commission recommended a **41%** share of central taxes for states, not 42%, (**42% share was recommended by the 14th FC**).

**Covered in the PMF IAS Prelims Magnum? Yes. Covered Completely (eliminate the second statement)**

or after the time period expires, the bill returns to Parliament for further consideration.

- ❖ Then, the bill gets further deliberated in the parliament & has to be approved with a **simple majority**.
- **Role of other Institutions in the process**
  - ❖ **No Objection Certificates (NOCs)** from several agencies such as the Ministry of Railways, Intelligence Bureau, Department of Posts, Survey of India & Registrar General of India are necessary.
  - ❖ Once the Union Ministry of Home Affairs receives the NOC from these institutions, it gives its consent.

## 5.6. {Federalism} Centre-State Financial Relations

### GST compensation

- Introduced by **101<sup>th</sup> Constitution Amendment Act, 2017**. Compensation amount to states was to be extended for five years to compensate for the shortfall in their revenue collection.
- **Annual tax growth rate of 14 per cent** under GST was also promised but **not yet materialised**.
- However, the proposed **GST compensation** was **terminated after five years**.

⇒ **Karnataka ranks second** in the country in terms of **Goods & Services Tax (GST) collection**.

### Major Recommendations of the 15<sup>th</sup> Finance Commission (2021-2026)

- **Constitutional body** formed by **President** of India to suggest on center-state financial relations.
- **Share of states in central taxes: 41%**, less than the 42% (14<sup>th</sup> FC), with 1% kept for new union territories of Jammu & Kashmir, & Ladakh.

| Parameter               | 14 <sup>th</sup> FC | 15 <sup>th</sup> FC |
|-------------------------|---------------------|---------------------|
| Population (1971)       | 17.5%               | 0                   |
| Population (2011)       | 10%                 | 15%                 |
| Area                    | 15%                 | 15%                 |
| Forest and Ecology      | 7.5%                | 10%                 |
| Income Distance         | 50%                 | 45%                 |
| Tax and fiscal efforts  | 0                   | 2.5%                |
| Demographic performance | 0                   | 12.5%               |

Source: Reports of the 14<sup>th</sup> and 15<sup>th</sup> Finance Commissions

### Criteria for devolution

- **Income distance**: Distance of a state's income from the **state with the highest income**.
- **Demographic performance**: States with a **lower fertility ratio** (2011 census) will be scored higher.
- **Forest & ecology**: **Share of the dense forest** of each state in total dense forest of all the states.

### Fiscal roadmap

- **Fiscal Deficit limits**: Centre: 4% of GDP by 2025-26. States: 3% of GSDP during 2023-26.

## 17) Consider the following statements in respect of the International Bank for Reconstruction and Development (IBRD):

- It provides loans and guarantees to middle income countries.
- It works single-handedly to help developing countries to reduce poverty.
- It was established to help Europe rebuild after the World War II.

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

- I and II only
- II and III only
- I and III only
- I, II and III

**Answer: (c) I and III only**

### Explanation

- **Statement I is correct:** IBRD is an international financial institution that offers loans to middle-income developing countries.
- **Statement II is incorrect:** They work closely with all institutions of the World Bank Group and the public and private sectors in developing countries to reduce poverty and build shared prosperity.
- **Statement III is correct:** It was established in 1944 under the World Bank, as part of Bretton Woods Twins along with IMF, with the mission of financing the reconstruction of European nations devastated by World War II.

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***Covered in the PMF IAS CA? Yes, Completely Covered***

<https://www.pmfias.com/world-bank/#international-bank-for-reconstruction-and-development-ibrd>

## International Bank for Reconstruction and Development (IBRD)

- IBRD is an international financial institution that offers loans to **middle-income developing countries**.
- It was established in **1944** under the World Bank, as part of Bretton Woods Twins along with IMF, with the mission of financing the reconstruction of European nations devastated by World War II.
- Following the reconstruction of Europe, the Bank's mandate expanded to advancing worldwide economic development and eradicating poverty.
- **Members:** 189 member countries.
- The IBRD provides commercial-grade or concessional financing to sovereign states to fund projects that seek to improve transportation and infrastructure, education, domestic policy, environmental consciousness, energy investments, healthcare, access to food, potable water, and sanitation.

## International Development Association (IDA)

- It was established in **1960** as an international financial institution that offers concessional loans and grants to the world's poorest developing countries.
- **Members:** 174 member countries
- Interest-free loans are provided for a period of 25-40 years with a grace period of 10 years,
- Eligibility for IDA support depends on a country's **relative poverty**, defined as **GNI per capita** below an established threshold and updated annually (\$1,315 in the fiscal year 2024).

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Advanced Test Economy 03)***



**99) With reference to the World Bank Group, Consider the following pairs:**

| Institution  | Function  |
|--|---|
| 1. International Development Association (IDA)                   | Interest free loans for middle Income and credit worthy poorer countries                            |
| 2. International Bank for Reconstruction and Development (IBRDA) | Global development institution focused exclusively on the private sector                            |
| 3. International Finance Corporation (IFC)                       | Conciliation and arbitration of investment disputes between private investors and foreign countries |
| 4. Multilateral Investment Guarantee Agency (MIGA)               | Offers political risk insurance to private investors  |

**How many of the pairs are correct?**

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

**Pair 2 is incorrect**

- **International Bank for Reconstruction and Development (IBRDA)** was established in 1944 as one of the **Bretton Wood Institutions** to help Europe rebuild after World War II.
- But as Europe rapidly rebuilt its economies, IBRD shifted its focus towards **middle Income and credit worthy poorer countries** to promote sustainable, equitable and job creating growth, reduce poverty and address issues of regional and global importance.
- IBRD was established to function as self-sustaining business and provide loans and advice to middle income and creditworthy poor countries. Its resources are used **exclusively** for the benefit of the members.
- IBRD raises most of its funds from the world **financial/capital markets**. The IBRD borrows at an attractive rate on the capital markets because of its AAA rating that it has had since 1959.
- Together, **IBRD** and **IDA** make up the **World Bank**. The voting power of the member countries in the World Bank is based on the **economic size (GDP)** in addition to their **contribution to the IDA**.
- World Bank gives loan to member countries/Govt. and private agencies in the member countries.

**18) Consider the following statements in respect of RTGS and NEFT:**

- I. In RTGS, the settlement time is instantaneous while in case of NEFT, it takes some time to settle payments.
- II. In RTGS, the customer is charged for inward transactions while that is not the case for NEFT.
- III. Operating hours for RTGS are restricted on certain days while this is not true for NEFT.

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

- a) I only
- b) I and II
- c) I and III
- d) III only

**Answer: (a): I only**

### **Explanation**

---

- **Statement I is Correct:** RTGS (Real Time Gross Settlement) processes transactions instantly and individually, in real-time. NEFT (National Electronic Funds Transfer) processes transactions in batches (although now done half-hourly or even more frequently), so there is a slight delay.
- **Statement II is Incorrect:** As per RBI guidelines, no charges are to be levied on inward transactions for both RTGS and NEFT. So, this statement is factually wrong.
- **Statement III is Incorrect:** Both RTGS and NEFT are available 24x7x365.

***Covered in the PMF IAS Test Series? Yes, Partially Covered (Comprehensive Test 08)***

**9) Consider the following statements regarding the National Electronic Fund Transfer (NEFT) system:**

1. It is a centralized payment system managed and operated by the Reserve Bank of India.
2. It allows the payment of credit card dues to the issuing banks.
3. Transactions can only be initiated during bank working hours.

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

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

**Explanation**

**Statement 1 is correct**

- The **National Electronic Fund Transfer (NEFT)** system is a **centralized payment system** owned and operated by the **Reserve Bank of India (RBI)**.
- It enables **one-to-one fund transfers between bank accounts** on a Deferred Net Settlement (DNS) basis, meaning transactions are processed in batches at scheduled intervals rather than in real-time.

**Statement 2 is correct**

- NEFT allows various types of fund transfers, including the **payment of credit card dues** to the card-issuing banks.
- This makes it a widely used method for settling credit card bills.

**Statement 3 is incorrect**

- **NEFT** operates **24×7**, including weekends and holidays.
- Transactions are settled in half-hourly batches throughout the day, ensuring continuous fund transfer availability.

**19) Consider the following countries:**

- I. United Arab Emirates
- II. France
- III. Germany
- IV. Singapore
- V. Bangladesh

**How many countries amongst the above are there other than India where international merchant payments are accepted under UPI?**

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

**Answer: (b): Only three**

## Explanation

- UPI has been operational in Bhutan, France, Mauritius, Nepal, Singapore, Sri Lanka, and UAE.

**Covered in the PMF IAS CA? Yes, Completely Covered PMFIAS CA and Magnum-**

**<https://www.pmfias.com/unified-payments-interface/>**

### Significance of Unified Payments Interface (UPI)

- High Transaction Volume:** UPI recorded **18.3 billion** transactions worth **₹24.77 lakh crore** in March 2025, underscoring its dominance in India's digital payment landscape. (NPCI data)
- Financial Inclusion:** **45%** of UPI transactions originate from **Tier-2** and **smaller cities**, indicating the widespread reach and adoption of digital payments beyond urban centres.
- Global Expansion:** UPI's integration with **Singapore, UAE, Nepal, and France** boosts India's global digital payments ecosystem and enhances cross-border payment capabilities.
- Affordability and Instant Transfers:** UPI offers zero-cost, real-time, peer-to-peer (P2P) transactions, making it accessible for individuals and small businesses.
- Boost to Digital Ecosystem:** UPI's **interoperability** has paved the way for fintech innovations, enabling Google Pay, PhonePe, Paytm, and other Payment Service Providers (PSPs) to build their platforms.

**Covered in the India Year Book**

### Unified Payments Interface

- It is an **indigenous digital payment system** which provides for the facility of a **quick and easy payment** from multiple bank accounts in a single mobile application.
- UPI transactions have grown from **92 crore** in financial year 2017-18 to **13,116 crore** in financial year 2023-24 at CAGR of 129 per cent.
- UPI is fully functional and live in **UAE, Bhutan, Nepal, Mauritius, Singapore, France** and **Sri Lanka**.

18

PMFIAS IYB

**Covered in the PMF IAS Test Series? Yes, Completely Covered (CA November Test)**

**74) Consider the following countries:**

1. Bhutan
2. France
3. Mauritius
4. Nepal
5. Singapore
6. Sri Lanka
7. UAE

***In how many of the above countries UPI payments are accepted?***

- a) Only four
- b) Only five
- c) Only six
- d) All seven

***Option (d) is correct***

- 
- **Unified Payments Interface (UPI)** is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.
  - It also caters to the "Peer to Peer" collect request which can be scheduled and paid as per requirement and convenience.
  - **NPCI** has launched **UPI Global Acceptance** (International Merchant Payments), a feature that enables users to make QR code-based payments at select international merchant locations directly from their Indian bank accounts via UPI-powered applications.
  - There are **seven countries** where international merchant payments are accepted at select merchant outlets. **Bhutan, France, Mauritius, Nepal, Singapore, Sri Lanka and UAE.**

***Answer: (d) All seven | Difficulty Level: Easy***

***Covered in the PMF IAS Prelims Magnum? Yes. Covered Completely***



sung Pay, TataNeu and Whatsapp.

### 1.16. {Banking} UPI & Rupay Cards

- ❖ UPI services were launched in **Sri Lanka** and **Mauritius**, and **RuPay card** services in Mauritius. **Bhutan** was the **first** country to **enable UPI**.
- ❖ UPI was introduced in **Seven** countries (France, UAE, Mauritius, Sri Lanka, Singapore, Bhutan, and Nepal).

### Unified Payments Interface (UPI)

- Developed by National Payments Corporation of India (**NPCI**).
- **Eliminates** the need to enter **bank details** each time a customer initiates a transaction.

----- End of Chapter

## 20) Consider the following statements about 'PM Surya Ghar Muft Bijli Yojana':

- It targets installation of one crore solar rooftop panels in the residential sector.
- The Ministry of New and Renewable Energy aims to impart training on installation, operation, maintenance and repairs of solar rooftop systems at grassroots levels.
- It aims to create more than three lakhs skilled manpower through fresh skilling, and up-skilling, under scheme component of capacity building.

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

- I and II only
- I and III only
- II and III only
- I, II and III

**Answer: (d): I, II and III**

### Explanation

- **Statement 1 is correct:** Launched by The Ministry of New and Renewable Energy in 2024, PM Surya Ghar Yojana aims to install 1 crore rooftops in the residential sector.

- **Statement 2 is correct:** The Ministry of New and Renewable Energy aims to impart training on installation, operation, maintenance and repairs of solar rooftop systems at grassroot levels under the component of capacity building.
- **Statement 3 is correct:** To create more than 3 lakh skilled manpower, through fresh skilling, and up-skilling, under scheme component of capacity building is one of the objectives of PM Surya Ghar Yojana.

**Covered in the PMF IAS CA? Yes, Partially Covered in CA and Magnum**

<https://www.pmfias.com/current-affairs-for-upsc-civil-services-exam-july-23-2024/>

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

### 13.1. {MoNRE} Exemption for Export-Oriented Green Hydrogen Projects

- ❖ Ministry of New & Renewable Energy (MoNRE) has **exempted** green hydrogen projects in **special economic zones (SEZs)** or **export-oriented units** from using **domestic solar modules** to **reduce costs**.
- ⇒ An **export-oriented unit (EOU)** is meant to export its entire production of goods and services. However, such units have also been allowed clearances in the Domestic Tariff Area.
- **Green hydrogen** is produced by **splitting water into hydrogen and oxygen** using an **electrolysis** process powered by renewable energy. Solar energy used to power electrolyzers is a vital cost factor.
- This exemption allows these projects to **use cheaper imported modules**.

#### Objectives/Benefits of this Exemption

- **Increase adoption of green hydrogen:** A key challenge for green hydrogen adoption is its **cost competitiveness** against grey hydrogen, which is cheaper.
- **Increase in export:** Lowering production costs can make India a leading exporter of green hydrogen.
- **Increase domestic demand:** The low cost of green hydrogen is expected to increase domestic demand.
- **Low emission:** Green hydrogen releases **no carbon by-products** because it is **produced using renewable energy** (water and water vapour are the only by-products it releases). Meanwhile, its competitor, grey hydrogen, is produced from natural gas through carbon-intensive processes.

### 13.2. {MoNRE} PM Surya Ghar: Muft Bijli Yojana

- ❖ Launched by the Ministry of Renewable Energy to increase the share of **solar rooftop capacity** and empower residential households to generate their own electricity.

#### Benefits

- ✓ 1 crore households will get **300 units of free electricity** each month.
- ✓ The government will give subsidies to purchase solar panels.
- ✓ The government will assist in making available loans for purchasing solar panels from banks.
- ✓ It will help households earn income by selling surplus power to local DISCOMs.

### 13.3. {MoNRE} PM Suryodaya Yojana

- Revamped version of Rooftop solar programme 2014. Target: Annual **40GW** for next 5 years by installation of rooftop solar panels on **one crore households**.
- **Implementation by:** Rural Electrification Corporation (REC).
- ⇒ **Rooftop solar panels:** Photovoltaic panels installed on the roof of a building.
- ⇒ **One gigawatt** = 1,000 megawatts, **One megawatt** = 1,000 kilowatts, **One kilowatt**= 1,000 watts.

#### India's current solar capacity (installed)

| Total Solar Capacity (GW)               | Rooftop Solar Capacity (GW)               |
|---|---|
| • 97.86 (as of Dec 2024)                | • 15.67 (as of Dec 2024)                  |
| • <b>Rajasthan</b> followed by Gujarat. | • <b>Gujarat</b> followed by Maharashtra. |

India's current renewable energy capacity is **188 GW**, globally **4th** in Installed Capacity.

- ⇒ **India is the 3rd largest energy-consuming country** in the world.
- ⇒ **India is the 5th largest solar country** in the world. (**REN21 Renewables 2022 Global Status Report: China > USA > Japan > Germany > India**)

----- End of Chapter -----

Prelims Magnum

Ministry of New and Renewable Energy

Schemes CA – 26

**Covered in the PMF IAS Test Series? Yes, Partially Covered (Eco Survey and Budget Test)**

**82) Consider the following statements:**

1. New Solar Power Scheme under PM Janjati Adivasi Nyaya Maha Abhiyan aims to install rooftop solar plants in one crore households.
2. PM - Surya Ghar Muft Bijli Yojana will cover the electrification of one lakh un-electrified households in Tribal and PVTG areas.

***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

- **PM - Surya Ghar Muft Bijli Yojana** aims to install rooftop solar plants in one crore households, which is expected to enable approximately 30 gigawatts of residential rooftop solar capacity and contribute to an overall rooftop solar capacity addition of 40-45 gigawatts by 2027.

- The scheme will be implemented by a **National programme Implementation Agency (NPIA)** at the National level and by the State Implementation Agencies (SIAs) at the state level. The Distribution Utility (**DISCOMs** or Power/Energy Departments, as the case may be) shall be the State Implementation Agencies (SIA) at the State/UT level.
- Under the scheme, the DISCOMs shall be required to put in place several facilitative measures for promotion of rooftop solar in their respective areas such as availability of net meters, timely inspection and commissioning of installations, vendor registration and management, interdepartmental convergence for solving government building etc.

**21) Consider the following statements:**

- I. Statement I: Some rare earth elements are used in the manufacture of flat television screens and computer monitors.
- II. Statement II: Some rare earth elements have phosphorescent properties.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement I and Statement II are correct and Statement II explains Statement I
- b) Both Statement I and Statement II are correct but Statement II does not explain Statement I
- c) Statement I is correct but Statement II is not correct
- d) Statement I is not correct but Statement II is correct

**Answer: a): Both Statement I and Statement II are correct & Statement II explains Statement I**

## Explanation

- **Statement I:** Some rare earth elements are used in the manufacture of flat television screens and computer monitors. – Correct
  - ❖ Rare earth elements like europium, terbium, and yttrium are used in display technologies for their optical properties.
- **Statement II:** Some rare earth elements have phosphorescent properties. – Correct
  - ❖ Elements like europium and terbium are known for their phosphorescent (and fluorescent) properties, making them useful in screens and displays.
- **Does Statement II explain Statement I?** Yes. Rare earth elements are used in screens because of their phosphorescent properties – they emit light when excited, which is crucial in display technology.

**Covered in the PMF IAS Book? Yes, Completely Covered (EG-Mineral Resources Book PDF – Page No. 137)**

### Applications of REEs

- The importance of rare earths lies in their unique **electronic, optical, and magnetic characteristics**, which cannot be matched by any other metal or synthetic substitute.
- These elements are important in technologies of consumer electronics, communications, clean energy, advanced transportation, healthcare, environmental mitigation, and national defence, among others.

| Rare Earth Element | Applications (used in)  |
|--------------------|---|
| Scandium           | <ul style="list-style-type: none"><li>• Televisions and fluorescent lamps</li></ul>   |
| Cerium             | <ul style="list-style-type: none"><li>• <b>Essential to NASA's Space Shuttle Programme</b></li></ul>  |
| Yttrium            | <ul style="list-style-type: none"><li>• Used in drugs to <b>treat rheumatoid arthritis and cancer</b></li><li>• <b>Superconductors</b></li></ul>                              |
| Lanthanum          | <ul style="list-style-type: none"><li>• Night-vision goggles</li></ul>  |
| Neodymium          | <ul style="list-style-type: none"><li>• Laser range-finders, guidance systems, communications</li></ul>   |
| Europium           | <ul style="list-style-type: none"><li>• Fluorescents and phosphors in lamps and monitors</li></ul>  |
| Erbium             | <ul style="list-style-type: none"><li>• Amplifiers in fiber-optic data transmission</li></ul>   |
| Samarium           | <ul style="list-style-type: none"><li>• Permanent magnets that are stable at high temperatures</li><li>• Precision-guided weapons</li><li>• <b>Cancer treatment</b></li></ul> |
| Praseodymium       | <ul style="list-style-type: none"><li>• Neodymium is used with praseodymium to create some of the strongest permanent magnets available.</li></ul>                            |
| Neodymium          |   |
| Dysprosium         | <ul style="list-style-type: none"><li>• Has incredible magnetic properties</li></ul>  |
| Holmium            |   |
| Thulium            | <ul style="list-style-type: none"><li>• Portable <b>X-ray devices</b></li><li>• Efficient lasers with various uses in defence &amp; medicine</li></ul>                        |

**22) Consider the following statements:**

- I. Indian Railways have prepared a National Rail Plan (NRP) to create a 'future ready' railway system by 2028.
- II. 'Kavach' is an Automatic Train Protection system developed in collaboration with Germany.
- III. 'Kavach' system consists of RFID tags fitted on track in station section.

***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

***Answer: (a): I and II only***

### **Explanation**

---

- **Statement I is Incorrect:** The National Rail Plan (NRP) aims to create a 'future ready' railway system by 2030, not 2028.
- **Statement II is Incorrect:** 'Kavach' is an indigenously developed Automatic Train Protection (ATP) system by the Research Designs and Standards Organisation (RDSO) in collaboration with Indian industry, not with Germany.
- **Statement III is Correct:** The 'Kavach' system includes RFID tags installed on track sleepers at regular intervals, including in station sections, to provide precise location data to the onboard system.

***Covered in the PMF IAS CA? Partially Covered***

<https://www.pmfias.com/kavach-train-collision-avoidance-system-tcas/>

***Covered in the PMF IAS Test Series? Yes, Partially Covered (CA August 2024 Test)***



**93) Consider the following statements regarding the Kavach system:**

1. It is an Automatic Train Protection (ATP) system developed jointly by India and Japan.
2. It incorporates an in-cab signal display, facilitating enhanced visibility during adverse weather conditions, such as fog, and at high speeds.
3. With an exceptionally low probability of error, estimated at approximately 1 in 10,000 years, it has been adopted as the National ATP system for Indian Railways.

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

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

**Statement 1 is incorrect**

- The **KAVACH** is an indigenously developed **Automatic Train Protection (ATP) system**.
- It was developed by the **Research Design and Standards Organisation (RDSO)** of the Indian Railways.
- It is a state-of-the-art electronic system developed under the Atmanirbhar Bharat initiative.
- The South-Central Railway (SCR) zone pioneered implementing the KAVACH.
- Trials of Kavach were conducted on the Lingampally-Vikarabad-Wadi and Vikarabad-Bidar sections of the South-Central Railway, covering a distance of 250 km.

**Statement 2 is correct**

- **Key features/advantages of the KAVACH system:**
  - ❖ **Avoid SPAD (Signal Passing At Danger):** When a red signal is ignored, and two trains approach each other on the same track, the system applies sudden brakes.
  - ❖ **Overspeed protection:** It will automatically apply the brakes if the train exceeds the speed limit.
  - ❖ **Collision avoidance:** Through direct loco-to-loco communication.

**23) Consider the following space missions:**

- I. Axiom-4
- II. SpaDEx
- III. Gaganyaan

**How many of the space missions given above encourage and support microgravity research?**

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

**Answer: (c): All the three**

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## Explanation

- Axiom-4
  - ❖ Axiom Space missions are private missions to the International Space Station (ISS).
  - ❖ The Axiom-4 mission involves astronauts conducting scientific experiments in microgravity, especially in biomedical and space technologies.
  - ❖ Hence, it definitely supports microgravity research.
- SpaDeX (Space Docking Experiment)
  - ❖ SpaDeX is an ISRO experiment designed to test docking technologies.
  - ❖ Though its main focus is docking, it is tested in space environments, and the docking procedure and associated technologies are validated in microgravity.
  - ❖ Therefore, it contributes to microgravity experiments, albeit indirectly.
- Gaganyaan
  - ❖ Gaganyaan is India's first human spaceflight mission.
  - ❖ One of its explicit goals is to conduct microgravity experiments with Indian astronauts (Vyomnauts) aboard.
  - ❖ ISRO has planned several scientific payloads for biological, physical, and chemical experiments in microgravity.

**Covered in PMF IAS Prelims Magnum? Yes, Completely Covered.**

**Covered in PMF IAS? Yes, Completely Covered**

<https://www.pmfias.com/current-affairs-may-03-2025/#gs3-st-space-axiom-4-space-mission>

<https://www.pmfias.com/spadex-mission/>

## About Space Docking Experiment (SpaDeX) Mission

- **SpaDeX Mission** is a cost-effective **technology demonstrator mission** that will demonstrate in-space docking using two small spacecraft ('**Chaser**' and '**Target**') designed to be launched from a **single PSLV** class vehicle and to dock at an altitude of about **700 kilometres**.
- **Objective:** SpaDeX mission aims to demonstrate **rendezvous, docking, and undocking technologies**, focusing on key technologies like **electrical power transfer** between the docked spacecraft, **in-space robotics**, and conducting payload operations after undocking.
- **First Experiment:** SpaDeX is ISRO's first satellite docking experiment.
- **Launch Details:** Launched on December 30, 2024, from **Sriharikota** by ISRO's **PSLV-C60**, placing two 220-kg satellites in a 475-km circular orbit.
- **Duration:** The mission will run for **2 years**.
- **Docking Process:** The spacecraft will **reduce the distance from 20 km to 3 m**.
- **Biological Research:** SPADEX will support biological studies on plant growth and bacteria, green propulsion systems and **artificial intelligence labs in microgravity**.

## {GS3 - S&T - Space} Axiom-4 Space Mission

- **Context (IE | FP):** Indian Air Force officer **Shubhanshu Shukla** will become the **first Indian astronaut** to visit the **International Space Station (ISS)** as part of the **Axiom-4 (Ax-4) mission**.
- Ax-4 is the **4<sup>th</sup> private astronaut mission** to the ISS, organized by Axiom Space in collaboration with NASA and launched aboard **SpaceX's Dragon spacecraft** from Kennedy Space Center, Florida.
- **Mission Duration:** Up to 14 days aboard the International Space Station.
- **Scientific Focus of Mission:** During their time aboard the ISS, the crew will conduct ~60 experiments in materials science, biology, Earth observation & space health with private & international collaboration.
- The mission will send the **first Indian astronaut** to the station as part of a joint effort between NASA and the Indian space agency. Also carries first astronauts from Poland & Hungary to stay aboard the ISS.
- Marks India's return to crewed space missions after **Rakesh Sharma's 1984 flight**.

## India-Focused Space Research on ISS

- **Microgravity Crop Study:** Fenugreek and green gram are grown in space to assess growth patterns and gene expression for future space diets.
- **Edible Microalgae Research:** Examines how microgravity and radiation affect the growth, metabolism, and genetic behaviour of edible microalgae strains.
- **Food System Innovation:** Aims to create resilient, space-adapted food sources for long-duration missions and space habitats.

## 24) With reference to India's defence, consider the following pairs:

| Aircraft Type             | Description                 |
|---------------------------|-----------------------------|
| I. Dornier-228            | Maritime patrol aircraft    |
| II. IL-76 Supersonic      | combat aircraft             |
| III. C-17 Globemaster III | Military transport aircraft |

**How many of the pairs given above are correctly matched?**

- a) Only one

- b) Only two
- c) All the three
- d) None

**Answer: (b): Only two**

### Explanation

---

- **Dornier-228 → Maritime patrol aircraft – Correct**
  - ❖ The Dornier Do-228, used by the Indian Navy and Coast Guard, is commonly deployed for maritime surveillance, patrolling, and search and rescue operations.
- **IL-76 → Supersonic combat aircraft – Incorrect**
  - ❖ The Ilyushin IL-76 is a strategic airlifter, not a supersonic combat aircraft.
  - ❖ It is used primarily for transporting heavy cargo, paratroopers, and disaster relief.
- **C-17 Globemaster III → Military transport aircraft – Correct**
  - ❖ The C-17 Globemaster III is a large military **transport aircraft used by the Indian Air Force for strategic airlift of troops and cargo.**

**Covered in PMF IAS? No**

### 25) Artificial way of causing rainfall to reduce air pollution makes use of:

---

- a) Silver iodide and potassium iodide
- b) Silver nitrate and potassium iodide
- c) Silver iodide and potassium nitrate
- d) Silver nitrate and potassium chloride

**Answer: (a): Silver iodide and potassium iodide**

### Explanation

---

- Cloud Seeding is a technique to induce or enhance rainfall by dispersing certain substances into the atmosphere that act as cloud condensation or ice nuclei.
- The most commonly used chemical for cloud seeding is silver iodide (AgI). Sometimes, potassium iodide (KI) is also used due to its similar structure and role. These chemicals encourage the formation of ice crystals in clouds.

**Covered in PMF IAS CA? Yes, Completely Covered**

<https://www.pmfias.com/cloud-seeding/>



- **Context (TH | TOI):** Cloud seeding experiment in **Solapur** of **Maharashtra** resulted in **18% more rainfall** than normal conditions.
- Solapur falls on the **leeward side** of the **Western Ghats** and hence **normally gets low rainfall**.
- **Cloud seeding** is a **weather modification technology** that **artificially stimulates rainfall** by spraying **chemical substances** into the air that **serve as cloud condensation nuclei**.
- **Cloud condensation nuclei** are small particles **upon which water vapour condenses** to form clouds.
- The chemical substances used are **silver iodides, potassium iodides, dry ice (solid carbon dioxide) or liquid propane**.
- It **works** only **when there are enough pre-existing clouds** in the atmosphere.

***Covered in the PMF IAS Test Series? Yes, Completely Covered (October CA Test 2024)***

**80) Consider the following statements:**

1. A Cloud Chamber (CC) is a closed cylindrical or tubular structure where water vapour, aerosols, and seed particles are injected under controlled humidity and temperature conditions.
2. Cloud seeding uses substances like silver iodide, potassium iodide, dry ice (solid CO<sub>2</sub>), and liquid propane.

**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

**Both statements are correct**

- India is Building a **Cloud Chamber (CC)** at the **Indian Institute of Tropical Meteorology (IITM), Pune**, as Part of Mission Mausam.
- CC is a closed cylindrical or tubular structure where water vapour, aerosols, and seed particles (for cloud formation) are injected under controlled humidity and temperature conditions.
- It is designed to **study cloud droplet formation** and the **behaviour of ice particles** and **monsoon clouds**.
- It will allow detailed studies of cloud physics, including cloud behaviour under both normal and extreme weather conditions.
- These studies will contribute to the strategic planning of weather modification, including **cloud seeding**.
- **Cloud seeding** is a weather modification technology that artificially stimulates rainfall by spraying chemical substances into the air that serve as cloud condensation nuclei.
- **Cloud condensation** nuclei are small particles upon which water vapour condenses to form clouds.
- The chemical substances used are **silver iodides, potassium iodides, dry ice (solid carbon dioxide) or liquid propane**.
- It works only when there are enough pre-existing clouds in the atmosphere.

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

### 9.8. {Air Pollution} Shortcomings of 'quick fixes' to address air pollution

#### 'Quick fixes' to address pollution and their shortcomings

- **Cloud seeding:** Artificial manipulation of weather patterns could lead to **droughts** in areas that would have received rainfall due to water diverted for precipitation. Accumulating chemicals (**silver iodide**) in soil & water could impact agriculture & ecosystems.
- **Smog towers:** Their effectiveness is **limited** to the immediate vicinity. Further, the energy required to operate these towers can contribute to **emissions**, rendering them **counterproductive**.
- **Odd-even formula:** It primarily focuses on car emissions, neglecting other major contributors to air pollution like industrial emissions, burning crop residue, and dust from construction sites.
- **Dust suppressants/Anti-smog guns:** Suppressants can adhere to soil particles and be resuspended in the air. The **volatile organic compounds** can contribute to ozone formation, causing respiratory illnesses. Chemicals used (**magnesium** and **chlorides**) can adversely impact plant growth.

Environment CA 2025 – 90

Pollution – A

## 26) Consider the following statements with regard to the pardoning power of the President of India:

- I. The exercise of this power by the President can be subjected to limited judicial review.
- II. The President can exercise this power without the advice of the Central Government.

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

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

**Answer: (a): I only**

### Explanation

- **Statement I is correct:** Pardoning Power of President can be subject to limited judicial review (Kehar Singh v. Union of India, 1988).
- **Statement II is incorrect:** The President cannot exercise this power independently. Decisions must align with the advice of the Council of Ministers.

## Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test 09 Polity)

### 62) Concerning the pardoning power of the President, consider the following:

1. The petitioner for mercy has no right to an oral hearing by the President.
2. The power can be exercised by the President with or without the advice of the Union Cabinet.

Which of the statements given above is/are not correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2

- d) Neither 1 nor 2

#### Explanation

#### Explanation

**Statement 1 is correct but statement 2 is incorrect**

- The Supreme Court examined the pardoning power of the President under different cases and laid down the following principles:
  1. The **petitioner for mercy** has **no right** to an **oral hearing** by the President.
  2. The President **can examine the evidence afresh** and take a view different from the view taken by the court.
  3. The power is to be exercised by the President **on the advice of the union cabinet**.
  4. The President is **not bound** to **give reasons** for his order.
  5. The President can afford relief not only from a sentence that he regards as unduly harsh but also from an evident mistake.
  6. There is **no need for the Supreme Court** to lay down specific guidelines for the exercise of power by the President.
  7. The exercise of power by the President is **not subject to judicial review except** where the presidential decision is **arbitrary, irrational, mala fide** or **discriminatory**.
  8. Where the earlier petition for mercy has been rejected by the President, **stay cannot be obtained** by filing another petition.

**Answer: (b) 2 only | Difficulty Level: Easy**

Covered in PMF IAS Prelims Magnum? Yes, Completely Covered.

## 2.2. {Comparison} U.S. Presidential Pardons

- ❖ Outgoing U.S. President Joe Biden issued a full & unconditional **presidential pardon** between 2014 & 2024.

⇒ **Presidential Pardons:** These are constitutional powers under **Article II, Section 2** giving the President to grant **reprieves & pardons for federal offences**, except in cases where the President aims to ensure justice, compassion & system corrections.

### Comparison with India

| Aspect                           | President of India  |                            |
|----------------------------------|---|----------------------------|
| <b>Constitutional Provisions</b> | <ul style="list-style-type: none"> <li>• <b>Article 72:</b> Grants the President the power to grant pardons, reprieves, respites, remissions &amp; commutations.</li> <li>• <b>Article 161:</b> Grants the <b>Governors of states the power to grant pardons</b> &amp; clemency for offences under <b>state laws</b>.</li> </ul>                                      | Art<br>Pre<br>dor          |
| <b>Scope of Power</b>            | <ul style="list-style-type: none"> <li>• Offences under <b>Union law</b>.</li> <li>• Sentences by <b>court-martial</b>.</li> <li>• <b>Death penalty</b> cases.</li> <li>• Cases relating to foreign nationals or military personnel.</li> <li>• <b>Excludes</b> pardons for offences under state laws (Article 161).</li> </ul>                                       | Fed<br>stat<br>of s<br>pea |
| <b>Types of Clemency Power</b>   | <ul style="list-style-type: none"> <li>• <b>Pardon:</b> Complete forgiveness, releasing the offender from all penalties &amp; punishments.</li> <li>• <b>Reprieve:</b> Temporary suspension of a sentence.</li> <li>• <b>Respite:</b> Reduction of punishment for a particular case.</li> <li>• <b>Remission:</b> Reduction of the duration of a sentence.</li> </ul> | •<br>•                     |

|                                |  |
|--------------------------------|--|
|                                | <ul style="list-style-type: none"> <li>• <b>Commutation:</b> Substitution of a less severe sentence.</li> </ul>  |
| <b>Parliamentary Influence</b> | The power is exercised on the advice of the <b>Council of Ministers</b> (Article 74) which is <b>indirectly influenced by Parliament</b> . The President is bound by the advice of the Council.    |
| <b>Separation of Powers</b>    | The <b>parliamentary system</b> influences the exercise of pardoning power, which <b>emphasises collective responsibility</b> .  |
| <b>Judicial Re-view</b>        | Subject to <b>judicial review</b> by the courts if it is deemed to be exercised <b>arbitrarily or in bad faith</b> or <b>violates fundamental rights</b> ( <b>Epuru Sudhakar vs. Govt. of AP</b> ) |
| <b>Transparency Process</b>    | There is <b>no constitutional requirement for transparency</b> ; decisions are often made without public explanation.  |

## 27) Consider the following statements:

- On the dissolution of the House of the People, the Speaker shall not vacate his/her office until immediately before the first meeting of the House of the People after the dissolution.
- According to the provisions of the Constitution of India, a Member of the House of the People on being elected as Speaker shall resign from his/her political party immediately.



- III. The Speaker of the House of the People may be removed from his/her office by a resolution of the House of the People passed by a majority of all the then Members of the House, provided that no resolution shall be moved unless at least fourteen days' notice has been given of the intention to move the resolution.

***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

***Answer: (c): I and III only***

### **Explanation**

---

- **Statement I is correct:** After the dissolution of LS the Speaker remains in office until just before the first meeting of the new House.
- **Statement II is incorrect:** It is optional. Doing so would not attract disqualification under tenth schedule, yet it is not mandatory.
- **Statement III is correct:** Article 94(c) mentions Speaker may be removed from his office by a resolution of the House of the People passed by a majority of all the then members of the House, with at least fourteen days' notice for such resolution.

**Covered in the PMF IAS CA? Yes, Completely Covered**  
**(<https://www.pmfias.com/speaker/>, <https://www.pmfias.com/current-affairs-for-upsc-civil-services-exam-june-27-2024/#gs2-polity-ic-parliament-election-of-speaker>)**

## Speaker in Britain

- In Britain, the Speaker, once elected to his/her office, **resigns from the political party** to which he/she belonged. This is to reflect his/her **impartiality** while presiding over the House.
- In subsequent elections to the House of Commons, he/she seeks election not as a member of any political party but as 'the Speaker seeking re-election'.

- In the IC, while the **Tenth Schedule** allows a **Speaker (or Deputy Speaker) to resign from their political party** on being elected to their office, it has never been done by any Speaker to date.

- After the **dissolution of LS**:

- The **Speaker remains in office until just before the first meeting of the new House**.
- When the LS meets after the election, the **President** appoints a member of the LS as a **pro-tem speaker** for the conduct of the house.
- The President himself administers oath to the pro tem speaker.
- **Pro tem speaker** administers the oath to MPs and **enables the house** to elect the **new speaker**.

## Term of Office of the Speaker

- The Speaker holds office from the **date of his/her election till** immediately before the **first meeting of the next Lok Sabha**.
- Speaker **does not vacate** his office upon the **dissolution of Lok Sabha**.
- However, he has to vacate his office earlier in any of the following three cases:
  1. If he ceases to be a member of the Lok Sabha;
  2. If he **resigns** by writing to the **Deputy Speaker**; and
  3. If he is **removed by** a resolution passed by a **majority of all then members** of the **Lok Sabha**. Such a resolution can be moved only after giving **14 days' advance notice**.

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Comprehensive Test 10 and Sectional Test 10 Polity)***

### 97) Consider the following statements about Speaker Pro Tem:

1. The President appoints a member of the Lok Sabha as the Speaker Pro Tem.
2. He presides over the first sitting of the newly elected Lok Sabha.
3. When the new Speaker is elected by the House, the office of the Speaker Pro Tem ceases to exist.

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

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

### Explanation

***All statements are correct***

- As provided by the Constitution, the **Speaker of the last Lok Sabha** vacates his office **immediately before** the **first meeting** of the **newly elected Lok Sabha**.
- Therefore, the **President** appoints a **member of the Lok Sabha** as the **Speaker Pro Tem**.
- Usually, the **seniormost member** is selected for this.

**7) With reference to the Speaker of Lok Sabha, consider the following statements:**

1. The Speaker is elected by the Lok Sabha from amongst its members.
2. He is the principal spokesman of the House, and his decision in all Parliamentary matters is final.
3. His work and conduct cannot be discussed and criticized in the Lok Sabha except on a substantive motion.
4. He cannot vote in the first instance and can only exercise a casting vote in the event of a tie.

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

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

***Statement 1 is correct***

- The **Speaker** is elected by the **Lok Sabha** from **amongst its members** (**as soon as may be**, after its first sitting).
- Whenever the office of the Speaker falls vacant, the Lok Sabha elects another member to fill the vacancy.
- The **date of election** of the Speaker is fixed by the **President**.
- Usually, the Speaker remains in office **during the life of the Lok Sabha**.
- However, he has to vacate his office earlier in any of the following three cases:
  - ❖ If he **ceases to be a member** of the **Lok Sabha**.
  - ❖ If he **resigns** by writing to the **Deputy Speaker**.
  - ❖ If he is **removed** by a resolution passed by a **majority of all then members** of the Lok Sabha. Such a resolution can be moved only after giving **14 days' advance notice**.
- When a resolution for the removal of the Speaker is under consideration of the House, he **cannot preside** at the sitting of the House, though he may be present.
- However, he **can speak and take part in the proceedings** of the House at such a time and **vote in the first instance**, though **not** in the case of an **equality of votes**.
- It should be noted here that, whenever the Lok Sabha is dissolved, the Speaker does not vacate his office and continues till the newly elected Lok Sabha meets.

**Statements 3 and 4 are correct**

As the office of the Speaker is vested with great prestige, position, and authority, independence and impartiality become its sine qua non.

The following provisions ensure the independence and impartiality of the **office of the Speaker**:

He is provided with a security of tenure.

He can be removed **only by a resolution** passed by the **Lok Sabha** by a **special majority** (ie, a majority of all the then members of the House) and not by an ordinary majority (ie, 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**.

His salaries and allowances are fixed by **Parliament**. They are charged on the **Consolidated Fund of India** and thus are **not subject to the annual vote** of Parliament.

His work and **conduct cannot be discussed** and **criticized** in the **Lok Sabha** except on a **substantive motion**.

His powers of regulating procedure, conducting business, or maintaining order in the House are **not subject to the jurisdiction** of any Court.

**Covered in PMF IAS Prelims Magnum? Yes, Completely Covered.**

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2. If he resigns by writing to the Speaker; and
  3. If he is removed by a resolution passed by a majority of all the then members of the Lok Sabha. Such a resolution can be moved only after giving 14 days' advance notice.
- When a resolution for the removal of the Deputy Speaker is under consideration by the House, he cannot preside at the sitting of the House, though he may be present.

### Powers of Deputy Speaker

- All the powers of the Speaker while performing the duties of the Speaker.
- Presides over the joint sitting of both the Houses of Parliament in case the Speaker is absent.
- While presiding over the House, s/he cannot vote in the first instance.
- He/she can only exercise a casting vote in the case of a tie.
- When the Speaker presides over the House, the Deputy Speaker is like any other ordinary member.
- He can speak in the House, participate in its proceedings, & vote on any question before the House.
- **Automatically** becomes the **chairperson** of the parliamentary committees in which he is a **member**.

### 9.9. {Parliament} Election of Speaker

- ❖ Honourable **Om Birla** was elected as **speaker** of the 18<sup>th</sup> Lok Sabha.

### Election process of Lok Sabha Speaker

- **Article 93** of IC requires the Speaker to be a **member** of the House. Except that there are **no qualifications** for the Speaker prescribed in the IC. The **date of election** of the Speaker is **fixed** by the **President**.
- **Majority required:** **Simple majority** of members **present & voting**. He is eligible for re-election.
- A member of the ruling party is elected as the speaker by the Lok Sabha convention.

### Term of Office of the Speaker

- From the date of his/her election till immediately before the first meeting of the next Lok Sabha.
- **Does not vacate** his office upon the **dissolution of Lok Sabha**.
- However, he has to vacate his office earlier in any of the following three cases:
  1. If he ceases to be a member of the Lok Sabha;
  2. If he **resigns** by writing to the **Deputy Speaker**;

3. If he is removed by a resolution passed by a majority of all then members of the Lok Sabha. Such a resolution can be moved only after giving 14 days' advance notice.

- He cannot preside at the sitting of the House when a resolution for the removal of the Speaker is under consideration of the House.
- He can speak & take part in the proceedings of the House at such a time & vote in the first instance.

### 9.10. {Parliament} Expunction in Parliamentary Proceedings

- ❖ The first **special session** of the 18th Lok Sabha ended with controversies over the **expunction** of Opposition leaders' remarks in both **Houses of Parliament**.
- Expunction is a parliamentary procedure where certain remarks are **removed** from **official records**.

### Rules Governing Expunction

- **Article 105** grants freedom of speech to MPs, subject to constitutional provisions & House rules.
- Words deemed defamatory, indecent, unparliamentary, or undignified can be expunged.
- The **Lok Sabha Secretariat** maintains a list of '**unparliamentary**' words & expressions.
- Remarks prejudicial to **national interest** or **foreign relations** & statements derogatory to **dignitaries** or likely to offend national sentiments may be expunged.

### Process of Expunction

- The **Rajya Sabha Chairman** (under Rajya Sabha Rule 261) & **Lok Sabha Speaker** (under Lok Sabha Rules 380 & 381) have the power to order expunctions.
- Expunged portions are marked with asterisks in official records. The list is circulated to media outlets.

### Special Considerations

- **Rule 353 of Lok Sabha** outlines procedures for making allegations against colleagues or outsiders. Under this, the MP must provide "**adequate advance notice**" to the Speaker & the concerned Minister.
- Allegations against ministers are generally allowed as part of **parliamentary accountability**.
- MPs must follow a **procedure** established by the Speaker when making an allegation against a Minister.
- MPs must **withdraw** objectionable remarks upon the Chair's request or face expunction.

- **52nd** Constitutional Amendment Act, 1985 (Anti-Defection Bill) and inserted the 10th Schedule.
- Amended Articles 101, 102, 190 & 191 regarding vacation of seats & disqualification.

### Features of Anti-Defection Law

#### Disqualification if

- **Voluntarily gives up** membership of a Political Party Or **Voluntarily joins any other Political Party**.
- **Violation of Instructions:** **Votes or abstains from voting** contrary to **direction issued** by the party.
- **Independent legislator** joining a political party.
- Nominated legislator joining any political party six months after the day they become a legislator.

#### Exceptions

- Party merger with at least two-thirds legislators.
- **Exempts the presiding officer** who **voluntarily** gives up party membership or **rejoins it after they cease to hold that office**.
- **Do not apply** to violations of party whips **during presidential polls**.

#### Whip

- Inherited from colonial British rule. currently, all parties can issue a whip to their members.
- **Written order** from political party to its members to be present for voting or to **vote** in a **particular way**. Mentioned **neither in the IC**, nor **Parliamentary Statute**. Based on the **conventions**.

#### Decision to disqualify

- For member: **Chairman or the Speaker** of the House decides to disqualify a member.
- For Chairman or Speaker: A **member** of the House **elected by that House**.

#### Changes after the 91st Constitution Amendment Act, 2003

- Exemption from disqualification in case of a **split by one-third** of party legislators. (Earlier Only a **Merger** was possible; a Split was not possible). **Requirement of merger** : From **one-third** to **at least two-thirds**.
- **Limits Size of Council of Ministers & debars defectors** from holding public offices until re-election.

#### Number of Council of Ministers 91st CAA, 2003

- **Art 75 (1A)**: Shall not exceed **fifteen per cent**, including the Prime Minister, in the CoM.
- **Art 164 (1A)**: Strength **including the CM** minimum **12** or upto **15** per cent of number of MLAs.
- Exception: Sikkim, Mizoram, Goa, & Arunachal Pradesh - **minimum strength of 7 ministers**

## 28) Consider the following statements:

- If any question arises as to whether a Member of the House of the People has become subject to disqualification under the 10th Schedule, the President's decision in accordance with the opinion of the Council of Union Ministers shall be final.
- There is no mention of the word 'political party' in the Constitution of India.

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

- I only
- II only
- Both I and II
- Neither I nor II

**Answer: (d) Neither I nor II**

## Explanation

- **Statement I is incorrect:** Speaker is the final authority in this regard, not the President.
- **Statement II is incorrect:** The word "political party" is used multiple times in the constitution, for example, in the "Tenth Schedule."

**Covered in the PMF IAS CA? Yes, Completely Covered**  
(<https://www.pmfias.com/anti-defection-law/>)

### Powers to disqualify

- The **Chairman or the Speaker** of the House decides to disqualify a member.
- If a complaint is received concerning the defection of the Chairman or Speaker, a **member** of the House **elected by that House** shall take the decision.

### Features of Anti-Defection Law

#### Grounds for Disqualification

- If the Legislator **voluntarily gives up** their **membership of a Political Party**.
- If The Legislator **voluntarily joins any other Political Party**.
- **Violation of Instructions:** If the legislator **votes or abstains from voting** in the House contrary to a **direction issued** by the political party he belongs to, they are **deemed disqualified**.
- An **Independent legislator** can be disqualified if they **join a political party**.
- A **nominated legislator** will be disqualified if they **join any political party six months after** the day they become a legislator.

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test 09 Polity and Comprehensive 1)**

**5) In the context of the disqualification of Members of Parliament on grounds of defection, consider the following statements:**

1. The Constitution lays down that a person shall be disqualified from being a member of Parliament if he voluntarily gives up the membership of the political party on whose ticket he is elected to the House.
2. The President of India decides the question of disqualification under the Tenth Schedule, and the decision is not subject to judicial review.

**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**

**Statement 1 is correct**

- The Constitution also lays down that a person shall be **disqualified** from being a member of Parliament if he is so disqualified on the **ground of defection** under the provisions of the **Tenth Schedule**.
- A member incurs disqualification under the defection law:
  - ❖ If he **voluntarily gives up** the membership of the political party on whose ticket he is elected to the House.
  - ❖ If he votes or **abstains from voting** in the House **contrary to any direction** given by his political party.
  - ❖ If any **independently elected** member joins any political party.
  - ❖ If any **nominated member** joins any political party **after the expiry of six months**.

**Statement 2 is incorrect**

- The question of disqualification under the Tenth Schedule is decided by the **Chairman** in the case of **Rajya Sabha** and the **Speaker** in the case of **Lok Sabha** (not by the president of India).
- In 1992, the Supreme Court ruled that the decision of the Chairman/Speaker in this regard is **subject to judicial review**.

**Answer: (a) 1 only | Difficulty Level: Easy**

**Covered in PMF IAS Prelims Magnum? Yes, Completely Covered.**

- **52nd** Constitutional Amendment Act, 1985 (Anti-Defection Bill) and inserted the 10th Schedule.
- Amended Articles 101, 102, 190 & 191 regarding vacation of seats & disqualification.

#### Features of Anti-Defection Law

##### Disqualification if

- **Voluntarily gives up** membership of a Political Party Or **Voluntarily joins any other Political Party.**
- **Violation of Instructions:** **Votes or abstains from voting** contrary to **direction issued** by the party.
- **Independent legislator** joining a political party.
- Nominated legislator joining any political party six months after the day they become a legislator.

#### Whip

- Inherited from colonial British rule. currently, all parties can issue a whip to their members.
- **Written order** from political party to its members to be present for voting or to **vote** in a **particular way**. Mentioned **neither in the IC**, nor **Parliamentary Statute**. Based on the **conventions**.

#### Decision to disqualify

- For member: **Chairman or the Speaker** of the House decides to disqualify a member.
- For Chairman or Speaker: A **member** of the House **elected by that House**.

## 29) Consider the following statements:

- I. Statement I: In India, State Governments have no power for making rules for grant of concessions in respect of extraction of minor minerals even though such minerals are located in their territories.
- II. Statement II: In India, the Central Government has the power to notify minor minerals under the relevant law

**Which one of the following is correct in respect of the above statements?**

- a) Both Statement I and Statement II are correct and Statement II explains Statement I
- b) Both Statement I and Statement II are correct but Statement II does not explain Statement I
- c) Statement I is correct but Statement II is not correct
- d) Statement I is not correct but Statement II is correct

**Answer: (d): Statement I is not correct but Statement II is correct**

### Explanation

- **Statement I is incorrect:** Section 15 of MMDR Act, 1957: Gives State Governments the power to make rules for minor minerals.
- **Statement II is correct:** Minor minerals are classified by the Central Government in India, under the powers granted by Section 1(a) of the Mines & Minerals (Regulation & Development) Act, 1957.

**Covered in the PMF IAS Test Series? Yes, Completely Covered (CA Test July 2024)**



**15) Consider the following statements about the Mines and Minerals (Development and Regulation) Act of 1957:**

1. The Act regulates mines and mineral development under the control of the Union government for national interests.
2. The state governments are responsible to regulate major minerals and administer the Act within their territories.
3. Recently, the Supreme Court of India affirmed States' Unrestricted Right to Tax Mineral Lands.

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

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

**Explanation**

**Statement 1 is correct and Statement 2 is incorrect**

- The **Mines and Minerals (Development and Regulation) Act (MMDRA) of 1957** governs the **exploration, mining, and regulation** of mineral resources and aims to ensure the orderly and efficient development of mineral resources while safeguarding the nation's interests.
- **Key Provisions of the MMDRA:**
  - ❖ **Central Control:** The Act regulates mines and mineral development under the control of the **Union government** for national interests.
  - ❖ **Prospecting and Mining Licenses:** All prospecting and mining must be conducted under government-issued licenses or leases.
  - ❖ **Restrictions on Mining:** Imposes limits on mining areas and quantities of mineral extraction.
  - ❖ **Environmental Protection:** Mandates measures to prevent pollution and environmental damage.
  - ❖ **Safety Measures:** Establishes stringent safety regulations for miners and mining operations.
  - ❖ **Mineral Conservation:** Promotes efficient use and exploration of new mineral reserves.
  - ❖ **Role of State Governments:** While the central government oversees overall control, state governments regulate **minor** minerals and administer the Act within their territories.

**Statement 3 is correct**

- The Supreme Court of India affirms States' **Unrestricted Right to Tax Mineral Lands**.
- The court clarified that royalty paid by mining companies to the government is not a tax but a contractual payment.

**Covered in the PMF IAS CA? Yes (<https://www.pmfias.com/current-affairs-for-upsc-civil-services-exam-july-28-29-2024/#qs1-geo-eg-mineral-resources-sc-ruling-on-taxing-mineral-rights>)**

**Covered in PMF IAS Prelims Magnum? Yes, Completely Covered.**

### 3.19. {Laws} Mines and Minerals (Development and Regulation) Act of 1957 \*

- ❖ SC affirms States' Unrestricted Right to Tax Mineral Lands. The court clarified that **royalty** paid by mining companies to the government is **not a tax** but a **contractual payment**.
- MMDRA, 1957 governs the **exploration, mining, and regulation** of mineral resources and aims to ensure the orderly and efficient development of mineral resources while safeguarding the nation's interests.

#### Key Provisions of the MMDRA

- **Central Control:** The Act regulates mines and mineral development under the control of the Union government for national interests.
- **Prospecting and Mining Licenses:** All prospecting & mining must be conducted under govt-issued licenses or leases.
- **Restrictions on Mining:** Imposes limits on mining areas and quantities of mineral extraction.
- **Environmental Protection:** Mandates measures to prevent pollution and environmental damage.
- **Safety Measures:** Establishes stringent safety regulations for miners and mining operations.
- **Mineral Conservation:** Promotes efficient use and exploration of new mineral reserves.
- **Role of State Governments:** While the central government oversees overall control, state governments regulate minor minerals and administer the Act within their territories.

| Difference between Tax and Royalty |                       |  |
|------------------------------------|-----------------------|--|
| Feature                            | Tax                   | Royalty                                |
| Imposed by                         | Government            | Resource Owner                         |
| Purpose                            | Generate Revenue      | Compensation for Resource Use          |
| Basis                              | Legal Framework       | Contractual Agreement                  |
| Nature                             | Compulsory Payment    | Payment for Privilege                  |
| Example                            | Income Tax, Sales Tax | Author Payment, Mineral Rights Payment |

#### Constitutional Provisions

- **Article 246:** Governs the distribution of powers between the Centre and the States.
- **Entry 49 of the State List:** Pertains to taxes on lands & buildings, which includes mineral-bearing lands.
- **Entry 50 of the State List:** Pertains to regulation of mineral development but does not restrict state taxation powers.

## GS1 – Geography

### {EG – Mineral Resources} Barytes, Felspar, Mica and Quartz as Major Minerals \*

❖ **Barytes, Felspar, Mica, and Quartz** were declared **major minerals** (Earlier Minor minerals).

#### Difference between Major and Minor Minerals

| Parameter         | Major Minerals  | Minor Minerals  |
|-------------------|---|---|
| <b>Definition</b> | Minerals specified in <b>1<sup>st</sup> schedule</b> appended in Mines and Minerals (Development & Regulation) Act, 1957 (MMDR Act 1957). | Minerals which are declared as such by the Central Government in exercise of the powers conferred by MMDR Act 1957. |
| <b>Examples</b>   | Gold, coal, uranium, lignite, iron etc.   | Stones, gravel, ordinary clay etc.  |
| <b>Regulation</b> | <b>Central Government</b>   | <b>State Governments</b>  |

#### Reasons for Reclassification

- **Quartz, Felspar and Mica** are found in **pegmatite rocks**, which are an important source of many critical minerals such as **Beryl, Lithium, Niobium, Tantalum, Molybdenum, Tin**, etc.
- **Baryte** often occurs as concretions and vein fillings in **limestone** and **dolostone**. It is found in association with ores of Antimony, Cobalt, Copper, Lead, Manganese and Silver.
  - ❖ Baryte has various **industrial applications**, which are used for oil and gas drilling, electronics, TV screens, rubber, glass, ceramics, paint, radiation shielding, etc.

### {EG – Mineral Resources} Conflict Minerals

❖ **Democratic Republic of Congo (DRC)** has initiated legal action against Apple's subsidiaries in France and Belgium, accusing the company of sourcing conflict minerals from sub-Saharan Africa.

#### What Are Conflict Minerals?

- Extracted from **conflict-affected regions**, where profits fund armed groups and human rights abuses.
- **Key Conflict Minerals (3TGs): Tin, Tantalum, Tungsten**, and **Gold**, classified by [OECD](#).
- **Major Sources:** DRC, Sierra Leone, Venezuela, and other conflict-prone areas.
- **Extraction:** Sourced from ores **cassiterite (tin)**, columbite-tantalite (tantalum) & wolframite (tungsten).

#### Uses of Conflict Minerals

48  
2025 – Q1

### 30) Which organization has enacted the Nature Restoration Law (NRL) to tackle climate change and biodiversity loss?

- The European Union
- The World Bank
- The Organization for Economic Cooperation and Development
- The Food and Agriculture Organization

**Answer: (a): The European Union**

## Explanation

- The Nature Restoration Law (NRL) is a legislative initiative by the European Union (EU).
- It is aimed at restoring degraded ecosystems, reversing biodiversity loss, and addressing climate change impacts.
- The law sets binding targets for EU member states to restore nature across at least 20% of the EU's land and sea areas by 2030 and all ecosystems in need of restoration by 2050.

**Covered in PMF IAS? Yes, Completely Covered in Daily PPQs**  
**(<https://www.pmfias.com/ppqs-april-01-2024/>)**

**Q6. {Prelims – IR – Organisations} Which of the following recently adopted a law to restore degraded ecosystems known as Nature Restoration Law (NRL)?**

- ☐ a) BRICS
- ☐ b) Association of Southeast Asian Nations (ASEAN)
- ☐ c) European Union
- ☐ d) African Union

**31) With reference to the Indian polity, consider the following statements:**

- I. An Ordinance can amend any Central Act.
- II. An Ordinance can abridge a Fundamental Right.
- III. An Ordinance can come into effect from a back date.

**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

**Answer: (c): I and III only**

## Explanation

---

- **Statement I is True:** Ordinance will have the same effect as any act. So a ordinance by President (Article 123) can amend a central act.
- **Statement II is False:** Limitation of "Basic Structure Doctrine" will apply to Ordinance also, as in the case of the Act. Article 13 of the Constitution of India declares that all laws, whether existing or made in the future, that are inconsistent with or abridge the fundamental rights guaranteed in Part III of the Constitution are void to the ex-tent of such inconsistency or abridgement.
- **Statement III is True:** Ordinance can come into effect from a back date (retrospective) as in the case of an act.

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test Polity 09 and Comprehensive Test 08)***

**59) Regarding the ordinance making power of the President, consider the following statements:**

1. The maximum life of an ordinance can be six months and six weeks, in case of non-approval by the Parliament.
2. An ordinance cannot be issued to amend the Constitution.

**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

**Statement 1 is correct**

- Every ordinance issued by the President during the **recess of Parliament** must be laid before **both the Houses of Parliament** when it reassembles.
- If the ordinance is approved by both the Houses, it becomes an act.
- If Parliament takes **no action at all**, the ordinance **ceases to operate** on the expiry of **six weeks** from the **reassembly of Parliament**.
- The ordinance may also **cease to operate** even **earlier than the prescribed six weeks**, if both the Houses of Parliament **pass resolutions disapproving it**.
- If the Houses of Parliament are summoned to reassemble on different dates, the period of **six weeks** is calculated from the **later** of those dates.
- This means that the maximum life of an ordinance can be **six months and six weeks**, in case of non-approval by the Parliament (**six months being the maximum gap between the two sessions of Parliament**).
- If an ordinance is **allowed to lapse** without being placed before Parliament, then the acts done and completed under it, before it ceases to operate, **remain fully valid** and effective.

**Statement 2 is correct**

- An ordinance like any other legislation, **can be retrospective**, that is, it may come into force from a back date.
- It may modify or **repeal any act of Parliament** or **another ordinance**. It can alter or **amend a tax law** also. However, it **cannot be issued** to **amend the Constitution**.
- The President can also **withdraw** an ordinance at any time.



**59) Regarding the ordinance making power of the President, consider the following statements:**

1. The maximum life of an ordinance can be six months and six weeks, in case of non-approval by the Parliament.
2. An ordinance cannot be issued to amend the Constitution.

**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

**Statement 1 is correct**

- Every ordinance issued by the President during the **recess of Parliament** must be laid before **both the Houses of Parliament** when it reassembles.
- If the ordinance is approved by both the Houses, it becomes an act.
- If Parliament takes **no action at all**, the ordinance **ceases to operate** on the expiry of **six weeks** from the **reassembly of Parliament**.
- The ordinance may also **cease to operate** even **earlier than the prescribed six weeks**, if both the Houses of Parliament **pass resolutions disapproving it**.
- If the Houses of Parliament are summoned to reassemble on different dates, the period of **six weeks** is calculated from the **later** of those dates.
- This means that the maximum life of an ordinance can be **six months and six weeks**, in case of non-approval by the Parliament (**six months being the maximum gap between the two sessions of Parliament**).
- If an ordinance is **allowed to lapse** without being placed before Parliament, then the acts done and completed under it, before it ceases to operate, **remain fully valid** and effective.

**Statement 2 is correct**

- An ordinance like any other legislation, **can be retrospective**, that is, it may come into force from a back date.
- It may modify or **repeal any act of Parliament** or **another ordinance**. It can alter or **amend a tax law** also. However, it **cannot be issued** to **amend the Constitution**.
- The President can also **withdraw** an ordinance at any time.
- However, his power of ordinance-making is **not a discretionary power**, and he can promulgate or withdraw an ordinance **only on the advice of the council of ministers** headed by the **prime minister**.

**Answer: (c) Both 1 and 2 | Difficulty Level: Medium**

**32) Consider the following pairs:**

| State | Description |
|-------|-------------|
|-------|-------------|

|                      |  |
|----------------------|--|
| I. Arunachal Pradesh | The capital is named after a fort, and the State has two National Parks  |
| II. Nagaland         | The State came into existence on the basis of a Constitutional Amendment Act   |
| III. Tripura         | Initially a Part 'C' State, it became a centrally administered territory with the reorganization of States in 1956 and later attained the status of a full-fledged State |

***How many of the above pairs are correctly matched?***

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

***Answer: (b): Only two***

## **Explanation**

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- **Statement I is correct:**

❖ **Arunachal Pradesh:** The capital Itanagar is named after the historical Ita Fort (Ita = brick in Assamese), which dates back to the 14th–15th century. Arunachal Pradesh has two National Parks:

1. Namdapha National Park
2. Mouling National Park

- **Statement II is incorrect:**

❖ **Nagaland:** Nagaland became the 16th state of India through the State Of Nagaland Act, 1962, and was formally inaugurated on 1 December 1963.

- **Statement III is correct**

❖ **Tripura:** Initially a Part 'C' State, it became a centrally administered territory with the reorganization of States in 1956 and later attained the status of a full-fledged State is Correct. Tripura was indeed a Part 'C' state after accession to India. Post the States Reorganisation Act, 1956, it became a Union Territory. It became a full-fledged state on 21 January 1972 through the North-Eastern Areas (Reorganisation) Act, 1971.

***Covered in the PMF IAS CA? No***

### 33) With reference to India, consider the following:

- I. The Inter-State Council
- II. The National Security Council
- III. Zonal Councils

***How many of the above were established as per the provisions of the Constitution of India?***

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

***Answer: (a): Only one***

#### **Explanation**

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- The **Inter-State Council** is a Constitutional body. It was established under Article 263 of the Constitution of India. It is meant to facilitate coordination between the Centre and the States and among the States themselves.
- The **National Security Council** and **Zonal Councils** are not a constitutional body. It was established in 1998 by the Government of India (executive order). It is an executive (non-constitutional, non-statutory) body that advises the Prime Minister on national security and strategic interests.
- Zonal Councils were created by the States Reorganisation Act, 1956 (a statutory provision, not part of the Constitution). These councils promote cooperation among states and between states and the Centre in each zone

***Covered in the PMF IAS Test Series? Yes, Completely Covered (CA August 2024 Test, Advanced Test 01 Polity and Comprehensive 10 Test)***

**92) Consider the following statements with respect to the National Security Council (NSC):**

1. It is a three-tiered organisation serving as the apex body for all matters concerning internal and external security.
2. The council oversees issues of strategic concern including political, economical and energy related issues.
3. Strategic Policy Group presided by the Cabinet Secretary, is responsible for making policy recommendations to the Council.

***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:**

***Statements 1 and 2 are correct***

- The **National Security Council (NSC)** of India is a **three-tiered organization** that oversees political, economic, energy and security issues of strategic concern.
  - ❖ It was set up by the **Vajpayee government** in 1998 following the nuclear tests by India & Pakistan headquartered at New Delhi.
- Its primary objective is to provide **authoritative and holistic assessments of India's security challenges** across military, internal security, economic, technological, and external relations domains.
- It serves as the apex body for all matters concerning internal and external security.
- **The three-tier structure of the NSC comprises of:**
  - ❖ **Strategic Policy Group**
  - ❖ **National Security Advisory Board**
  - ❖ **Secretariat from the Joint Intelligence Committee.**

**24) Consider the following statements about the Inter-State Council:**

1. It was established in 1990 under Article 262 of the Indian Constitution.
2. The Prime minister act as the chairman of the Standing committee of the council.
3. Its secretariat is headed by a secretary to the Government of India.

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

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

**Explanation**

**Statement 1 is incorrect**

- Government accepted the recommendation of the **Sarkaria Commission** and notified the establishment of the **Inter-State Council** under **Article 263** on 28 May **1990**.
- The council is a **recommendatory body** on issues relating to inter-state, Centre-state and Centre-union territories relations.
- It aims at promoting coordination between them by examining, discussing and deliberating on such issues.
- **It consists of the following members:**
  - ❖ **Prime minister** as the **Chairman**
  - ❖ **Chief ministers** of all the states
  - ❖ **Chief ministers of union territories** having legislative assemblies
  - ❖ **Administrators of union territories** not having legislative assemblies
  - ❖ **Governors** of States under President's rule
  - ❖ **Six Central cabinet ministers**, including the home minister, to be **nominated** by the **Prime Minister**.

**93) Which one of the following statements about the Zonal Councils is not correct?**

- a) Zonal Councils were created by a Presidential order issued under Article 263 of the Constitution.
- b) The Union Home Minister is the ex-officio Chairman of every Zonal Council.
- c) Uttarakhand belongs to the Central Zonal Council.
- d) The Chief Ministers of the member States serve as Vice-Chairmen of their Council for a term of one year, by rotation.

**Explanation**

**Option (a) is incorrect**

- **Zonal Councils** were established under the **States Reorganisation Act, 1956**, a **statutory** act of Parliament, and not by a Presidential order under Article 263 of the Constitution.
- **Article 263** pertains to **Inter-State Councils**, which are distinct from Zonal Councils.

**All other options are correct**

**Covered in the PMF IAS CA? Yes** (<https://www.pmfias.com/national-security-council/>, <https://www.pmfias.com/zonal-councils/>)

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

**{IC – Federalism} Zonal Councils in India \***

Prel

- **Mooted by** PM Jawaharlal Nehru in 1956 to address linguistic hostilities and promote cooperation.
- Established under [States Reorganisation Act, 1956](#) as **statutory** (extra-constitutional) advisory bodies.
- **Objective:** Foster **coordination** among **states** and the **Centre** for economic, social and political stability.
- **Nature:** Only **deliberative** and **advisory** recommendations are **not binding**.

**Factors Considered in Zonal Formation**

- **Natural Divisions:** Geographical continuity and topography.
- **River Systems & Connectivity:** Facilitates regional cooperation in water resources.
- **Cultural & Linguistic Affinity:** Helps in social and administrative coordination.
- **Economic & Security Needs:** Ensures **balanced development** and law & order management.



### 34) Consider the following statements:

- I. The Constitution of India explicitly mentions that in certain spheres the Governor of a State acts in his/her own discretion.
- II. The President of India can, of his/her own, reserve a bill passed by a State Legislature for his/her consideration without it being forwarded by the Governor of the State concerned.

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

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

***Answer: (a): I only***

### **Explanation**

---

- **Statement I is correct.** Article 163: There shall be Council of Ministers with the Chief Minister at the head to aid and advise the Governor in the exercise of his functions except in so far as he is by or under the Constitution required to exercise his functions or any of them in his discretion. So, we can safely say that the Constitution recognises Governor's discretion.
- **Statement II is incorrect:** Such bills must first be reserved by the Governor for Presidential assent, and then only the President can consider them.

**Covered in the PMF IAS CA? Yes, Completely Covered**

**[\(https://www.pmfias.com/governors-assent-to-state-laws/](https://www.pmfias.com/governors-assent-to-state-laws/)**

**<https://www.pmfias.com/tag/governor/>**

## **Constitutional Provisions related to the office of the Governor**

### **Discretionary powers of the governor**

- **Article 167:** Can seek information from the CM about state administrative and legislative matters.
- **Article 200:** Can reserve a Bill for the **President's consideration**.
- **Article 356:** Can recommend the **President** to **impose President's rule** on **failure of constitutional machinery**.
- He/she is **not bound** to act on the aid and advice of CM and COM while performing his/her duties as the administrator of a neighbouring union territory (in case of an additional charge).
- The Governor **can appoint a chief minister** when **no party has a clear-cut majority**.
- The **caretaker government** can be appointed **temporarily** until a regular government is elected or formed.
- The Governor can **dismiss the council of ministers** when it cannot prove the confidence of the state legislative assembly.
- The Governor can **dissolve the state legislative assembly** when the council of ministers lose their majority.

## What are the Governor's Powers over Bills?

### Article 200 of the IC

- It **outlines the process** for a Bill passed by the Legislative Assembly to be presented to the Governor for assent,
  1. He may **give assent** to the bill.
  2. He may **send it back** to the Assembly requesting it to **reconsider** some provisions of the Bill or the Bill itself.
    - Once the Legislative House reconsiders the Bill and sends it to the Governor once again, the Governor "**shall not withhold assent therefrom**".
    - The governor **cannot return** the **money bill** for reconsideration.
  3. He may **withhold assent**.
  4. He may **reserve** the bill for the **consideration of the president**.
    - The reservation is **obligatory** where the bill passed by the state legislature endangers the position of the **state high court**.
    - However, the governor can also reserve the bill if:
      - It is against the provisions of the IC.
      - It is opposed to the Directive Principles of State Policy (DPSP).
      - It is against the larger interest of the country.
      - It is of grave national importance
      - It Deals with compulsory acquisition of property under **Article 31A** of the IC.

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test 10 Polity)***

## 96) Which one of the following statements is correct concerning the Governor?

- a) The Governor has been made only a nominal executive.
- b) The Governor has been made only a real executive.
- c) As per constitution, the governor has to act on the aid and advice of council always on all matters.
- d) The Governor has only situational discretion, unlike the President.

### Explanation

#### Option (a) is correct

- The Constitution of India provides for a **parliamentary form of government** in the states as in the Centre.
- Consequently, the Governor has been made **only** a **nominal executive**.

#### All other options are incorrect

- The **real executive** constitutes the council of ministers headed by the chief minister.
- In other words, the **Governor must exercise his/ her powers** and functions with the aid and advice of the council of ministers headed by the chief minister, **except in matters** in which he/she is required to act in his/ her **discretion** (i.e., **without the advice of ministers**).
- After the **42nd Constitutional Amendment (1976)** ministerial advice has been made **binding** on the **President**, but **no such provision** has been made **with respect to the governor**.
- The Governor has constitutional discretion in the following cases:
  - ❖ **Reservation of a bill for the consideration of the President.**
  - ❖ Recommendations for the **imposition of the President's Rule** in the state.



**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

**Can a chief minister run for office from behind bars?**

#### Legal Framework

- CMship is lost only if – **Loss of majority support**/ successful **No-Confidence Motion**/ resignation.

#### President's Rule Provision in Delhi

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Prelims Magnum 2025

- The President may **also direct** the Governor to return the Bill for reconsideration.

#### Can the Governor withhold His Assent to a Bill in Exercise of His Discretionary Powers?

- Article 200 suggests: Governor can withhold his assent, but **only** on **advice** of **Council of Ministers**.
  - ❖ **Article 154:** Governor can exercise his executive powers only on advice of Council of Ministers.

#### Can a Governor, in practice, actually sit on a Bill forever?

- Governor must return the Bill "**as soon as possible**" but **does not prescribe a specific timeframe**.
  - ❖ Thus, Ambiguity by sitting on bills **indefinitely** without returning them to the state legislature.

#### SC's Viewpoint

- **Nabam Rebha & Bamang Felix vs Deputy Speaker:** The Governor **cannot withhold assent** to a Bill indefinitely but must return it to the Assembly with rec-

#### Discretionary powers of the governor

- **Article 167:** Can seek information from the CM about state administrative & legislative matters.
- **Article 200:** Can **reserve a Bill** for the **President's consideration**.
- **Article 356:** Can **recommend** imposing **President's rule** on the **failure of constitutional machinery**.
- **Not bound** to act on the aid & advice of CM & CoM if administering a neighbouring UT.
- Can **appoint a chief minister** if **no party has a clear-cut majority**.

### 35) Consider the following pairs:

| Provision in the Constitution of India  | Stated under                                 |
|---|--|
| I. Separation of Judiciary from the Executive in the public services of the State | The Directive Principles of the State Policy |
| II. Valuing and preserving the rich heritage of our composite culture             | The Fundamental Duties                       |
| III. Prohibition of employment of children below the age of 14 years in factories | The Fundamental Rights                       |

**How many of the above pairs are correctly matched?**

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

**Answer: (c): All three**

#### Explanation

- **I is correctly matched.** Article 50: The State shall take steps to separate judiciary from the executive in the public services of the State.
- **II is correctly matched.** It is the Fundamental Duty of every citizen of India (under Article 51A) to value and preserve the rich heritage of the country's composite culture.
- **III is correctly matched.** Article 24: No child below the age of 14 years shall be employed in work in any factory or mine or engaged in any other hazardous employment.

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test Polity 08 and Advanced test 01 Polity)**

**30) Which among the following Directive Principles of State Policy (DPSP) are based on the philosophy of Liberal Intellectual?**

1. To secure for all citizens a uniform civil code throughout the country
2. To separate legislature from the executive.
3. To protect and improve the environment and to safeguard forests and wildlife.

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

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

**Statement 1 and 3 are correct but 2 is incorrect.**

- The principles included in this category represent the **ideology of liberalism**. They direct the state:
  - ❖ To secure for all citizens a **uniform civil code throughout the country (Article 44)**.
  - ❖ To provide **early childhood care and education** for all children **until they complete the age of six years (Article 45)**.
  - ❖ To organise agriculture and animal husbandry on **modern and scientific** lines **(Article 48)**.
  - ❖ To **protect and improve** the **environment** and to safeguard forests and wild life **(Article 48A)**.

- ❖ To protect monuments, places and objects of artistic or historic interest which are declared to be of national importance **(Article 49)**.
- ❖ To **separate** the **judiciary from the executive** in the **public services of the State (Article 50)**.
- ❖ To **promote international peace** and security and maintain just and honourable relations between nations; to foster respect for international law and treaty obligations, and to encourage settlement of international disputes by arbitration **(Article 51)**.



**37) With reference to the Fundamental Duties, consider the following statements:**

1. Some of them are moral duties, while others are civic duties.
2. They refer to such values that have been a part of Indian tradition, mythology, religions, and practices.
3. Like the Directive Principles of State Policy, the Fundamental Duties are also justiciable.
4. Fundamental Duties are confined to citizens only and do not extend to foreigners.

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

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

**Explanation**

***Statement 1 is correct***

- **Fundamental Duties** in the Indian Constitution encompass both **moral** and **civic duties**.
- **Moral Duties:**
  - ❖ To cherish and follow the noble ideals which inspired our national struggle for freedom (Article 51A(b)).
  - ❖ To value and preserve the rich heritage of our composite culture (Article 51A(f)).
  - ❖ To develop the scientific temper, humanism, and the spirit of inquiry and reform (Article 51A(g)).
  - ❖ To have compassion for living creatures (Article 51A(h)).
- These duties emphasize personal integrity, respect for cultural heritage, and ethical behaviour.
- **Civic Duties:**
  - ❖ To uphold and protect the sovereignty, unity, and integrity of India (Article 51A(c)).

**15) Which of the following statements is not correct regarding the provisions related to the prohibition of forced labour and employment of children under Articles 23 and 24 of the Constitution?**

- a) Article 23 prohibits forced labour and human trafficking, but it allows the State to impose compulsory service for public purposes like military service.
- b) The term 'begar' refers to voluntary work performed by individuals without any expectation of remuneration.
- c) Article 24 prohibits the employment of children below 14 years of age in factories, mines, and hazardous activities, but it does not prevent their employment in harmless or innocent work.
- d) The Supreme Court's 1996 directive established the Child Labour Rehabilitation Welfare Fund to fine employers ₹20,000 for each child employed.

**Explanation**

*Options (a), (c), and (d) are correct*

- **Article 23** prohibits traffic in human beings, **begar (forced labour)** and other similar forms of forced labour. Any contravention of this provision shall be an offence **punishable** in accordance with law.
- This **right is available to both citizens and non-citizens**. It protects the individual not only against the State but **also against private persons**.
- Article 23 also provides for an exception to this provision.
- It permits the State to impose **compulsory service for public purposes**, as for example, military service or social service, for which it is not bound to pay.
- However, in imposing such service, the State is **not permitted to make any discrimination** on grounds only of religion, race, caste or class.
- **Article 24** prohibits the **employment of children below the age of 14 years** in any factory, mine or other hazardous activities like construction work or railway.
- But it does **not prohibit their employment** in any **harmless or innocent work**.
- In 1996, the Supreme Court directed the establishment of Child Labour Rehabilitation Welfare Fund in which the offending employer should deposit a fine of ₹20,000 for each child employed by him.

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

|   |  |  |
|---|--|--|
| <p><b>2.5. (A&amp;C) National Culture Fund (NCF)</b></p> <ul style="list-style-type: none"> <li><b>Establishment:</b> As a Trust under the Charitable Endowment Act of 1890.</li> <li><b>Aim:</b> To mobilise extra resources through Public-Private Partnerships (PPP) to promote, protect, and preserve India's tangible and intangible cultural heritage.</li> <li><b>Governing Council:</b> Chaired by Minister of Culture.</li> <li><b>Donations:</b> Eligible for 100% tax benefit under the Income Tax Act of 1961.</li> <li><b>Auditing:</b> Of Annual Accounts by Comptroller and Auditor General of India.</li> <li>Its activities are covered under the Companies Act 2013, making it a valid receipt for Corporate Social Responsibility (CSR) contributions.</li> </ul> <p><b>Constitutional Provisions</b></p> <ul style="list-style-type: none"> <li><b>Article 49:</b> The State is obliged to protect every monument, place, or object of artistic or historic interest declared by or under law made by Parliament to be of national importance from spoliation, disfigurement, destruction, removal, disposal, or export, as the case may be.</li> <li><b>Article 51A(i):</b> Fundamental Duty to value and preserve the rich heritage of our composite culture.</li> <li><b>Article 29:</b> Protection of minority interests in preserving distinct culture.</li> </ul> <p><b>2.6. (A&amp;C) Ustad Zakir Hussain died due to IPF Disease</b></p> <p>❖ Tabla maestro Zakir Hussain passes away from idiopathic pulmonary fibrosis disease.</p> <p><b>Contribution and awards</b></p> <ul style="list-style-type: none"> <li><b>Grammy Awards:</b> Won his first Grammy in 2009 &amp; made history at the 66th Annual Grammy Awards, becoming first Indian musician to win three Grammys.</li> <li><b>Indian Honours:</b> Padma Shri (1988), Padma Bhushan (2002), Padma Vibhushan (2023), Sangeet Natak Akademi Award and Sangeet Natak Akademi Fellowship.</li> </ul> <p>Prelims Magnum Art and Culture</p> | <p>ing to irreversible scarring (fibrosis).</p> <ul style="list-style-type: none"> <li>The term "Idiopathic" means that the cause of the condition is unknown.</li> <li><b>Symptoms:</b> Common symptoms include shortness of breath (dyspnea), a persistent dry cough, fatigue, and weight loss. Over time, oxygen levels in the blood may drop, leading to complications such as pulmonary hypertension and respiratory failure.</li> <li><b>Risk Factors:</b> Ageing, particularly in individuals over 50 years old. Smoking, a family history of the condition, and prolonged exposure to dust or certain chemicals can also increase the risk.</li> <li><b>Treatment:</b> While there is no cure for IPF, treatments can help manage symptoms and slow disease progression. These may include pulmonary rehabilitation, supplemental oxygen, and medications like pirfenidone or nintedanib. In severe cases, lung transplantation may be considered.</li> </ul> <p><b>2.7. (A&amp;C) Vattezhuthu Script</b></p> <ul style="list-style-type: none"> <li>ASI undertakes epigraphic documentation at Tirupur Thalishwarar temple by using Estampage technique. Among the eight inscriptions identified, one was in Vattezhuthu script.</li> <li>❖ <b>Estampage:</b> Application of ink to the relief surfaces of an inscription, followed by the imposition of damp paper to produce a precise negative impression.</li> <li>Vattezhuthu script was prevalent in South India from 5th to 12th century AD and was developed from the Tamil-Brahmi script.</li> <li>Vatteluttu means either "rounded", "northern", or "chiseled" script. Preliminary analysis finds that the temple was built by a Chera ruler.</li> </ul> <p><b>Chera kingdom (4th century BC - 12th century AD)</b></p> <ul style="list-style-type: none"> <li>Cheras, along with Cholas and Pandyas, formed the three powerful dynasties of the Sangam era.</li> <li>Referred to as Kedalaputo (Kerala Putra) in Emperor Ashoka's Pillar edicts.</li> <li><b>Territorial expansion:</b> Western coast of South India (Kerala and Tamil Nadu).</li> </ul> <p>Miscellaneous Topics – 8</p> | <p><b>(IC – Judiciary) Judicial Appointments in India **</b></p> <p>❖ <b>Context (IE ITP ID):</b> Huge cash discovery at Justice Varma's residence has reignited debate on judicial appointments &amp; SC's 2015 decision to strike down National Judicial Appointments Commission (NJAC).</p> <p><b>Constitutional Provisions for Judicial Appointments</b></p> <ul style="list-style-type: none"> <li><b>Article 124:</b> Establishes the Supreme Court and outlines the appointment process for judges.</li> <li><b>Article 124(2):</b> Judges are appointed by the President in consultation with the Chief Justice of India (CJI) and other judges as necessary.</li> <li><b>Article 217:</b> Governs the appointment of High Court judges by the President in consultation with the CJI, Governor of the state, and Chief Justice of the concerned High Court.</li> </ul> <p><b>Evolution of Judicial Appointment Process</b></p> <ul style="list-style-type: none"> <li><b>Article 50 of the Constitution:</b> Mandates the separation of the judiciary from the executive under Directive Principles of State Policy (DPSP).</li> <li><b>Early Years (1950s-1970s):</b> Executive dominance in judicial appointments, with the President acting on ministerial advice.</li> <li><b>1970s Political Influence:</b> Indira Gandhi's govt superseded senior judges, raising concerns about judicial independence.</li> </ul> <p><b>Collegium System</b></p> <ul style="list-style-type: none"> <li>It is the system by which judges are appointed and transferred by other judges.</li> </ul> <p><b>Composition</b></p> <ul style="list-style-type: none"> <li><b>Supreme Court Collegium:</b> CJI + four senior-most Supreme Court judges.</li> <li><b>High Court Collegium:</b> Chief Justice of the High Court + two senior-most High Court judges.</li> </ul> <p><b>Process</b></p> <ul style="list-style-type: none"> <li>Collegium recommends appointments and transfers.</li> <li>The names for appointments by the HC collegium reach the government only after CJI and SC collegium approval. The government can return the name for reconsideration.</li> </ul> <p>Prelims Magnum 2025 – Q1 102</p> |
|---|--|--|

## 36) Consider the following statements:

**With reference to the Constitution of India, if an area in a State is declared as Scheduled Area under the Fifth Schedule**

- The State Government loses its executive power in such an area and the local body assumes total administration
- The Union Government can take over the total administration of such areas under certain circumstances on the recommendations of the Governor

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

- I only
- II only
- Both I and II
- Neither I nor II

**Answer: (d): Neither I nor II**

## Explanation

- I is incorrect.** Fifth Schedule, Article 244(1) mentions that "Subject to the provisions of this Schedule, the executive power of a State extends to the Scheduled Areas therein." It is not "completely" taken over by Tribal Advisory Councils.
- II is incorrect.** There is no such provision.

**Covered in the PMF IAS CA? Yes, Completely Covered** (<https://www.pmfias.com/current-affairs-november-18-2023/#gs2-polity-ic-5th-schedule-scheduled-areas>)

- The **President**, in **consultation** with the **Governor**, **can**

1. **Increase/decrease its area**,
2. **Alter its boundary**,
3. **Rescind such designation** or
4. **Make fresh orders for such redesignation**.

### Applicability of laws to Scheduled Areas (SA)

- The **executive power of the States** belongs to the Scheduled Areas (SA).
- However, the **Governor** can direct that a particular **act of Parliament/State legislature does not apply** to the **Scheduled areas** or **apply with modifications**.
- The **Governor can make regulations** for an SA's peace and **good government** after consulting with the **Tribes Advisory Council**. Such modified regulations **require the assent of the President**.
- The regulations can:
  1. **Prohibit/restrict** transfer of land by/among members of the STs,
  2. **Regulate allotment** of land to members of STs.
  3. **Regulate the business of money lending** in relation to STs.
- The **Governor** submits a report to the **President** regarding the administration of such areas.

### 37) With reference to India, consider the following pairs:

| Organisation                                   | Union Ministry                                  |
|--|---|
| I. The National Automotive Board               | Ministry of Commerce and Industry               |
| II. The Coir Board                             | Ministry of Heavy industries                    |
| III. The National Centre for Trade Information | Ministry of Micro, Small and Medium Enterprises |

**How many of the above pairs are correctly matched?**

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

**Answer: (d) None**

### Explanation

- **I is incorrect:** National Automotive Board (NAB) is an autonomous society under Department of Heavy Industry, Ministry of Heavy Industry & Public Enterprises.
- **II is incorrect:** Coir board functions under the Ministry of Micro, Small and Medium Enterprises.
- **III is incorrect:** Ministry of Commerce and Industry has set up the National Centre for Trade Information (NCTI).

**Covered in the PMF IAS CA? No**

### 38) Consider the following subjects under the Constitution of India:

- I. List I-Union List, in the Seventh Schedule
- II. Extent of the executive power of a State
- III. Conditions of the Governor's office

***For a constitutional amendment with respect to which of the above, ratification by the Legislatures of not less than one-half of the States is required before presenting the bill to the President of India for assent?***

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

**Answer: (a): I and II only**

### Explanation

- Article 368(2) provides for the conditions where such ratification is required:
  - a) article 54, article 55, article 73, article 162, article 241 or article 279A; or
  - b) Chapter IV of Part V, Chapter V of Part VI, or Chapter I of Part XI; or
  - c) any of the Lists in the Seventh Schedule; or
  - d) the representation of States in Parliament; or
  - e) the provisions of this article

Where:

1. Article 54 and 55 are related to the **Election of President**.
2. Article 73 is related to the Extent of **executive power of the Union**.
3. Article 162 addresses the **executive power of a state**.
4. Article 241 is related to **High Courts** for Union territories

5. Article 279A of the Constitution of India establishes the Goods and Services Tax Council (**GST Council**).
  6. Chapter IV of Part V of the Constitution of India, titled "**The Union Judiciary**," primarily deals with the Supreme Court.
  7. Chapter V of Part VI of the Indian Constitution deals with "**The High Courts in the States**."
  8. Chapter I of Part XI in the Constitution of India, titled "**Legislative Relations**," focuses on the distribution of legislative powers between the Union (Central Government) and the States. It outlines the territorial extent of laws made by both the Parliament and the State Legislatures, and the subject matter of laws that each can enact.
- **I is correct:** Amendment to "Any of the list in the seventh schedule" requires such ratification by half of the states.
  - **II is correct:** Amendment to extent of executive power of State will impact the federal nature, hence the ratification will be needed.
  - **III is incorrect.** No such mention.

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Polity Test 07)***



**48) Which of the following are matters on which constitutional amendment is possible only with the ratification of the legislature of not less than one-half of the states?**

1. Goods and Services Tax Council
2. Supreme Court and high courts
3. Lists in the 7th Schedule
4. Abolition of the Legislature Council in a State

**How many of the options given above are correct?**

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

#### **Explanation**

**Options 1, 2 and 3 are correct**

- Those provisions of the Constitution which are related to the **federal structure** of the polity can be amended by a **special majority of the Parliament** and also with the consent of **half of the state legislatures** by a **simple majority**.
- If one or some or all the remaining states take no action on the bill, it does not matter; the **moment half of the states give their consent**, the formality is completed.
- There is **no time limit** within which the **states should give their consent** to the bill.
- The following provisions can be amended in this way:
  - ❖ **Election of the President and its manner.**
  - ❖ **Extent of the executive power of the Union and the states.**
  - ❖ **Supreme Court and high courts.**
  - ❖ **Distribution of legislative powers between the Union and the states.**
  - ❖ **Goods and Services Tax Council**
  - ❖ **Any of the lists in the Seventh Schedule.**
  - ❖ **Representation of states in Parliament.**
  - ❖ **Power of Parliament to amend the Constitution and its procedure (Article 368 itself).**

### **39) With reference to the Indian polity, consider the following statements:**

- I. The Governor of a State is not answerable to any court for the exercise and performance of the powers and duties of his/her office.
- II. No criminal proceedings shall be instituted or continued against the Governor during his/her term of office.
- III. Members of a State Legislature are not liable to any court proceedings in any court in respect of anything said or any vote given by them in the House.

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

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

**Answer: (d): I, II and III**

## Explanation

- **I is correct:** Article 361: The President, or the Governor or Rajpramukh of a State, shall not be answerable to any court for the exercise and performance of the powers and duties of his office or for any act done or purporting to be done by him in the exercise and performance of those powers and duties
- **II is correct:** Article 361 (2): No criminal proceedings whatsoever shall be instituted or continued against the President, or the Governor of a State, in any court during his term of office.
- **III is correct:** Article 194(2): No member of the Legislature of a State shall be liable to any proceedings in any court in respect of anything said or any vote given by him in the Legislature or any committee thereof, and no person shall be so liable in respect of the publication by or under the authority of a House of such a Legislature of any report, paper, votes or proceedings.

**Covered in PMF IAS Prelims Magnum? Yes, Completely Covered.**

### Can a Governor, in practice, actually sit on a Bill forever?

- Governor must return the Bill “as soon as possible” but **does not prescribe a specific timeframe**.
  - ❖ Thus, Ambiguity by sitting on bills indefinitely without returning them to the state legislature.

### SC's Viewpoint

- **Nabam Rebia & Bamang Felix vs Deputy Speaker:** The Governor **cannot withhold assent** to a Bill indefinitely but must return it to the Assembly with recommendations.

### 9.29. (Governor) Governor's Immunity

- The **Constitutional immunity** bars naming the Governor as an accused or even investigating the case.

### Article 361 of the IC

- Deals with immunity for the **President & Governors**, it states-
  - Shall **not be answerable to any court** for the exercise & performance of the powers & duties of their office or for any act done by them in the exercise & performance of those powers & duties.
- **Two sub-clauses:**
  1. **No criminal proceedings during the term of their office.**
  2. **No process for the arrest or imprisonment during their term of office.**

### Discretionary powers of the governor

- **Article 167:** Can seek information from the CM about state administrative & legislative matters.
- **Article 200:** Can reserve a Bill for the **President's consideration**.
- **Article 356:** Can recommend imposing **President's rule** on the **failure of constitutional machinery**.
- **Not bound** to act on the aid & advice of CM & CoM if administering a neighbouring UT.
- **Can appoint a chief minister** if **no party has a clear-cut majority**.

### Immunity to the office of the Governor

- **Personal immunity** for his **official acts**. Immune from any criminal proceedings, even for his acts.
- **Cannot be arrested** or imprisoned. **Two months' notice** for civil proceedings.

### SC on improving the Governor's office

- ✓ **BP. Singhal v. Union of India:** President can remove a Governor without giving reason & without opportunity but **can be challenged in a court of law**.
- ✓ **SR Bommai case (1994):** Majority test only on house floor, **not on Governor's subjective view**.
- ✓ **Rameshwar Prasad Case, 2006:** No subjective assessments by Governor **amenable to judicial review** for dissolution of assembly.
- ✓ **Nabam Rebia vs. Deputy Speaker (2016):** Discretionary powers of Governor are **always subject** to Constitutional standards & **was not extended** to the powers under **Article 174**. **Can not summon** the

nance Act (ESMA), the National Security Act (NSA), or any such act.

### Right to Prohibit the Publication of Proceedings

- **Article 105(2)** of the IC states that no person shall be held liable for publishing any reports, discussions, etc., of the house under the authority of the member of the house.

### Right to Exclude Strangers

- The members of the house have the power & right to exclude strangers who are not members of the house from the proceedings.

### Classification of Parliamentary Privileges

- **Individual Privileges:** This refers to the rights & immunities enjoyed by MPs & MLAs to enable them to perform their duties without fear of interference or prosecution.
- **Collective Privileges:** This refers to the rights & immunities that are enjoyed by both Houses of the Indian Parliament & State Legislature as a whole, as well as their members & officers.

### Articles 105(2) & 194(2) of the IC

#### Article 105(2)

- **No member of Parliament** shall be liable to any proceedings in any court in respect of anything said or any vote given by them in Parliament or any committee thereof, &
- **No person** shall be so liable in respect of the publication by or under the authority of either House of Parliament of any report, paper, vote or proceedings.
- The purpose of Article 105(2) is to ensure that members of Parliament can perform their duties without fear of consequences.

#### Article 194(2)

- **No member of the Legislature** of a State shall be liable to any proceedings in any court in respect of anything said or any vote given by him in the Legislature or any committee thereof.

privilege but are offences against their authority & dignity.

### Instances of Privilege Notices

- **Indira Gandhi's Expulsion (1978):** Indira Gandhi was expelled from the Lok Sabha for obstructing government officials from collecting information for a question on Maruti.
- **Subramanian Swamy's Expulsion (1976):** Subramanian Swamy faced expulsion from the Rajya Sabha for engaging in interviews perceived as "anti-India propaganda."
- **Cash for Query Scandal (2005):** Eleven "tainted" MPs involved in the cash for query scandal were expelled from the Lok Sabha.

### Role of the Speaker/Rajya Sabha Chair

- **Scrutiny:** The Speaker/RS Chairperson is the first level of scrutiny for a privilege motion.
- **Decision Making:** Decides on the privilege motion themselves or refers to Privileges Committee.
- **Opportunity to Speak:** If consent is given under Rule 222, the member involved is given an opportunity to make a brief statement.

### Privileges Committee

- A **Standing Committee** examines the cases of breach of the privileges of the House & its members & recommends appropriate action.
- Lok Sabha: 15 members (Speaker nominates), Rajya Sabha: 10 members, as per party strengths.
- Headed by: LS-Speaker, RS-deputy chairperson.
- The Speaker/Chairman may permit a half-hour debate while considering the report.
- A breach of privilege resolution may then be moved has to be unanimously passed.

### 9.5. {Parliament} Cabinet Committee

- **Cabinet committees** are formed by the Prime Minister, consisting of selected cabinet members.
- Each committee has 3-8 members. May occasionally include non-cabinet ministers or special invitees.
- PM can adjust the number of committees & their assigned functions.

**Covered in the PMF IAS CA? Yes, Completely Covered**

<https://www.pmfias.com/reforms-in-the-office-of-governor/#immunity-to-the-office-of-the-governor>, <https://www.pmfias.com/no-immunity-for-legislators-taking-bribe-for-vote-speech/>

## Immunity to the office of the Governor

- He enjoys **personal immunity** from legal liability for his **official acts**.
- During his term of office, he is **immune from any criminal proceedings**, **even** for his **acts**.
- He **cannot be arrested** or imprisoned.
- However, after giving **two months' notice**, **civil proceedings** can be instituted against him **during** his **term of office** in respect of his acts.

## Article 194(2)

- **No member of the Legislature** of a State shall be liable to **any proceedings in any court** in respect of anything said or any vote given by him in the Legislature or any committee thereof.
- No person shall be so liable in respect of the **publication** by or under the authority of a House of such a Legislature of any **report, paper, votes** or **proceedings**.

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test Polity 09, Sectional Test Polity 10)**

**95) Concerning the privileges of the State Legislature, consider the following statements:**

1. The privileges of the state legislature do not apply to the Governor, despite the governor being an integral part of the State Legislature.
2. Members of the State Legislature cannot be arrested during the session or within 40 days before its commencement and 40 days after its conclusion, in any case.

**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

**Statement 2 is incorrect**

- The privileges belonging to the members individually are: They cannot be arrested during the session of the state legislature and **40 days before** the beginning and **40 days after** the end of such session.
- This privilege is **available only in civil cases** and **not in criminal cases** or **preventive detention cases**.
- They have **freedom of speech** in the state legislature. **No member is liable** to any proceedings in any court for anything said or any vote given by him in the state legislature or its committees.
- This freedom is subject to the provisions of the Constitution and to the rules and standing orders regulating the procedure of the state legislature.
- They are **exempt from jury service**. They can **refuse to give evidence** and **appear as a witness** in a case pending in court when the state legislature is in session.

**Answer: (a) 1 only | Difficulty Level: Hard**



**22) In context of the suits against public officials, consider the following statements:**

1. The President cannot be sued for any act done by him in the exercise of his official duties after his term.
2. The official conduct of the president can be reviewed by a court to investigate charges for impeachment.
3. No criminal proceedings can be started against the Governors in respect of his personal acts during his term of office or thereafter.

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

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

**Explanation**

**Statements 1 and 2 are correct**

- The **president** and the **governors cannot** be sued **during the term of their office** or **thereafter**, for any act done by them in the exercise and **performance of their official powers** and duties.
- However, the **official conduct** of the president **can be reviewed** by a court, tribunal or any other body authorised by either House of **Parliament** to **investigate charges for impeachment**.
- The aggrieved person can bring appropriate proceedings against the Union of India instead of the president and the state instead of the Governor of that state.

**Statement 3 is incorrect**

- **No criminal proceedings** can be started against the **president** and the **governors** in respect of their personal acts nor can they be arrested or imprisoned.
- This immunity is **limited to the period of the term of their office** only and does **not extend beyond that**.
- However, **civil proceedings can be started** against them **during their term of office** in respect of their personal acts **after giving two months' advance notice**.

**Answer: (b) Only two | Difficulty Level: Medium**

**40) Consider the following activities:**

- I. Production of crude oil
- II. Refining, storage and distribution of petroleum
- III. Marketing and sale of petroleum products
- IV. Production of natural gas

**How many of the above activities are regulated by the Petroleum and Natural Gas Regulatory Board in our country?**

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

**Answer: (b): Only two**

### **Explanation**

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- The Petroleum and Natural Gas Regulatory Board (PNGRB) was established under the Petroleum and Natural Gas Regulatory Board Act, 2006.
  - I. Production of crude oil not regulated by PNGRB. This is an upstream activity, which comes under the Ministry of Petroleum and Natural Gas (MoPNG) and not under the PNGRB's regulatory scope.
  - II. Refining, storage and distribution of petroleum is regulated by PNGRB. Storage and distribution (especially via pipelines and terminals) are regulated by PNGRB, particularly when it involves access and fair pricing.
  - III. Marketing and sale of petroleum products regulated by PNGRB. PNGRB regulates the marketing and retail network (especially for natural gas and petroleum products) to ensure competition and fair practices.
  - IV. Production of natural gas not regulated by PNGRB. Production of natural gas is an upstream activity and regulated by the Directorate General of Hydrocarbons (DGH) under MoPNG, not by PNGRB.

**Covered in the PMF IAS CA? No**

### **41) Consider the following statements:**

- I. Panchayats at the intermediate level exist in all States.
- II. To be eligible to be a Member of a Panchayat at the intermediate level, a person should attain the age of thirty years.
- III. The Chief Minister of a State constitutes a commission to review the financial position of Panchayats at the intermediate levels and to make recommendations regarding the distribution of net proceeds of the taxes and duties, leviable by the State, between the State and Panchayats at the intermediate level.

**Which of the statements given above are not correct?**



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

**Answer: (d): I, II and III**

## Explanation

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- **Statement I is Incorrect.** According to the 73rd Constitutional Amendment Act, Panchayats at the intermediate level (also called the block level) are to be constituted only in those States where the population exceeds 20 lakhs. Hence, not all States have Panchayats at the intermediate level.
- **Statement II is Incorrect.** As per this article, any person who is qualified to become an MLA is qualified to become a member of the Panchayat, but for Panchayat the minimum age prescribed is 21 years.
- **Statement III is Incorrect.** The Constitution empowers the Governor of the State to constitute a Finance Commission to review finances of Panchayats and Municipalities, not the Chief Minister. The State Finance Commission is appointed every five years by the Governor, as per Article 243-I and 243-Y.

***Covered in the PMF IAS Test Series? Yes, Partially Covered (Comprehensive 01 and Sectional Test Polity 10)***

**95) Consider the following provisions:**

1. Organisation of Gram Sabha in a village or group of villages.
2. Reservation of seats (both members and chairpersons) for Scheduled Castes (SCs) and Scheduled Tribes (STs) in panchayats at all three levels.
3. Reservation of one-third of the seats (both members and chairpersons) for women in panchayats at all three levels.

***How many of the above provisions are voluntary provisions of the 73rd Constitutional Amendment Act (1992)?***

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

6. **21 years** to be the minimum age for contesting elections to panchayats.

7. **Reservation of seats** (both members and chairpersons) for **SCs** and **STs** in panchayats at all the three levels.
8. **Reservation** of **one-third seats** (both members and chairpersons) for women in panchayats at all the three levels.
9. **Fixing tenure of five years** for panchayats at all levels and holding fresh elections within six months in the event of supersession of any panchayat.
10. Establishment of a **State Election Commission** for conducting elections to the panchayats.
11. Constitution of a **State Finance Commission** after every five years to review the financial position of

**84) Consider the following pairs about the Governors powers:**

| Powers                           | Related to        |
|----------------------------------|-------------------|
| 1. Summoning of sessions         | Executive power   |
| 2. Appointment of chief minister | Legislative power |
| 3. Promulgate ordinances         | Judicial power    |

**How many of the pairs given above are correct?**

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

- ❖ He/ she can **grant pardons, reprieves, respites and remissions** of punishment or suspend, remit and commute the sentence of any person convicted of any offence against any law relating to a matter to which the executive power of the state extends.
- ❖ He / she is **consulted by the President** while appointing the **judges** of the **concerned state high court**.
- ❖ He/ she makes appointments, postings and promotions of the district judges in consultation with the state high court.
- ❖ He/ she also appoints persons to the judicial service of the state (other than district judges) in consultation with the state high court and the State Public Service Commission.
- **Financial Powers**
  - ❖ He/ she sees that the **Annual Financial Statement (state budget)** is laid before the state legislature.
  - ❖ **Money bills** can be introduced in the state legislature **only with his/ her prior recommendation**.
  - ❖ **No demand for a grant** can be made except on his/her recommendation.
  - ❖ He/she can make advances out of the **Contingency Fund of the state** to meet any unforeseen expenditure.
  - ❖ He/ she constitutes a **finance commission** after **every five years** to review the financial position of the **panchayats** and the municipalities.

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

### 9.31. {Local Bodies} State Finance Commission

- **Constitutional Basis:** The SFC was established under the 73rd & 74th Constitutional Amendments in **1992** which aimed to strengthen **local self-governance** in India by providing constitutional status to panchayati raj institutions & municipalities.
- **Appointment:** The **Governor** of each state is responsible for appointing the **State Finance Commission every five years**, as mandated by **Article 243-I** of the Constitution.
- **Responsibilities:** Financial Assessment, Resource Allocation, Grants & Aid, Disaster Management, Policy Recommendations.

tures & Local Government

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#### 42) Consider the following statements in respect of BIMSTEC:

- I. It is a regional organization consisting of seven member States till January 2025.
- II. It came into existence with the signing of the Dhaka Declaration, 1999.
- III. Bangladesh, India, Sri Lanka, Thailand and Nepal are founding member States of BIMSTEC.
- IV. In BIMSTEC, the subsector of 'tourism' is being led by India.

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

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

**Answer: (d): I only**

#### Explanation

- Statement I is Correct and Statement III is Incorrect.

- ❖ Initially known as BIST-EC (Bangladesh-India-Sri Lanka-Thailand Economic Cooperation), the organisation is now known as BIMSTEC and comprises seven Member States with the admission of Myanmar on 22 December 1997, and Bhutan and Nepal in February 2004.
- ❖ On 06 June 1997, representatives of the Governments of Bangladesh, India, Sri Lanka, and Thailand came together in Bangkok, and signed the 'Declaration on the Establishment of the Bangladesh-India-Sri Lanka-Thailand Economic Cooperation (BIST-EC)'.
- **Statement II is incorrect**
  - ❖ The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIM-STEC) is a regional organization that was established on 06 June 1997 with the signing of the Bangkok Declaration.
- **Statement IV is incorrect**
  - ❖ India has Counter-Terrorism and Transnational Crime, Disaster Management, Energy sub-sectors. Tourism is sub sector of Nepal.

***Covered in the PMF IAS CA and Daily PPQs? Yes, Completely Covered***

<https://www.pmfias.com/bimstec/#about-bimstec>

<https://www.pmfias.com/ppqs-july-13-2024-prelims/#q2-ir-grouping-consider-the-following-statements-about-the-bay-of-bengal-initiative-for-multi-sectoral-technical-and-economic-cooperation-bimstec>

## About BIMSTEC

- **Established:** In **1997**, through the **Bangkok Declaration** to promote regional cooperation.
- **Geographic Focus:** Connects **South** and **Southeast Asian** nations around the Bay of Bengal.
- **Members:** 7 countries – Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand.
- **Founding Members:** Bangladesh, India, Sri Lanka, and Thailand.
- **Core Objective:** Foster economic cooperation, social progress, and collaboration in science, technology, and development across the region.



**Q2. {IR - Grouping} Consider the following statements about the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC):**

1. BIMSTEC was established in 1997 through the signing of the Bangkok Declaration.
2. BIMSTEC Permanent Secretariat is located in Colombo, Sri Lanka.
3. India is BIMSTEC's pillar for security, which includes areas of Counter Terrorism and Transnational Crime, Disaster Management, and Energy.

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

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

**Incorrect**

**Explanation**

- Recently, the second BIMSTEC Foreign Ministers' Retreat was held in New Delhi.

**Statement 1 is correct**








- It has a total of **seven member** countries- **five from South Asia**, including Bangladesh, Bhutan, India, Nepal, and Sri Lanka, and **two from Southeast Asia**, including Myanmar and Thailand.
- It was founded as BIST-EC, in June 1997, with the adoption of the **Bangkok Declaration**, with Bangladesh, India, Sri Lanka and Thailand as members.
- It became BIMST-EC (Bangladesh, India, Myanmar, Sri Lanka and Thailand Economic Cooperation) with the entry of Myanmar in late 1997, And eventually, it was named in its current form, when Nepal and Bhutan became members in 2004.

**Statement 2 is incorrect**

- The permanent secretariat is in **Dhaka**, Bangladesh.

**Statement 3 is correct**

- In line with the organization's development into a formal structure, the leaders of the member countries have divided the group's work into **seven segments**, with **India leading the security pillar**.

|  |   |   |  |
|--|---|---|--|
| <br>Bangladesh<br>Trade, Investment and Development<br>Sub-sectors: Blue Economy  | <br>Bhutan<br>Environment & Climate Change<br>Sub-sectors: Mountain Economy                                      | <br>India<br>Security<br>Sub-sectors: Counter-Terrorism and Transnational Crime, Disaster Management, Energy | <br>Myanmar<br>Agriculture and Food Security<br>Sub-sectors: Agriculture, Fisheries & Livestock |
| <br>Nepal<br>People-to-People Contact<br>Sub-sectors: Culture, Tourism, Poverty Alleviation, People-to-People Contact (forums of think tanks, media etc.) | <br>Sri Lanka<br>Science, Technology & Innovation<br>Sub-sectors: Technology, Health, Human Resource Development | <br>Thailand<br>Connectivity   |  |

### Q3. {IR – Groupings} Consider the following pairs:

| Priority sectors for BIMSTEC Cooperation | Lead Country |
|--|--------------|
| ◦ Trade, Investment and Development      | Bangladesh   |
| ◦ People-to-People Contact               | India        |
| ◦ Connectivity                           | Thailand     |

***How many of the pairs are not correct?***

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

***Pair 2 is incorrect, other pairs are correct***

| Priority sectors for BIMSTEC Cooperation | Lead Country |
|--|--------------|
| ◦ Trade, Investment and Development      | Bangladesh   |
| ◦ People-to-People Contact               | Nepal        |
| ◦ Connectivity                           | Thailand     |

- The **7 priority sectors for BIMSTEC cooperation** (as identified in the virtual BIMSTEC Colombo summit on 30 March 2022) are:
  1. Trade, Investment and Development – Bangladesh
  2. Environment and Climate Change – Bhutan
  3. Security and Energy – **India**
  4. Agriculture and Food Security – Myanmar
  5. People-to-people Contact – Nepal
  6. Science, Technology and Innovation – Sri Lanka
  7. Connectivity – Thailand

**43) Who amongst the following are members of the Jury to select the recipient of the 'Gandhi Peace Prize'?**

- I. The President of India
- II. The Prime Minister of India
- III. The Chief Justice of India
- IV. The Leader of Opposition in the Lok Sabha

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

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

**Answer: (c): II, III and IV**

**Explanation**

- Composition of the Jury for Gandhi Peace Prize:
- The jury consists of five members:
  - 1. Prime Minister of India
  - 2. Chief Justice of India
  - 3. Leader of Opposition in the Lok Sabha
  - 4. Two eminent person nominated by the Prime Minister
- Therefore, members from the given options are: II, III, and IV

**Covered in PMF IAS? No**

**44) GPS-Aided Geo Augmented Navigation (GAGAN) uses a system of ground stations to provide necessary augmentation. Which of the following statements is/are correct in respect of GAGAN?**

- I. It is designed to provide additional accuracy and integrity.
- II. It will allow more uniform and high quality air traffic management.
- III. It will provide benefits only in aviation but not in other modes of transportation.

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

- a) I, II and III
- b) II and III only

- c) I only
- d) I and II only

**Answer: (d): I and II only**

### Explanation

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- It is designed to provide additional accuracy and integrity. – Correct
- GAGAN enhances GPS signals' accuracy, integrity, and availability, crucial for safe aircraft navigation.
- It will allow more uniform and high-quality air traffic management. – Correct
- GAGAN improves air traffic navigation across India and adjacent regions, helping in seamless and safe aircraft operations with reduced separation between flights and better fuel efficiency.
- It will provide benefits only in aviation but not in other modes of transportation. - Incorrect.
- While GAGAN is primarily designed for aviation, its applications extend to other sectors like railways, maritime, road transport, and surveying, due to improved positional accuracy.

**Covered in PMF IAS? No**

### 45) Consider the following statements regarding AI Action Summit held in Grand Palais, Paris in February 2025:

- I. Co-chaired with India, the event builds on the advances made at the Bletchley Park Summit held in 2023 and the Seoul Summit held in 2024.
- II. Along with other countries, US and UK also signed the declaration on inclusive and sustainable AI.

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

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

**Answer: (a): I only**

### Explanation

---

- Co-chaired with India, the event builds on the advances made at the Bletchley Park Summit held in 2023 and the Seoul Summit held in 2024. – **Correct**

- India did co-chair the Paris 2025 summit, and it explicitly built upon outcomes of the Bletchley Park (2023) and Seoul (2024) summits.
- Along with other countries, US and UK also signed the declaration on inclusive and sustainable AI. – **Incorrect**
- India and 57 others, excluding the UK and US, signed the Paris joint declaration on inclusive and sustainable AI.

**Covered in PMF IAS? Yes, Completely Covered**

<https://www.pmfias.com/indias-leadership-in-global-ai-governance/>

- The **third edition** of the **AI Action Summit** has commenced in **Paris**, with Indian **Prime Minister Narendra Modi** co-chairing the event alongside **French President Emmanuel Macron**. This summit marks a significant step in global AI governance, especially in light of emerging competition from China's DeepSeek model.

### Paris AI Action Summit 2025: Key Objectives

- Building on the foundations of the **Bletchley** and **Seoul Summits**, the **Paris AI Summit 2025** aims to shape the future of artificial intelligence through **three core objectives**:
  1. **Democratising AI Access**: ensuring that AI remains safe, reliable, and independent and accessible to a wide range of users across industries and regions.
  2. **Sustainable AI Development**: Promoting AI models that are environmentally responsible, optimising energy efficiency while reducing carbon footprints.
  3. **Inclusive AI Governance**: Establishing a global regulatory framework that ensures fair participation from all nations, balancing innovation with ethical responsibility.
- The summit will focus on **five key themes**: **Public Service AI** (governance, healthcare, education), **Future of Work** (AI's impact on jobs and skills), **Innovation & Culture** (research and ethical AI use), **Trust in AI** (biases and misinformation), and **Global AI Governance** (international AI regulations).

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

- **ITER Project:** International Thermonuclear Experimental Reactor (ITER) in **France** is a collaborative effort involving over 30 countries.
- It is expected to **begin deuterium-tritium fusion reactions by 2039**, providing a pathway for future electricity generation through fusion.

#### Private Sector Involvement

- Companies like **Helion** and **Commonwealth Fusion Systems** are pursuing commercial fusion energy, with ambitious timelines to generate electricity by the late 2020s to early 2030s.

#### (Nuclear) India's Role in ITER

- ❖ **Indian PM**, during his France visit for the AI summit, became the **first Head of Government** to tour the ITER facility, reaffirming India's commitment to fusion energy research.

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with AI, ML, and IoT.

#### 1.11. {AI} First International AI Treaty

- ❖ The **US, EU**, and the **UK** are set to sign the **first legally binding** international treaty on AI. The treaty is officially known as the Council of Europe's Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law.
- **Prioritises human rights** in regulating AI systems.
- Adopts a **risk-based approach** to designing, developing, using, and decommissioning AI systems.

#### Bletchley Park

- ❖ The world's **first global summit** on artificial intelligence (**AI**) will occur here in 2023.
- ❖ Located north of **London**, it is considered by many to be the **birthplace of modern computing**.
- ❖ When **World War II** broke out in 1939, many **British agencies** and institutions, such as Britain's Government Code and Cypher School (GC&CS), were **moved here** to avoid German bombing.

ntelligence

Prelims Magnum 2025

#### Paris AI Action Summit 2025

- **Indian PM co-chaired** the **third edition** of the AI Action Summit in Paris.
- Focused on sustainable AI growth, energy efficiency, and global climate alignment.
- **Covered five key themes:** Public service AI, Future of Work, Innovation and Culture, Trust in AI, and [Global AI Governance](#).

## 46) Consider the following pairs:

| Statement  | Year |
|--|------|
| I. International Year of the Woman Farmer                          | 2026 |
| II. International Year of Sustainable and Resilient Tourism        | 2027 |
| III. International Year of Peace and Trust                         | 2025 |
| IV. International Year of Asteroid Awareness and Planetary Defence | 2029 |

**How many of the pairs given above are correctly matched?**

- Only one
- Only two
- Only three
- All the four

**Answer: (d): All the four**

## Explanation

- All four pairs are correctly matched with their respective United Nations declarations.
  - ❖ The UN General Assembly has declared 2026 as the International Year of the Woman Farmer, following a resolution proposed by the United States and supported by the FAO.
  - ❖ The UN General Assembly proclaimed 2027 as the International Year of Sustainable and Resilient Tourism following a resolution proposed by Uzbekistan.
  - ❖ The UN General Assembly adopted Resolution A/RES/78/266, declaring 2025 as the International Year of Peace and Trust.



- ❖ In 2024, the General Assembly declared 2029 the International Year of Asteroid Awareness and Planetary Defence to raise global awareness about asteroids.

**Covered in the PMF IAS Test Series? Yes, Partially Covered (Comprehensive 09)**

**50) The United Nations has declared 2025 as the International Year of which of the following?**

1. Glaciers' Preservation
2. Peace and Trust
3. Quantum Science and Technology
4. Sustainable Urban Development
5. Cooperatives

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

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

**Explanation**

**Options 1, 2, 3 and 5 are correct**

- **The United Nations has declared 2025 as the International Year for the following themes:**
  - ❖ **Glaciers' Preservation** - To emphasize the importance of glaciers in regulating the climate and providing freshwater, which includes the World Day for Glaciers on March 21<sup>st</sup>.
  - ❖ **Peace and Trust** - To encourage global dialogue and conflict resolution.
  - ❖ **Quantum Science and Technology** - To mark the 100th anniversary of quantum mechanics.
  - ❖ **Cooperatives** - To highlight the role of cooperatives in sustainable development.
- The year does not focus on Sustainable Urban Development.

**Answer: (b) 1, 2, 3 and 5 | Difficulty Level: Medium**

Reference: [UN](#)

**47) Consider the following statements with regard to BRICS:**

- I. The 16<sup>th</sup> BRICS Summit was held under the chairmanship of Russia in Kazan.
- II. Indonesia has become a full member of BRICS.
- III. The theme of the 16th BRICS Summit was "Strengthening Multiculturalism for Just Global Development and Security."

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

- a) I and II

- b) II and III
- c) I and III only
- d) I only

**Answer: (a): I and II**

## Explanation

- **Statement 1 is correct:** The 16th BRICS Summit was held from October 22 to 24, 2024, in Kazan, Russia, under the chairmanship of President Vladimir Putin.
- **Statement 2 is correct:** 16th BRICS Summit marked the first gathering of the expanded BRICS bloc, following the admission of Egypt, Ethiopia, Iran, and the United Arab Emirates as full members on January 1, 2024. In January 2025, Indonesia joined the BRICS as a full member.
- **Statement 3 is not correct:** Theme of the summit was "Strengthening Multilateralism for Just Global Development and Security".

**Covered in the PMF IAS: Yes, Partially Covered**

<https://www.pmfias.com/current-affairs-january-09-2025/#gs2-ir-groupings-indonesias-full-membership-in-brics>

**Also partially covered in PMF IAS India Year Book**

**Covered in the PMF IAS Test Series? Yes, Partially Covered (CA TEST JAN 2025 and Comprehensive Test 09)**

### {GS2 - IR - Groupings} Indonesia's Full Membership in BRICS

- Context ([HT](#)): Brazil announced **Indonesia's** admission as a **full member** of [BRICS](#).

#### Evolution of BRICS

- **BRICS Formation:** Established in **2009** with **Brazil, Russia, India & China** as **founding members**.
- **South Africa's Entry:** **South Africa** joined the bloc in **2010**, expanding it to BRICS.
- **Recent Expansions:** In 2023, **Iran, Egypt, Ethiopia**, and the **UAE** joined the group, with **Saudi Arabia** invited but **not yet joined**.
- **Current Membership:** Brazil, Russia, India, China, South Africa, Iran, Egypt, Ethiopia, UAE, and Indonesia.

## BRICS

- It is an acronym for **Brazil, Russia, India, China, and South Africa**.
  - South Africa is the **current chair** of the BRICS grouping during the **15th BRICS Leaders Summit** held in South Africa in 2023.
  - **Argentina, Ethiopia, Egypt, Iran, Saudi Arabia**, and the **United Arab Emirates** were invited to become full members of BRICS from 2024.
- The **16th summit** was held in Russia.

## 48) Consider the following statements about Lokpal:

- I. The power of Lokpal applies to public servants of India, but not to the Indian public servants posted outside India.
- II. The Chairperson or a Member shall not be a Member of the Parliament or a Member of the Legislature of any State or Union Territory, and only the Chief Justice of India, whether incumbent or retired, has to be its Chairperson.
- III. The Chairperson or a Member shall not be a person of less than forty-five years of age on the date of assuming office as the Chairperson or Member, as the case may be.
- IV. Lokpal cannot inquire into the allegations of corruption against a sitting Prime Minister of India.

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

- a) III only
- b) II and III
- c) I and IV
- d) None of the above statements is Correct

**Answer: (a): III only**

## Explanation

- **Statement I is Incorrect.** The Lokpal has jurisdiction over all public servants, including those posted outside India. There is no exemption for Indian public servants serving abroad.
- **Statement II is Incorrect.** It is true that the Chairperson or a Member cannot be an MP or MLA. However, the Chairperson of the Lokpal need not be only the Chief Justice of India (CJI). As per the Act, the Chairperson can be: A former Chief Justice of India/ or A former Supreme Court judge, or/An eminent person with impeccable integrity and at least 25 years of experience in public affairs, law, management, etc.

- **Statement III is Correct.** This is true. The minimum age for appointment as Chairperson or Member of Lokpal is 45 years, as per Section 3(2) of the Act.
- **Statement IV is Incorrect.** The Lokpal can inquire into allegations of corruption against the sitting Prime Minister, subject to certain safeguards: The complaint must not relate to: International relations, External and internal security, Public order, and Atomic energy and space. Also, approval of the full bench of Lokpal is required before initiating an inquiry.

***Covered in the PMF IAS Test Series? Yes, Partially Covered (Sectional Test 10 Polity and CA Jan test 2025)***

***Covered in the PMF IAS CA? Yes, Partially Covered***

**<https://www.pmfias.com/current-affairs-january-19-20-2025/#gs2-polity-bodies-statutory-1st-foundation-day-of-lokpal>**

## Lokpal and Lokayuktas Act, 2013

### Structure of Lokpal

- The **Chairperson** is a former CJI or Supreme Court Judge, with **up to 8 members**, equally divided between judicial and underrepresented groups (SC/ST/OBC, minorities, and women).
- **Appointment:** Made by the President based on recommendations from a Selection Committee.

### Composition of the Lokpal Selection Committee

- **Prime Minister** as the Chairperson of the committee
- **Speaker of Lok Sabha**
- **Leader of Opposition (Lok Sabha)**
- **Chief Justice of India** or a Supreme Court Judge nominated by them
- **Eminent Jurist** recommended by the President of India

### Mandate, Powers and Functions

- **Legal Authority:** Investigates corruption allegations against public officials under the **Prevention of Corruption Act, 1988**.
- **Anti-Corruption Oversight:** Ensures expeditious inquiry and prosecution of corruption cases while promoting accountability in governance.
- **Accountability Mechanism:** Refers complaints against central government servants to the **Central Vigilance Commission (CVC)** and oversees the accountability of public servants.
- **Autonomy and Independence:** Lokpal functions autonomously, with its inquiry and prosecution wings for investigation and trial.
- **Investigation and Supervisory Role:** Supervises the CBI, authorises search and seizure operations, and prevents the destruction of records during inquiries, thus ensuring fair and unbiased investigations.
- **Civil Court Powers:** The **Inquiry Wing of the Lokpal** is vested with civil powers of the Court for summoning, requisitioning documents, and examining witnesses.
- **Asset Confiscation:** Confiscates assets and proceeds gained through corruption in special cases.
- **Administrative Actions:** Recommends transfer, suspension, or other actions against public servants linked to corruption allegations.
- **Reporting:** Submits an **annual report** to the **President**, tabled in both Houses of Parliament.

### Jurisdiction

**Coverage of Officials:** Includes the PM (with specific exceptions), Union Ministers, Members of Parliament, and Groups A, B, C, and D officials.

- **Exceptions for PM:** Lokpal **cannot** probe allegations against the **Prime Minister** about **international relations, security, atomic energy & space** unless a full bench agrees with a **2/3rd majority**.

## Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.

Undertakings (CoPU) in enforcing executive accountability on financial matters.

### (Bodies – Statutory) 1<sup>st</sup> Foundation Day of Lokpal

- ❖ India celebrated the 1<sup>st</sup> Foundation Day of the Lokpal, marking 11 years since its establishment under the Lokpal and Lokayuktas Act, 2013.
- ❖ Lokpal and Lokayukta perform the function and role of an “Ombudsman”.

### Historical Background

- The concept of ombudsman originated in 1809 in Sweden.
- In India, the former law minister Ashok Kumar Sen became the first Indian to propose the concept of a constitutional Ombudsman in Parliament in the early 1960s.
- Further, Dr. L. M. Singhvi coined the terms Lokpal and Lokayukta in 1963. Later, in 1966, the First Administrative Reforms Commission (1966) passed recommendations regarding the establishment of two independent authorities at the central and state levels.
- Lokpal and Lokayuktas Act, 2013: This act established statutory bodies to combat corruption in public offices. Lokpal was constituted on January 16, 2014, as a two-tier system, with Lokpal at the Union level and Lokayuktas at the State level.

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- The first Chairperson was appointed in 2019, Justice Pinaki Chandra Ghosh.

### Other Anti-Corruption Legislations

- Prevention of Corruption Act, 1988 (Amended in 2018): Criminalizes bribery and corruption.
- Whistleblowers Protection Act, 2014: Ensures protection for whistleblowers from threats.
- Right to Information Act, 2005: Promotes transparency in government operations.
- Prevention of Money Laundering Act 2002: Strengthens global cooperation against money laundering.
- Companies Act, 2013: Regulates corporate fraud and governance.
- Benami Transactions (BT) Act, 1988 (Amended 2016): Criminalizes BT to conceal ownership.
- Black Money Act, 2015: Targets undisclosed foreign income and assets with heavy penalties.
- Fugitive Economic Offenders Act, 2018: Confiscates assets of offenders fleeing abroad.

### Lokpal and Lokayuktas Act, 2013

#### Structure of Lokpal

- The Chairperson is a former CJI or Supreme Court Judge, with up to 8 members, equally divided between judicial and underrepresented groups (SC/ST/OBC, minorities, and women).
- Appointment: Made by the President based on recommendations from a Selection Committee.

#### Composition of the Lokpal Selection Committee

- Prime Minister as the Chairperson of the committee
- Speaker of Lok Sabha
- Leader of Opposition (Lok Sabha)
- Chief Justice of India or a Supreme Court Judge nominated by them
- Eminent Jurist recommended by the President of India

#### Mandate, Powers and Functions

- Legal Authority: Investigates corruption allegations against public officials under the Prevention of Corruption Act, 1988.
- Accountability Mechanism: Refers complaints against central government servants to the Central Vigilance Commission (CVC) and oversees the accountability of public servants.
- Autonomy and Independence: Lokpal functions autonomously, with its inquiry and prosecution wings for investigation and trial.
- Investigation and Supervisory Role: Supervises the CBI, authorises search and seizure operations, and prevents the destruction of records during inquiries, thus ensuring fair and unbiased investigations.
- Civil Court Powers: The Inquiry Wing of the Lokpal is vested with civil powers of the Court for summoning, requisitioning documents, and examining witnesses.
- Asset Confiscation: Confiscates assets and proceeds gained through corruption in special cases.
- Administrative Actions: Recommends transfer, suspension, or other actions against public servants.
- Reporting: Submits an annual report to the President, tabled in both Houses of Parliament.

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#### 49) Consider the following statements in respect of the first Kho Kho World Cup:

- I. The event was held in Delhi, India.
- II. Indian men beat Nepal with a score of 78-40 in the final to become the World Champion in men category.
- III. Indian women beat Nepal with a score of 54-36 in the final to become the World Champion in women category.

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

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

***Answer: (a): I only***

#### **Explanation**

- **Statement I is Correct.** The inaugural Kho-Kho World Cup took place from January 13 to 19, 2025, at the Indira Gandhi Indoor Stadium in New Delhi, India.
- **Statement II is Incorrect.** In the men's final, India defeated Nepal with a score of 54–36.
- **Statement III is Incorrect.** In the women's final, India triumphed over Nepal with a score of 78–40.

***Covered in the PMF IAS CA? Yes, Partially Covered***

<https://www.pmfias.com/current-affairs-january-22-2025/#prelims-sports-india-wins-inaugural-kho-kho-world-cup-2025>)

***Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.***

## {Sports} India Wins Inaugural Kho Kho World Cup 2025 \*

❖ India's women's & men's teams claimed the title in the **first-ever Kho Kho World Cup**, defeating Nepal.

### Kho Kho World Cup 2025 Tournament

- **Venue:** Indira Gandhi Indoor Stadium, **New Delhi, India**.
- **Organizers:** Kho Kho Federation of India and International Kho Kho Federation (IKKF).
- **Mascots:** **Tejas**, a **blue gazelle** for brilliance & energy; **Tara**, an **orange gazelle** for guidance & aspiration.



## 50) Consider the following statements:

- In the finals of the 45<sup>th</sup> Chess Olympiad held in 2024, Gukesh Dommaraju became the world's youngest winner after defeating the Russian player Ian Nepomniachtchi.
- Abhimanyu Mishra, an American chess player, holds the record of becoming world's youngest ever Grandmaster.

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

- I only
- II only
- Both I and II
- Neither I nor II

**Answer: (b): II only**

### Explanation

- **Statement I is Incorrect.** The 45th Chess Olympiad in 2024 was a team competition, not an individual event. India, led by Gukesh Dommaraju, won the team gold for the first time in its history. Gukesh also earned the individual gold medal on Board 1 with outstanding play. However, the claim that he defeated Ian Nepomniachtchi is incorrect—Gukesh became the youngest undisputed World Chess Champion by beating Ding Liren in the 2024 World Chess Championship, a separate event from the Olympiad.

- **Statement II is Correct.** Abhimanyu Mishra, a young chess prodigy from the United States, made history by becoming the youngest Grandmaster ever. He earned the title on June 30, 2021, at just 12 years, 4 months, and 25 days old—breaking the long-standing record previously held by Sergey Karjakin.

**Covered in the PMF IAS CA? Yes, Partially Covered**

<https://www.pmfias.com/current-affairs-december-13-2024/#prelims-in-news-youngest-world-chess-champion-dommaraju-gukesh>

<https://www.pmfias.com/current-affairs-for-upsc-civil-services-exam-september-26-2024/#prelims-in-news-chess-olympiad-2024>

### {Prelims – In News} Youngest world chess champion: Dommaraju Gukesh

- **Context (TH):** **D. Gukesh** became the **youngest world chess champion ever** after defeating **Ding Liren** of China at the **World Chess Championship (WCC) 2024** in Singapore.



Source: [NDTV](#)

- He broke the record held by the **Russian Garry Kasparov** for nearly four decades. Gukesh is the **only third Asian** to have won the WCC. **Viswanathan Anand**, now a mentor for Gukesh, was the **first**, and **Ding** the **second**. Gukesh is also the only **18th World champion** in history, dating back to 1886.
- This was the **first-ever** World Championship match contested by **two Asian countries**.

### World Chess Championship

- **Origin:** 1886. **Steinitz** became the **first world champion**, defeating Johannes Zukertort.
- In 1946, the International Chess Federation (FIDE) took over the administration of the WCC.

Also, refer to the [Chess Olympiad 2024](#).

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

### 13.7. {Sports} Youngest world chess champion: Dommaraju Gukesh \*

- ❖ **D. Gukesh** became the **youngest world chess champion ever** after defeating **Ding Liren** of China at the **World Chess Championship (WCC) 2024** in **Singapore**.



Source: [NDTV](#)

- He broke the record held by the **Russian Garry Kasparov** for nearly four decades. Gukesh is the **only third Asian** to have won the WCC. **Viswanathan Anand**, now a mentor for Gukesh, was the **first**, and **Ding** the **second**. Gukesh is also the only **18th World champion** in history, dating back to 1886.
- This was the **first-ever** World Championship match contested by **two Asian countries**.

## 51) With reference to investments, consider the following:

- Bonds
- Hedge Funds
- Stocks
- Venture Capital

***How many of the above are treated as Alternative Investment Funds?***

- Only one
- Only two
- Only three
- All the four

***Answer: (b): Only two***

**Explanation**

- Alternative investments, also known as Alternate Investment Funds (AIFs) are financial assets that do not fall into conventional categories like stocks, bonds, or cash. They include assets like real estate, private equity, hedge funds, venture capital funds.

**Covered in PMF IAS? Yes, Completely Covered in Daily PPQs (Link:**

**<https://www.pmfias.com/ppqs-december-07-2023/>)**

- **Category I and II AIFs** are **required** to be **close ended** and have a **minimum tenure of three years**. **Category III AIFs** may be **open ended or close ended**.
- **Category I AIFs:**
  - They can invest in **start-ups, early stage ventures, social ventures, SMEs and sectors** which the **government or regulators consider as socially or economically desirable**.
  - They include **venture capital funds** like angel funds, SME Funds, social venture funds, **infrastructure funds** and such other AIFs as may be specified.
- **Category II AIFs:**
  - They are those which are **not classified under Category I or Category III**.
  - They **do not undertake leverage or borrowing** other than to meet day-to-day operational requirements and as permitted in the regulations.
  - Various types of funds such as **real estate funds, debt funds, private equity funds, funds for distressed assets, etc.** are registered as Category II AIFs.
- **Category III AIFs:**
  - They are funds which employ **complex or diverse trading strategies** and may **employ leverage** including through investment in **listed or unlisted derivatives hedge funds, PIPE Funds, etc.** are registered as Category III AIFs.

**52) Which of the following are the sources of income for the Reserve Bank of India?**

- Buying and selling Government bonds
- Buying and selling foreign currency
- Pension fund management
- Lending to private companies
- Printing and distributing currency notes

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

- I and II only
- II, III and IV
- I, III, IV and V

d) I, II and V

**Answer: (d): I, II and V**

## Explanation

- The Reserve Bank of India (RBI) primarily earns income from the following sources:
  - ❖ Interest on government securities (bonds) it holds.
  - ❖ Gains and interest from foreign exchange reserves and foreign currency transactions.
  - ❖ Seigniorage income from currency issuance, which includes printing and distributing currency notes.
  - ❖ Interest on loans extended to the government and commercial banks.
- The RBI does not earn income from pension fund management or lending to private companies, as it does not engage in these activities. Therefore, options I, II, and V are the correct sources of RBI's income.

**Covered in the PMF IAS Test Series? Yes, Partially Covered (May CA TEST 2024 and Sectional Test)**

### 88) Which of the following acts as source of income for Reserve Bank of India:

1. Government securities
2. Managing state government borrowings
3. Overseeing government transactions
4. Overnight bank lending

**Select the correct code from the options given below:**

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

### Explanation

**All are correct**

- **Reserve Bank of India's (RBI) sources of income are:**
  - ❖ **Earnings from Government Securities:** RBI buys and sells government securities to regulate money supply and manage inflation. It earns interest on these securities.
  - ❖ **Management Commission for Central and State Government Borrowings:** RBI manages central and state government borrowings and earns a commission on these transactions.
  - ❖ **Commission from Overseeing Government Transactions:** RBI oversees various government transactions, such as tax collections and expenditure, and earns a commission.
  - ❖ **Earnings from Overnight Bank Lending (LAF/MSF):** RBI lends to banks through the Liquidity Adjustment Facility (LAF) and Marginal Standing Facility (MSF) and earns interest.

**Answer: (b) 1, 2, 3 and 4 | Difficulty Level: Easy**



**54) Which of the following statements best describes “Seigniorage”?**

- a) The difference between interest rate paid by bankers to depositors to interest rate charged.
- b) Profit earned by commercial banks from lending activities.
- c) The difference between the face value of currency issued and its production cost.
- d) Profit that accrues to the central bank from money creation.

**Explanation**

**Option (d) is correct**

- **Seigniorage** refers to the **profit earned by a central bank**, like the Reserve Bank of India (RBI), from the act of **printing currency**. This profit arises because the face value of the money issued is higher than the cost of producing it.
- For example, If the RBI prints a ₹100 note and gives it to the banks for circulation, the bank doesn't get it for free. They have to buy the note and transfer the full face value of ₹100 to the RBI. But printing of that note has actually costed RBI probably around Rupees 2. In other way, the RBI spent ₹2 to create ₹100 note and made a profit of Rupees 98. This profit is called seigniorage.
- Additionally, seigniorage also comes from other sources such as:
- Interest earned on the **reserves that the central bank holds**, which backs the currency in circulation.
- Interest from funds that **banks are required to hold with the central bank** (such as under the Cash Reserve Ratio or CRR).
- The **inflation tax**, where inflation erodes the value of currency held by the public, **reducing the liability of the central bank**.
- A part of this seigniorage is retained by the RBI, and the remainder is transferred to the Government of India.

**Answer: (d) Profit that accrues to the central bank from money creation | Difficulty Level: Medium**

**53) With reference to the Government of India, consider the following information:**

| Organization                           | Some of its functions                                   | It works under   |
|--|---|--|
| 1. Directorate of Enforcement          | Enforcement of the Fugitive Economic Offenders Act 2018 | Internal Security Division-I, Ministry of Home Affairs |
| 2. Directorate of Revenue Intelligence | Enforces the Provisions of the Customs Act, 1962        | Department of Revenue, Ministry of Finance             |

|   |  |  |
|---|--|--|
| 3. Directorate General of Systems and Data Management | Carrying out big data analytics to assist tax officers for better policy and nabbing tax evaders | Department of Revenue, Ministry of Finance |
|---|--|--|

***In how many of the above rows is the information correctly matched?***

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

***Answer: (b): Only two***

## **Explanation**

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### 1. Directorate of Enforcement

- It functions under the Department of Revenue of the Ministry of Finance.
- It oversees the implementation of:
  - I. Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974 (COFEPOSA)
  - II. Foreign Exchange Management Act, 1999 (FEMA)
  - III. Prevention of Money Laundering Act, 2002 (PMLA)
  - IV. Fugitive Economic Offenders Act, 2018 (FEOA)

### 2. Directorate of Revenue Intelligence

- It functions under the Department of Revenue, Ministry of Finance, Government of India.
- DRI enforces the provisions of the Customs Act, 1962 and over fifty other allied Acts including the Arms Act, NDPS Act, COFEPOSA, Wildlife Act, Antiquities Act etc. DRI undertakes collection, collation, analysis and dissemination of intelligence relating to smuggling, carries out investigations, adjudication of cases and prosecution of the arrested persons.

### 3. Directorate General of Systems and Data Management

- It functions under the Department of Revenue, Ministry of Finance, Government of India.
- "Implements information resource and data management" is one of the functions of DGSDM.

***Covered in the PMF IAS CA? Yes, Partially covered:***

<https://www.pmfias.com/ed-arrests-delhi-cm/#enforcement-directorate>

## 54) Consider the following statements:

- I. The Reserve Bank of India mandates all the listed companies in India to submit a Business Responsibility and Sustainability Report (BRSR).
- II. In India, a company submitting a BRSR makes disclosures in the report that are largely non-financial in nature.

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

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

***Answer: (b): II only***

### **Explanation**

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- Statement I is incorrect: BRSR is a framework introduced by SEBI (Securities and Exchange Board of India) in 2021, replacing the earlier Business Responsibility Report (BRR) to ensure that the top 1000 companies report their environmental, social, and governance (ESG) performance in a standardised and transparent manner.
- Statement II is correct: Unlike traditional financial reporting, BRSR focuses on non-financial disclosures, such as energy use, emissions, employee welfare, board diversity, ethical practices, and community development.

***Covered in PMF IAS? Yes, Completely Covered in Daily PPQs and Test Series (CA April 2025 Test)***

***<https://www.pmfias.com/ppqs-may-23-2024/>***

**Q1. {Governance – Laws} Consider the following statements:**

1. The concept of Environment, Social and Governance (ESG) was first introduced in the United Nations Principles for Responsible Investing (UNPRI) in 2006.
2. Single materiality in ESG evaluation measures only the risks posed by a company to the environment and society, without considering the impact on the company itself.
3. The Business Responsibility and Sustainability Report (BRSR) in India is mandated by the National Green Tribunal (NGT).
4. Similar to EU, UK and USA, Corporate Social Responsibility (CSR) is mandatory in India as well.

***How many of the above statement(s) is/are not correct?***

- ☐ a) Only one
- ☐ b) Only two
- ☐ c) Only three
- ☒ d) All

***Statement 3 is incorrect***

- The **BRSR** is mandated by the **Securities and Exchange Board of India (SEBI)**, **not** the **National Green Tribunal (NGT)**.
- SEBI revised the annual reporting requirements for the largest listed companies in India to include BRSR, aligning them with the **National Guidelines for Responsible Business Conduct (NGRBC)**.

## CA April 2025 Test

### Statement 2 is correct

- **Green Credits:** Tradable units that can be used for compliance or sustainability reporting.
  - ❖ **Exchange Mechanism:** Credits can be traded on a domestic market platform.

- ❖ **Compensatory Afforestation:** Credits can be used for legal obligations like compensatory afforestation under the Forest Conservation Act.
- ❖ **Corporate Environmental, Social & Governance (ESG) Compliance:** Listed companies can use credits under SEBI's Business Responsibility & Sustainability framework or to fulfill CSR requirements.

**Covered in the PMF IAS CA? Yes (link: <https://www.pmfias.com/overhauling-the-environment-social-and-governance-esg-metric/> , <https://cleartax.in/s/brsr-reporting>)**

### Relevance of ESG in India

- **Regulating bodies:** India has long had several laws and bodies regarding environmental, social, and governance issues, including the **Environment Protection Act of 1986**.
  - **NGT: Quasi-judicial organisations** such as the National Green Tribunal (NGT) govern employee engagement and corporate governance practices.
  - **BRSR:** The Securities and Exchange Board of India (SEBI) revised the annual **Business Responsibility and Sustainability Report (BRSR)** required by the 1,000 largest listed companies in India.
- The BRSR requirements are based on the **National Guidelines for Responsible Business Conduct** (NGRBC), which mandate that businesses Conduct and govern themselves with Ethics, Transparency and Accountability.

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

### Transition

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• **Muft Bijli Yojana**  
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### Developments in Financial Regulation on Green Investments

- Based on the 2019 National Guidelines on Responsible Business Conduct (NGRBC) by the government, **SEBI** introduced new reporting mandates on **ESG** (Environmental, Social and Governance) parameters - the Business Responsibility and Sustainability Report **BRSR** - for the **top 1000** listed companies, mandatory from FY23, replacing the previous Business Responsibility Report (BRR) of 2012.
- The BRSR norms were further expanded in 2023, with the Board introducing the **BRSR** core for assurance and **ESG disclosures** for value chains by the listed entities.
- The Government of India has included **Sovereign Green Bonds** (SGrBs) in its overall **market borrowings** with the aim of mobilising resources for green infrastructure.

### Growing Carbon sink of forests in India

- India's Nationally Determined Contributions (NDC) aims to increase the **carbon sinks** by 2.5 to 3 billion tonnes of CO2 equivalent through improvement and addition of tree cover by 2030.
- As per the latest Forest Survey of India 2024, India is estimated to have a total carbon sink of **30.43 billion**

## 55) Consider the following statements:

- Statement I: In India, income from allied agricultural activities like poultry farming and wool rearing in rural areas is exempted from any tax.
- Statement II: In India, rural agricultural land is not considered a capital asset under the provisions of the Income-tax Act, 1961.

**Which one of the following is correct in respect of the above statements?**

- Both Statement I and Statement II are correct and Statement II explains Statement I
- Both Statement I and Statement II are correct but Statement II does not explain Statement I
- Statement I is correct but Statement II is not correct
- Statement I is not correct but Statement II is correct

**Answer: (d): Statement I is not correct but Statement II is correct**

### Explanation

- Statement I is incorrect: Incomes derived from allied agricultural activities are not considered as agricultural income according to the Income Tax Act. Hence it is not exempted from tax.



- Statement II is correct: Agricultural land in rural areas in India is not considered a capital asset under section 45 of the Income-tax Act, 1961.

**Covered in the PMF IAS CA? No**

### 56) Consider the following statements:

- I. India has joined the Minerals Security Partnership as a member.
- II. India is a resource-rich country in all the 30 critical minerals that it has identified.
- III. The Parliament in 2023 has amended the Mines and Minerals (Development and Regulation) Act, 1957 empowering the Central Government to exclusively auction mining lease and composite license for certain critical minerals.

**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

**Answer: (c): I and III only**

### Explanation

**Covered in the PMF IAS Book? Yes, Completely Covered (Eliminate the second statement) (EG-Mineral Resources Book – PDF Page no. 123)**

#### India's Challenges in Harnessing Critical Minerals

- **Domestic supply constraints:** Limited domestic reserves, technical challenges in cost-effective extraction, and inadequate policies affect their extraction.
- **Infrastructure gaps:** Inadequate infrastructure for mining, processing, and refining critical minerals poses challenges, causing higher costs, delays, and environmental concerns.
- **Dependence on imports:** India imports 80% of its lithium and 85% of its cobalt from China.
  - ⇒ **China is the world's largest producer of 16 critical minerals**, responsible for approximately 60-70% of global production of cobalt and rare earth elements.
- **Recycling and waste management:** As per UNEP, less than 1% of the critical minerals used in electronic waste are recycled.

**Covered in the PMF IAS CA? Yes, Partially Covered**

<https://www.pmfias.com/critical-minerals/>

<https://www.pmfias.com/new-royalty-rates-for-three-critical-minerals/>

***Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.***

- ❖ Govt. has approved **interest-free loans** for **50 years** to various States to enhance tourism infrastructure.
- This initiative aims to identify and develop 40 new tourism projects across 23 States. It also aims to mitigate overcrowding at popular destinations by encouraging the development of alternative locations.
- The **Department of Expenditure** has issued operational guidelines for **Special Assistance to States for Capital Investment (SASCI)**, which aims to develop iconic tourist centres.

### Objective and Scope of the Initiative

- **Focus on Lesser-Known Destinations:** Encourages the development of lesser-known tourist destinations such as **Bateshwar (UP)**, **Ponda (Goa)**, **Gandikota (Andhra Pradesh)**, and **Porbandar (Gujarat)**.
- **Branding and Marketing:** The initiative also focuses on **branding** and **marketing** these tourist centres globally to attract international tourists.
- **State Government's Role:** States are responsible for providing land for the projects and ensuring their implementation, operation, and management post-completion.
- **Funding and Progress Monitoring:** Funds will be released directly to the concerned States (**66% in the first instalment**). The **Ministry of Tourism** will monitor the progress of these projects.
- **Completion Timeline:** States have been given a **two-year deadline** to complete the projects.

### 8.22. {Industry} Sourcing Critical minerals

- ❖ **Ministry of Mines** meetings to discuss opportunities for the mining of **critical minerals** by Indian companies in **Sri Lanka** and **Australia**.

#### Why Sri Lanka?

- Sri Lanka has valuable reserves of **vein graphite**, a pure form of natural graphite.
- It is **only** found in the **island nations**.
- Graphite is a crucial mineral, mainly used as the **anode** material in **lithium-ion batteries**.
- In lithium-ion batteries, graphite is the **heaviest component** by weight.
- An average electric vehicle (EV) uses up to 70 kilograms of graphite.
- Graphite mining in Sri Lanka peaked during the **two World Wars** in the 20th century, hitting over 30,000 tonnes in annual exports.
- In 2023, however, the country only exported graphite weighing around 2,500 tonnes.

#### India's Graphite reserves

- **India graphite reserves:** 8.56 million tonnes (as per the **National Mineral Inventory**).

- **Distribution:** Arunachal Pradesh, Jammu & Kashmir, and Jharkhand, with these three states collectively accounting for **74 per cent** of India's graphite resources.
- **Concern:** Only Tamil Nadu, Jharkhand, and Odisha have economically viable graphite reserves.
- **India's production & Import in FY22**
  - ❖ **Production:** 57,264 tonnes of graphite.
  - ❖ **Imports:** 54,052 tonnes (FY22) from countries like China, Madagascar, and Mozambique.

#### Why Australia?

- Australia produces almost **half of the world's lithium** and is the **second-largest** producer of **cobalt**.
- Both lithium and cobalt are used in EVs and consumer electronics.
- MoU signed between **Khanij Bidesh India Limited (KABIL)** and Australia's Critical Minerals Office.
- Proposals are shared through partner countries in the US-led **Minerals Security Partnership (MSP)**.
  - ❖ **KABIL**, a joint venture company between **NALCO**, **HCL** and **MECL**, was formed in 2019 to source **strategic minerals** like lithium and cobalt from overseas locations.

#### Minerals Security Partnership (MSP)

- Group of **14 countries**, led by the **US**, started in June 2022. Australia is also part of this partnership.
- Also known as the **Critical Minerals Alliance**.
- The goal is to ensure the secure production, processing, and recycling of critical minerals.
- The alliance aims to **reduce China's control** over critical mineral supplies globally.
- Members include the **US**, **Australia**, **Canada**, **Finland**, **France**, **Germany**, **Japan**, **the Republic of Korea**, **Sweden**, **UK**, **the European Commission**, **Italy**, and **India**.
- **India** is the **only developing country** in MSP.
- India became the **14th member** of the MSP in June 2023.

To know more, visit > [Critical Minerals](#).

### 8.23. {Industry} Tamil Nadu's Decentralised Industrialisation

- ❖ **Tamil Nadu** holds the top position among Indian states for economic complexity.
  - ⇒ **Economic complexity** is measured by the **diversity of its GDP and employment profile**.
- In Tamil Nadu, the **farm sector's share** in the gross value added (GVA), which is GDP net of product taxes and subsidies, is **below the national average**.

### 57) Consider the following statements:

- I. Statement I: As regards returns from an investment in a company, generally, bondholders are considered to be relatively at lower risk than stockholders.
- II. Statement II: Bondholders are lenders to a company whereas stockholders are its owners.
- III. Statement III: For repayment purpose, bondholders are prioritized over stockholders by a company.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement II and Statement III are correct and both of them explain Statement I
- b) Both Statement I and Statement II are correct and Statement I explains Statement II
- c) Only one of the Statements II and III is correct and that explains Statement I
- d) Neither Statement II nor Statement III is correct

***Answer: (a): Both Statement II and Statement III are correct and both of them explain Statement I***

### **Explanation**

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- Bonds are typically considered safer investments than stocks because bondholders have a higher claim on the issuing company's assets in the event of bankruptcy.
- Unlike stocks, bonds do not offer ownership participation in a company through a return of profits or voting rights. Instead, they represent the issuer's loan obligations and the likelihood of repayment, and other factors influence their pricing.

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Advanced Test Economy 03)***

**64) Consider the following statements regarding Bonds and Equity:**

1. Equity holders are considered the owners of the company, while bondholders are its creditors.
2. During liquidation, bondholders have the first claim on the company's assets, whereas equity holders are residual claimants.
3. Bonds are more attractive to investors during an economic boom, while equity is preferred during a slowdown due to fixed returns.

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

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

**Explanation**

**Explanation**

**Statements 1 and 2 are correct but statement 3 is incorrect**

- A security is a financial instrument that represents **ownership (equity)** or a **creditor relationship (debt)**.
- It certifies the holder's right to receive a certain amount of money under specified conditions.
- **Types of Securities:**
  - ❖ **Equity (Share Certificate):**
    - Represents **ownership** in a company.
    - Holders receive **dividends from profits**. If **no profits, no dividends**.
    - Equity holders are **residual claimants**, with the **last claim on assets** during liquidation.
    - **Attractive during economic booms** due to the likelihood of higher profits and dividends.
  - ❖ **Debt (Bond/Debenture):**
    - Represents a **loan** to the company.
    - Bondholders receive **fixed interest** and principal, irrespective of the company's profits.
    - They are **creditors** with the **first claim on assets** during liquidation.
    - **Preferred during economic slowdowns** due to assured returns.
- Securities play a vital role in raising capital for companies and offering diverse investment options for individuals based on risk and return preferences.

**Answer: (a) 1 and 2 only | Difficulty Level: Easy**

**58) Consider the following statements:**

- I. India accounts for a very large proportion of equity option contracts traded globally thus exhibiting a great boom.

- II. India's stock market has grown rapidly in the recent past even overtaking Hong Kong's at some point of time.
- III. There is no regulatory body either to warn the small investors about the risks of options trading or to act on unregistered financial advisors in this regard.

***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

***Answer: (a): I and II only***

### **Explanation**

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- Statement I is correct: India accounts for over 80% of the global equity index options volume, showing a massive retail-driven boom in derivatives trading.
- Statement II is correct: India overtook the Hong Kong stock market by market capitalisation, driven by strong domestic flows and economic optimism.
- Statement III is incorrect: SEBI is the regulatory body. It issues warnings, investor education, and takes action against illegal financial advisors.

***Covered in PMF IAS? Yes, Completely Covered Yes, Completely Covered (Advanced Test Economy -03 Question can be solved by using the third statement)***

***Covered in the PMF IAS CA? Yes, Completely Covered (Question can be solved by using the third statement)***

<https://www.pmfias.com/securities-and-exchange-board-of-india-sebi/#:~:text=competitive%20market%20environment-,Powers%20and%20Functions%20of%20SEBI,compensation%2C%20and%20combats%20fraudulent%20practices.>



### Key Focus Areas of SEBI

- **Issuers:** Facilitates capital raising.
- **Investors:** Ensures safety and reliable information.
- **Intermediaries:** Promotes a competitive market environment

### Powers and Functions of SEBI

- **Market Regulation:** Sets **capital-raising** rules, and ensures compliance through **inspections** and **investigations**.
- **Market Development:** Expand the market with **electronic trading** and **demat systems**.
- **Investor Protection:** **Educates investors**, provides **compensation**, and combats **fraudulent practices**.
- **Regulatory Actions:** Drafts **regulations**, conducts **inquiries** and imposes **penalties**.
- **Operational Powers:** Manages **money pooling** schemes, conducts searches, and oversees mutual and venture capital funds.

### Initiatives for Effective Functioning

- **Investor Education and Protection Fund (IEPF):** Promotes investor awareness and protection.
- **SCORES Portal:** A web-based system for lodging and tracking complaints.
- **Investor Education and Financial Literacy:** Initiatives like awareness campaigns and counseling centers.

## 59) Consider the following statements:

- Statement I: Circular economy reduces the emissions of greenhouse gases.
- Statement II: Circular economy reduces the usage of raw materials as inputs.
- Statement III: Circular economy reduces wastage in the production process.

**Which one of the following is correct in respect of the above statements?**

- Both Statement II and Statement III are correct and both of them explain Statement I
- Both Statement II and Statement III are correct but only one of them explains Statement I
- Only one of the Statements II and II is correct and that explains Statement I
- Neither Statement II nor Statement III is correct

**Answer: (a): Both Statement II and Statement III are correct and both of them explain Statement I**

## Explanation

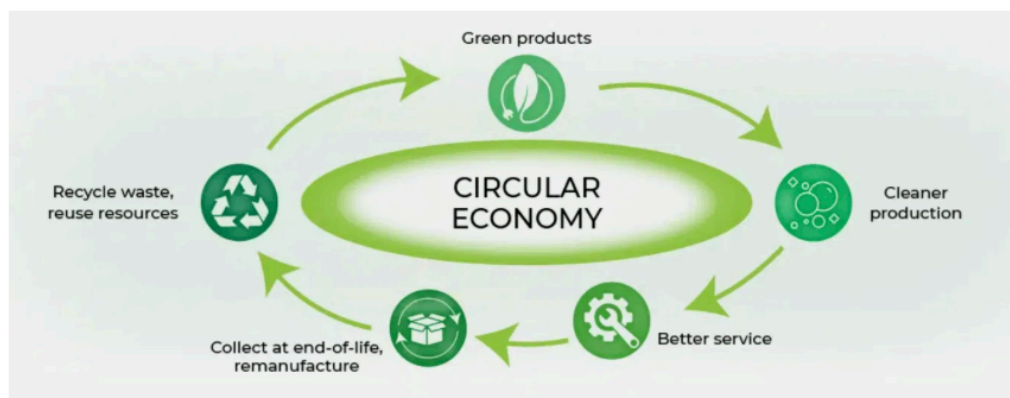
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***Covered in the PMF IAS CA? Yes, Completely Covered***

<https://www.pmfias.com/jaipur-declaration-on-circular-economy/#about-circular-economy> )

## About Circular Economy

- A circular economy is a sustainable economic system that **eliminates waste** and **pollution** by designing products for **longevity**, **reusing materials**, and **regenerating natural ecosystems**.
- It replaces the traditional linear model of "**take-make-dispose**" with a closed-loop system that prioritises resource efficiency, environmental sustainability, and long-term economic resilience.



Credit: [Deltalogix](#)

## Significance of Jaipur Declaration in Promoting Circular Economy

- **Efficient Use of Natural Resources:** Ensures optimal utilisation of finite resources, reduces pollution and greenhouse gas emissions, and enhances economic resilience by reducing import dependency and creating employment opportunities.
- **Integration of 3R and Circular Economy Principles Across Sectors:** Embeds Reduce, Reuse, Recycle (3R) principles into key economic sectors, including manufacturing, construction, transport, energy, forestry, agriculture, food, water, tourism, trade, and commerce.
- **Advancing Circular Supply Chains:** Promotes closed-loop supply chains, secures critical minerals and materials, and ensures circularity through sustainable sourcing, eco-design, and responsible production.
- **Strengthening Public-Private Partnerships (PPPs):** Encourages collaboration between governments, businesses, and research institutions to accelerate innovation in waste reduction, resource efficiency, and green manufacturing.
- **Promoting Behavioral Change and Consumer Awareness:** Integrates circular economy principles into education and public awareness campaigns to cultivate a sustainability-driven mindset and encourage responsible consumption and production.

## Potential Impact of Jaipur Declaration on Sustainable Development in Asia-Pacific Region

- **Environmental Sustainability:** Reduces GHG emissions, prevents land and water pollution, and promotes resource efficiency for a cleaner ecosystem.
- **Economic Growth & Job Creation:** Boosts recycling markets, green industries, and strengthens local economies by reducing dependence on raw material imports.
- **Public Health Improvement:** Minimizes respiratory diseases, water contamination, and vector-borne diseases by ensuring proper waste management and pollution control.
- **Climate Change Mitigation & Disaster Resilience:** Encourages carbon-neutral technologies and resilient waste systems to prevent urban disasters like floods and pollution crises.
- **Regional Cooperation & Policy Harmonization:** Enhances knowledge sharing, joint research, and cross-border collaborations to advance circular economy practices across nations.

## 60) Consider the following statements:

- I. Capital receipts create a liability or cause a reduction in the assets of the Government.
- II. Borrowings and disinvestment are capital receipts.
- III. Interest received on loans creates a liability of the Government.

***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

***Answer: (a): I and II only***

### **Explanation**

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- Capital Receipts: The government receives money by way of loans (borrowing) or from the sale of its assets (disinvestments). Loans will have to be returned to the agencies from which they have been borrowed. Thus they create liability.
- Interest receipts on account of loans by the central government, dividends and profits on investments made by the government, fees and other receipts for services rendered by the government are part of Revenue Receipts.

***Covered in the PMF IAS CA? YES, in [Economic Survey](#).***

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test Economy 19 and Economic survey Test)***

**66) With reference to the Union Budget, how many of the following is/are covered under Debt capital receipts?**

1. Multilateral Loans
2. Recoveries of loans and advances
3. Disinvestment of Public sector units
4. Interest and dividend on government investment

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

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

- Capital receipts are essentially two-way transactions, where the money is expected to return either as regular income or during the disposal of assets created through it.
- These receipts can be classified into two categories: debt capital receipts and non-debt capital receipts.

*Option 1 is correct*

- **Debt capital receipts:** These include loans or liabilities that are repayable in the future.
- **Market Loans:** Government of India's borrowing through **dated government securities** is called **Market Loan**. Dated government securities are long term (more than one year) debt instruments. Generally, the tenor of dated securities ranges from 5 years to 40 years
- **Multilateral Loans:** These are **loans received from multilateral agencies** like IMF, World Bank. Unlike non-negotiable, non-interest-bearing securities issued to international financial institutions, these are not borrowed against securities.

*Options 2 and 3 are incorrect*

- **Non-Debt Capital Receipts:** These include receipts from the **disposal of assets** (except public sector assets which will be credited to the National Investment Fund) or recoveries of loans made by the government. They can be listed as:
  - ❖ **Recoveries of loans and advances**

❖ **Disinvestment of government shares other than PSUs (Public Sector Units)**

❖ **Disinvestment of government shares other than PSUs (Public Sector Units)**

*Option 4 is incorrect*

- Interest and dividend on government investment is included in **revenue receipts**.

## 61) Consider the following countries:

- I. Austria
- II. Bulgaria
- III. Croatia
- IV. Serbia
- V. Sweden
- VI. North Macedonia

***How many of the above are members of the North Atlantic Treaty Organization?***



- a) Only three
- b) Only four
- c) Only five
- d) All the six

***Answer: (b): Only four***

### **Explanation**

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- Among the given options members of NATO include Bulgaria, Croatia, Sweden, North Macedonia.

***Covered in the PMF IAS CA? Yes, Completely Covered***

(<https://pmfias.b-cdn.net/wp-content/uploads/2024/04/NATO-Members-since-1949-Vertical-A4-816x1056-px-2@4x.png>, <https://www.pmfias.com/north-atlantic-treaty-organisation-nato/>)

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Comprehensive Test 06)***

**89) Consider the following countries:**

1. North Macedonia
2. Sweden
3. Turkey
4. Ukraine
5. Finland

**How many of the following countries are members of NATO (North Atlantic Treaty Organization)?**

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

**Option (c) is correct**

• **Reason for Being in News:**

- ❖ President Donald Trump has initiated negotiations with Russian President Vladimir Putin to [end the war in Ukraine](#), sparking both hopes for peace and concerns over potential Russian manipulation.
- ❖ His outreach, including discussions on a ceasefire and a possible meeting in Saudi Arabia, marks a shift from previous U.S. policy, with NATO closely watching the developments amid its continued military and strategic support for Ukraine.

• **NATO (North Atlantic Treaty Organization):**

- ❖ NATO was founded in 1949 with the Washington Treaty to deter Soviet expansion after WWII.
- ❖ It is a political and military alliance of 32 countries from Europe and North America, headquartered in Brussels, Belgium.
- ❖ The alliance follows the principle of collective defense (Article 5), meaning an attack on one member is considered an attack on all. Article 5 has been invoked only once, after the 9/11 attacks.
- ❖ NATO's **12 founding members** include Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, the UK, and the USA.
- ❖ The countries that joined NATO after its founding are Greece and **Turkey (1952)**; West Germany (1955; from 1990 as Germany); Spain (1982); the Czech Republic, Hungary, and Poland (1999); Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia (2004); Albania and Croatia (2009); Montenegro (2017); North Macedonia (2020); Finland (2023); and Sweden (2024). Ukraine not get any official membership yet.
- ❖ Some EU countries not in NATO are Austria, Cyprus, Ireland, and Malta.

**Covered in PMF IAS Prelims Magnum? Yes, Completely Covered.**

## NATO: Members since 1949

NATO was created by 12 countries from Europe and North America on 4 April 1949.

Since then, 20 more countries have joined NATO through 10 rounds of enlargement.

Any decision to invite a country to join the Alliance is taken by the North Atlantic Council, NATO's principal political decision-making body, on the basis of consensus among all Allies.



Infographics by Gaurav Sharma and Pratik Jadhav

### 62) Consider the following countries:

- I. Bolivia
- II. Brazil
- III. Colombia
- IV. Ecuador
- V. Paraguay
- VI. Venezuela

**Andes mountains pass through how many of the above countries?**

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

**Answer: (c): Only four**

## Explanation

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- The Andes consist of a vast series of high plateaus topped by even higher peaks, forming an unbroken mountain chain extending approximately 8,900 km from the southern tip of South America to the continent's northernmost Caribbean coast.
- The convergence of the South American Plate and the oceanic Nazca Plate led to the mountain-building activity that created the Andes.
- The Andes are not a single continuous line of peaks but rather a series of parallel and transverse ranges, or cordilleras, interspersed with plateaus and depressions.
- Generally, they are divided into three broad regions:
  - ❖ Southern Andes: Includes the Chilean, Fuegian, and Patagonian cordilleras.
  - ❖ Central Andes: Encompasses the Peruvian cordilleras.
  - ❖ Northern Andes: Covers the Ecuadorian, Colombian, and Venezuelan (or Caribbean) cordilleras.
- The Andes Mountains extend through seven South American countries, stretching from Venezuela in the north to Argentina in the south. Columbia, Ecuador, Peru, Bolivia, and Chile are the other countries.

***Covered in the PMF IAS Book? Yes, Partially Covered (World Geography Book PDF Page-126 – South America Chapter)***



**South America - Mountain Ranges**



- The convergence of the **South American Plate** and the **oceanic Nazca Plate** led to the mountain-building activity that created the Andes. The Andes are **not a single, continuous line of peaks** but a series of **parallel and transverse ranges**, or cordilleras, interspersed with plateaus and depressions. Generally, they are divided into:
  - Southern Andes:** Includes the Chilean, Fuegian, and Patagonian cordilleras.

- Central Andes:** Encompasses the Peruvian cordilleras.
- Northern Andes:** Covers the Ecuadorian, Colombian, and Venezuelan (or Caribbean) cordilleras.

### Mount Aconcagua

- The Andes contain the **highest peak in the Western Hemisphere, Mount Aconcagua** (6,959 meters) on the **Argentina-Chile border**. The mountain is one of the **Seven Summits** of the seven continents.

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## 63) Consider the following water bodies:

- Lake Tanganyika
- Lake Tonlé Sap
- Patos Lagoon

***Through how many of them does the equator pass?***

- Only one
- Only two
- All the three
- None

***Answer: d): None***

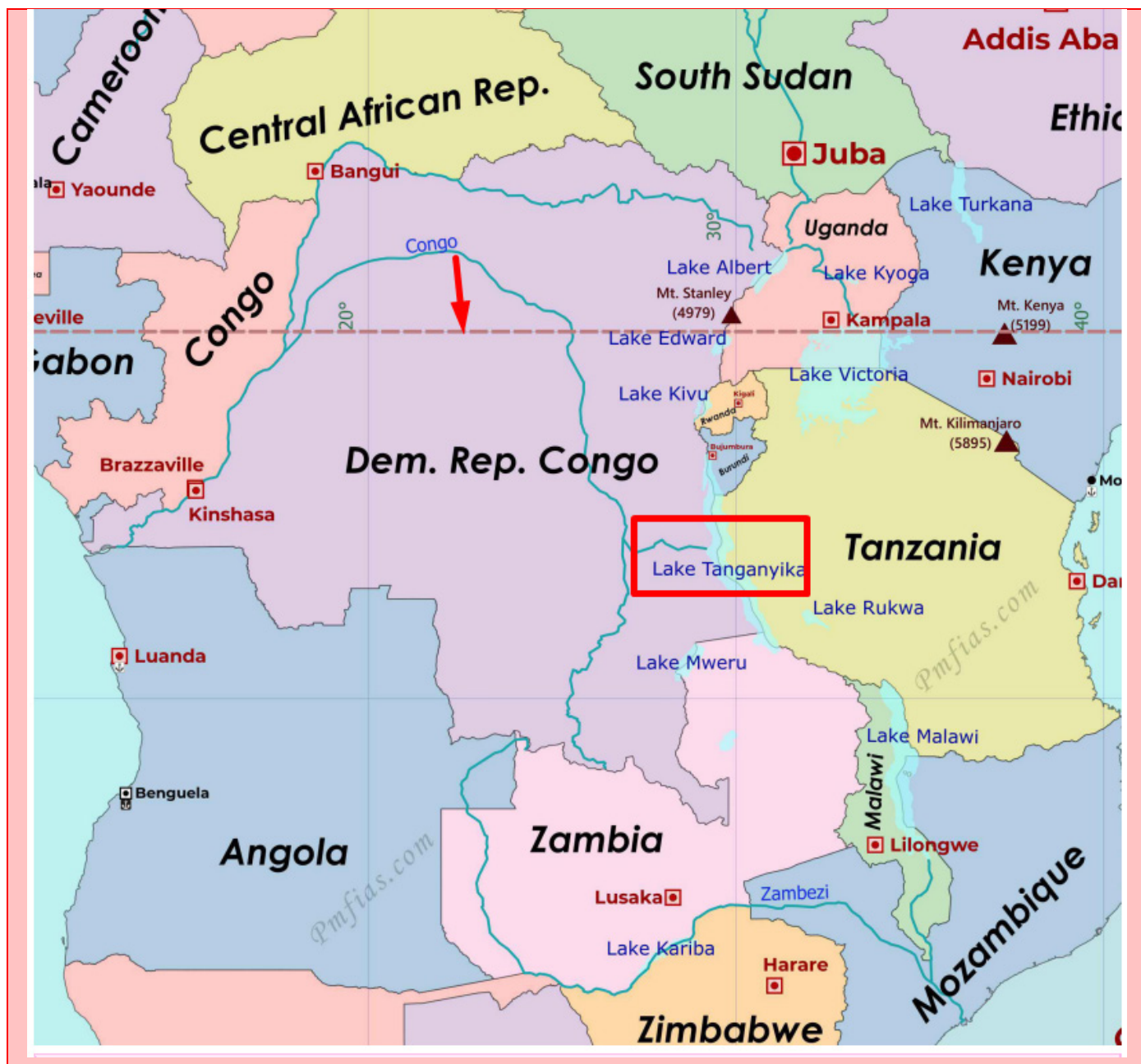
### Explanation

- Lake Tanganyika
  - ❖ Lake Tanganyika is the second largest freshwater lake by volume (Lake Baikal in Russia is the largest). It is the largest among the Albertine Rift Lakes.
  - ❖ It is also the world's longest freshwater lake and the second deepest lake (Lake Baikal - deepest).



- ❖ The lake is shared between Tanzania, the Democratic Republic of the Congo (DRC), Burundi, and Zambia. The Equator does not pass through it.
- Lake Tonlé Sap
  - ❖ Tonlé Sap is a natural floodplain lake in central Cambodia. During the dry season, it drains southeast via the Tonlé Sap River into the Mekong River.
  - ❖ It lies entirely north of the equator
- Patos Lagoon
  - ❖ Patos Lagoon is in southern Brazil, near the Atlantic coast in Rio Grande do Sul.

***Covered in the PMF IAS Book? Yes, Partially Covered (World Geography Book PDF-Page-58)***



**64) Consider the following statements about turmeric during the year 2022-23:**

- I. India is the largest producer and exporter of turmeric in the world.
- II. More than 30 varieties of turmeric are grown in India.
- III. Maharashtra, Telangana, Karnataka and Tamil Nadu are major turmeric producing States in India.

***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

**Answer: d): I, II and III**

## Explanation

**Covered in PMFIAS CA: Yes, Partially Covered** <https://www.pmfias.com/current-affairs-january-23-2025/#gs2-moci-initiatives-national-turmeric-board>

**Covered in the PMF IAS Test Series? Yes, Partially Covered (January Test CA 2025 and comprehensive Test 10)**

### 95) Consider the following statements regarding turmeric production in India:

1. India is the largest producer, consumer, and exporter of turmeric.
2. Turmeric cultivation is limited to South Indian states.
3. National Turmeric Board functions under the Ministry of Agriculture and Farmers' Welfare headquartered in Nizamabad, Telangana.

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

- a) Only one  
b) Only two  
c) All three  
d) None of the above

### Explanation

- **Turmeric** is a **rhizomatous herbaceous plant** scientifically known as *Curcuma longa*.
- It contains **curcumin**, a compound with potent anti-inflammatory and antioxidant properties.

**Statement 1 is correct**

- **India** is the **largest producer, consumer, and exporter** of turmeric.
- **Climate:** Thrives in warm, **humid tropical conditions** (20–35°C) with **1,500 mm** annual rainfall.
- **Soil:** Prefers sandy or clay loam, rich in organic matter, with a pH of 4.5–7.5.

**Statement 2 is incorrect**

- Cultivates 30 varieties across 20 states, accounting for over **70% of global production**.
- **Varieties in India:** Lakadong (Meghalaya), Himalaya (Himalayan Region), Black (*Curcuma caesia*), Alleppey Finger (Kerala), Rajapore (Maharashtra), Erode (Tamil Nadu), Nizamabad Bulb (Telangana).

**Statement 3 is incorrect**

- **National Turmeric Board**

### {MoCI – Initiatives} National Turmeric Board

- ❖ The **National Turmeric Board's** inauguration in **Nizamabad, Telangana**, fulfils a two-decade demand, boosting turmeric farming, research, and exports in India.

#### What is Turmeric?

- A **rhizomatous herbaceous plant** scientifically known as **Curcuma longa**.
- Contains **curcumin**, a compound with potent **anti-inflammatory** and **antioxidant** properties.

#### Uses of Turmeric

- **Culinary:** Adds flavour, colour, and aroma to dishes globally.
- **Medicinal:** Known for treating inflammation, boosting immunity, and aiding digestion.
- **Cosmetic:** Incorporated in skincare for its anti-inflammatory and healing properties.
- **Industrial:** Used in textile dyeing and natural health products.

#### Turmeric in India

- India is the **largest producer**, consumer, and exporter of turmeric.
- Cultivates 30 varieties across 20 states, accounting for over **70% of global production**.
- **Varieties in India:** **Lakadong** (Meghalaya), **Himalaya** (Himalayan Region), **Black** (*Curcuma caesia*), **Alleppey Finger** (Kerala), **Rajapore** (Maharashtra), **Erode** (Tamil Nadu), **Nizamabad Bulb** (Telangana).



# TURMERIC

- A **rhizomatous herbaceous plant** called **Curcuma longa**.

- Contains **curcumin**, a powerful **anti-inflammatory** and **antioxidant** compound.

PMF IAS

## Medicinal

Known for its anti-inflammatory, immunity-boosting, and digestive benefits.

## Cosmetic

Used in skincare for its anti-inflammatory and healing effects.

## Culinary

Adds flavour, colour, and aroma to dishes globally.

## Industrial

Used in textile dyeing and natural health products.

USES OF TURMERIC

## TURMERIC IN INDIA

Cultivated in 30 varieties across 20 states, contributing over **70% of global production**.

India is the **largest producer, consumer, and exporter** of turmeric.

## PRODUCTION

10.74 lakh tonnes in 2023–24, accounting for over **62% of global trade**.

## EXPORTS

1.62 lakh tonnes valued at **226.5 million USD** in 2023–24.

## CLIMATE

Thrives in **warm, humid tropics** (20–35°C) with 1,500 mm annual rainfall.

## SOIL

Prefers **sandy or clay loam** rich in organic matter, with a pH of 4.5–7.5.

## VARIETIES IN INDIA

## NATIONAL TURMERIC BOARD

## AIM

Enhance turmeric production, empower farmers, improve livelihoods, and expand global exports.

## MINISTRY

Operates under the **Ministry of Commerce and Industry**.

## FUNCTIONS

Increase yield, optimize logistics, strengthen supply chains, and promote turmeric's benefits.

## HEADQUARTER

Nizamabad, (Telangana)

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65) Which of the following are the evidences of the phenomenon of continental drift?

- I. The belt of ancient rocks from Brazil coast matches with those from Western Africa.
- II. The gold deposits of Ghana are derived from the Brazil plateau when the two continents lay side by side.
- III. The Gondwana system of sediments from India is known to have its counterparts in six different landmasses of the Southern Hemisphere.

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

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

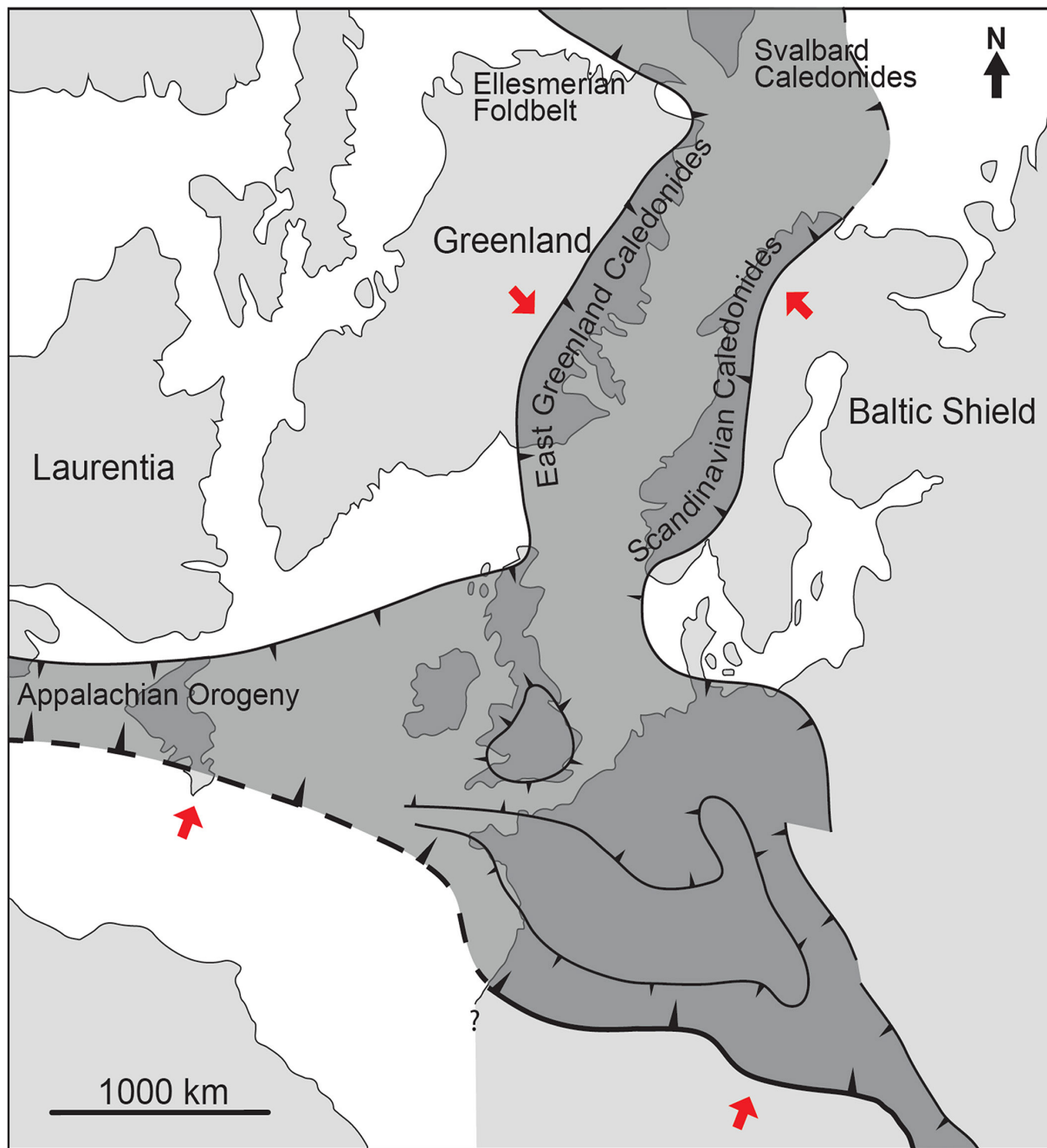
**Answer: c): I, II and III**

## **Explanation**

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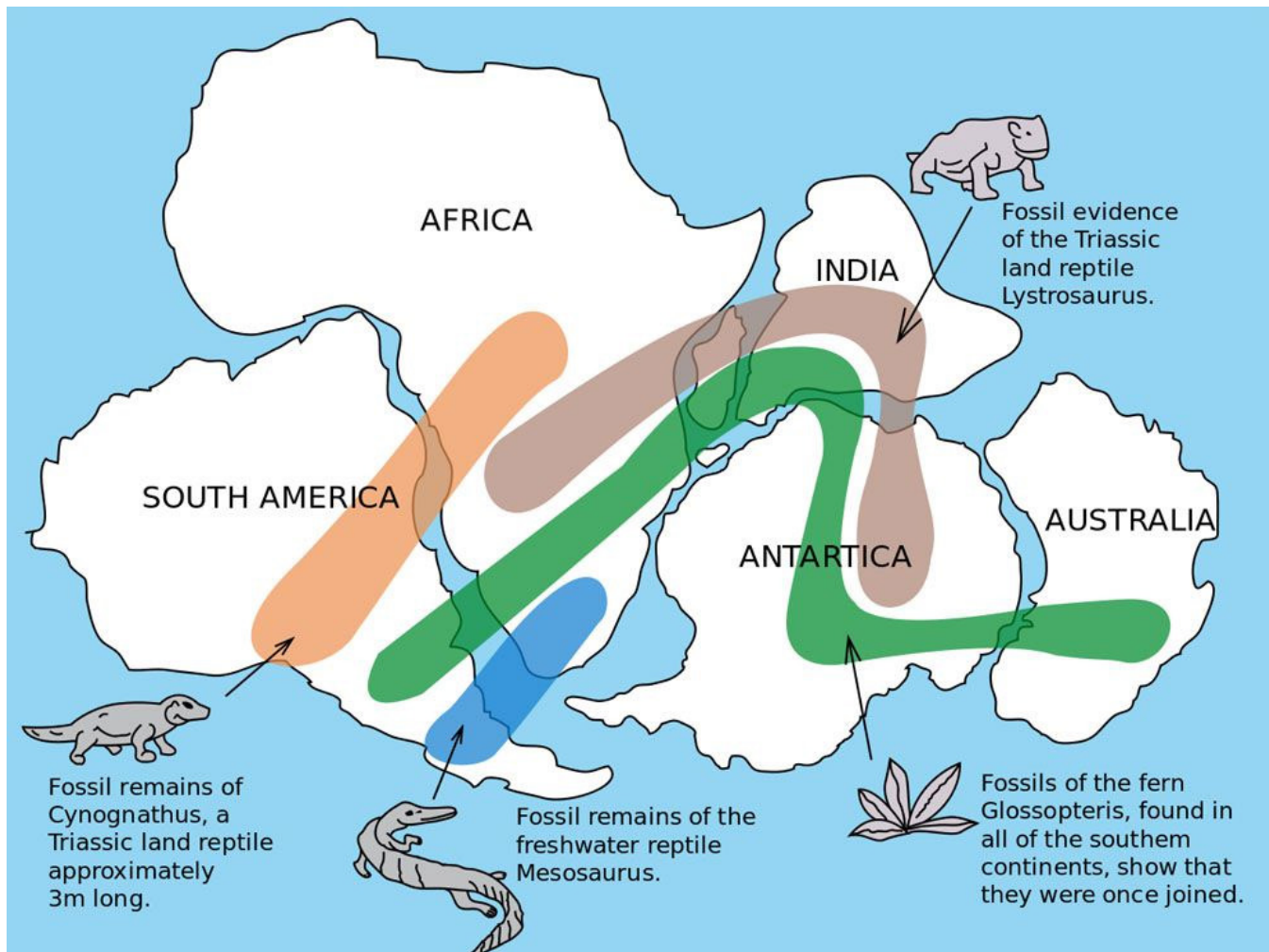
- Evidence in Support of Continental Drift
- Apparent Affinity of Physical Features
  - ❖ The **bulge of Brazil (South America) seems to fit into the Gulf of Guinea (Africa)**.
  - ❖ Greenland seems to fit in well with the Ellesmere and Baffin islands of Canada.
  - ❖ The west coast of India, Madagascar and Africa seem to have been joined.
  - ❖ North and South America on one side and Africa and Europe on the other fit along the mid-Atlantic ridge.
  - ❖ The very old fold mountain chains, the Caledonian and the Hercynian mountains of Europe and the Appala-chians of the USA seem to be one continuous series.





Caledonian Fold belt
  Subduction zone
  Major thrust faults

*The Caledonians of Europe & The Appalachians of the USA*



- **Tillite deposits**

- ❖ Tillite deposits are sedimentary rocks formed out of deposits of glaciers. The Gondwana system of tillite sediments is found in India, **Africa, Falkland Island, Madagascar, Antarctica, Australia (all were previously part of Gondwana), Falkland Islands, and South America.**

- **Placer Deposits**

- ❖ **Rich placer deposits of gold are found on the Ghana coast (West Africa)** but the **source (gold-bearing veins) are in Brazil**, and it is obvious that the gold deposits of Ghana are derived from the Brazil plateau when the two continents lay side by side.

***Covered in the PMF IAS Book? Yes, Completely Covered (Physical Geography book PDF – Page No. 93-97)***

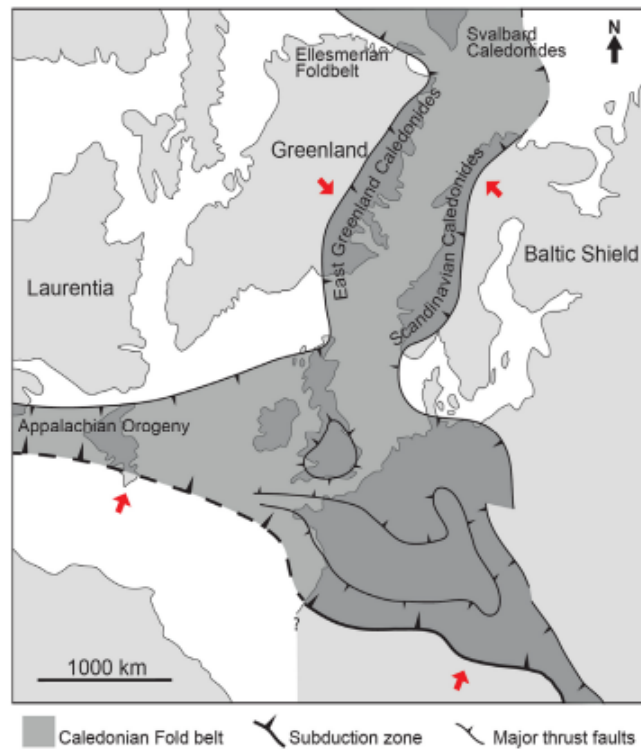
## Evidence in Support of Continental Drift

[UPSC Mains 2013] What do you understand by the theory of continental drift? Discuss the prominent evidence in its support.



### Apparent Affinity of Physical Features

- The bulge of Brazil (South America) seems to fit into the Gulf of Guinea (Africa).
- Greenland seems to fit in well with the Ellesmere and Baffin islands of Canada.
- The west coast of India, Madagascar and Africa seem to have been joined.
- North and South America on one side and Africa and Europe on the other fit along the mid-Atlantic ridge.
- The very old fold mountain chains, the Caledonian and the Hercynian mountains of Europe and the Appalachians of the USA seem to be one continuous series.



*The Caledonians of Europe & The Appalachians of the USA*



*Continuous Very Old Fold Mountain Chain*

### Criticism

- Coastlines are a temporary feature and are liable to change over the years. The mountains do not always exhibit geological affinity.
- Several other combinations of fitting in of unrelated landforms could be easily attempted.

- Presence of *glossopteris* vegetation in Carboniferous rocks of India, Australia, South Africa, **Falkland Islands (Overseas territory of UK)**, Antarctica, etc. (all split from the same landmass called **Gondwana**) can be explained from the fact that parts were linked in the past.
- **Criticism:** Similar vegetation is found in unrelated parts of the world like Afghanistan, Iran and Siberia.

### Distribution of Fossils

- The observations that Lemurs occur in **India, Madagascar** and **Africa** led some to consider a contiguous landmass "**Lemuria**" linking these three landmasses. *Mesosaurus* was a small reptile adapted to shallow brackish water. The skeletons of these are found only in South Africa and Brazil. The two localities presently are 4,800 km apart with an ocean in between them.
- **Criticism:** Similar fossils were identified in unrelated parts of the world.

### Polar wandering (Shifting of Poles)

- The position of the poles constantly drifted (due to plate tectonics).
- **Criticism:** Poles may have shifted, not necessarily the continents.

### Rocks of Same Age Across the Oceans

- The belt of ancient rocks of 2 billion years from Brazil's coast matches with those from western Africa.
- **Criticism:** Rocks of the same age and similar characteristics are found in other parts of the world too.

### Tillite deposits

- **Tillite deposits** are **sedimentary rocks** formed out of **deposits of glaciers**. The Gondwana system of tillite sediments is found in India, Africa, Falkland Island, Madagascar, Antarctica and Australia (all were previously part of Gondwana). Overall resemblance demonstrates that these landmasses had remarkably similar histories.

### Placer Deposits

- Rich **placer deposits of gold** are found on the Ghana coast (West Africa) but the source (gold-bearing veins) are in Brazil, and it is obvious that the gold deposits of Ghana are derived from the Brazil plateau when the two continents lay side by side.

## 66) Consider the following statements:

- Statement I: The amount of dust particles in the atmosphere is more in subtropical and temperate areas than in equatorial and polar regions.
- Statement II: Subtropical and temperate areas have less dry winds.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement I and Statement II are correct and Statement II explains Statement I
- b) Both Statement I and Statement II are correct but Statement II does not explain Statement I
- c) Statement I is correct but Statement II is not correct
- d) Statement I is not correct but Statement II is correct

**Answer: (c): Statement I is correct but Statement II is not correct**

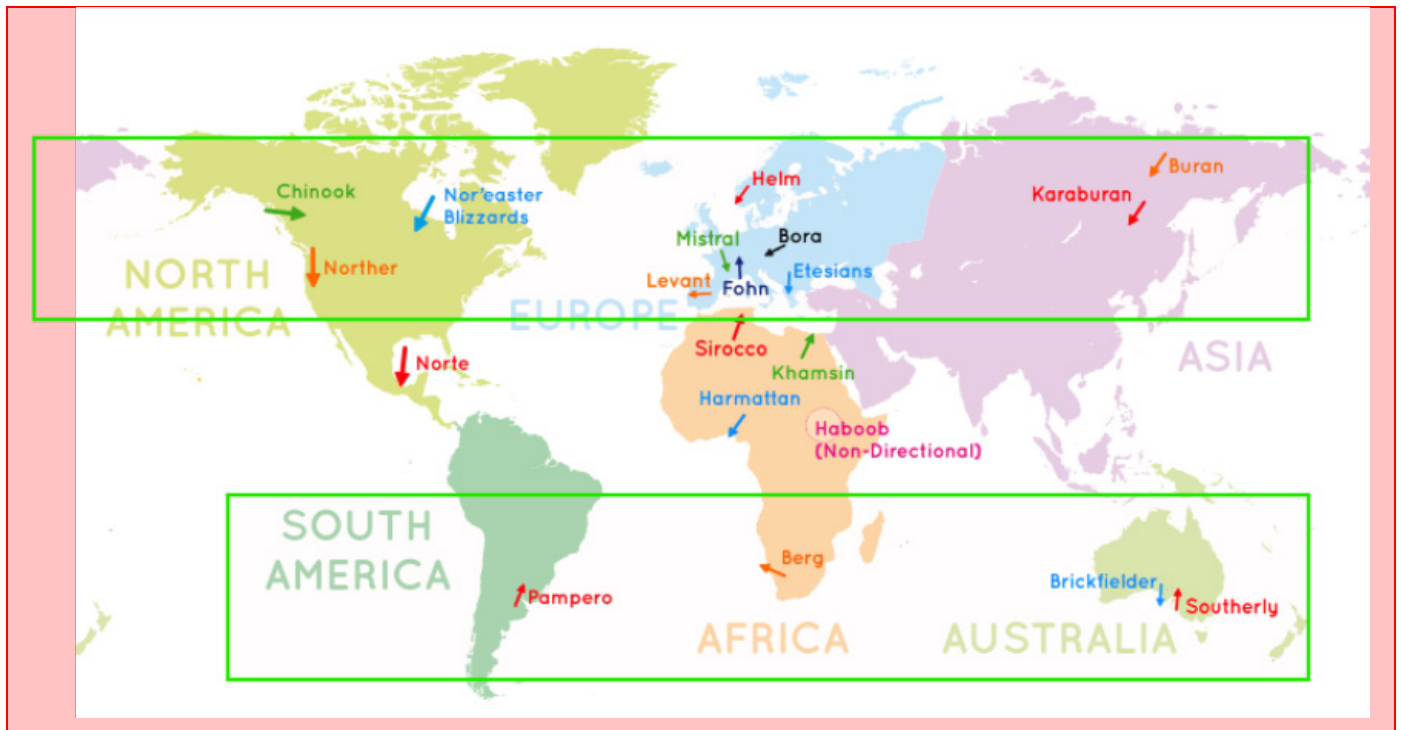
### **Explanation**

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- Atmospheric dust particles are influenced by factors like aridity, wind patterns, and land cover.
- Subtropical regions, particularly arid and semi-arid areas like the Sahara, Middle East, and parts of Central Asia, are major sources of dust due to dry soils and strong winds. For example, the Sahara contributes significantly to global dust emissions via trade winds.
- Subtropical regions are actually known for dry winds, particularly due to descending air in high-pressure zones (like trade wind deserts).
- Temperate regions, such as parts of North America or Central Asia, can also produce dust in dry seasons or from agricultural activity. E.g. Chinook or Mistral.
- Equatorial regions (e.g., Amazon, Congo) have high vegetation cover and moisture, reducing dust generation.
- Polar regions (e.g., Arctic, Antarctica) have ice or snow cover, limiting dust sources except in rare dry areas like Antarctica's Dry Valleys.

***Covered in the PMF IAS Book? Partially Covered (Physical Geography Book – Page No. 322)***





## 67) Consider the following statements

- I. Statement I: In January, in the Northern Hemisphere, the isotherms bend equatorward while crossing the landmasses, and poleward while crossing the oceans.
- II. Statement II: In January, the air over the oceans is warmer than that over the landmasses in the Northern Hemisphere.

**Which one of the following is correct in respect of the above statements?**

- a) Both Statement I and Statement II are correct and Statement II explains Statement I
- b) Both Statement I and Statement II are correct but Statement II does not explain Statement I
- c) Statement I is correct but Statement II is not correct
- d) Statement I is not correct but Statement II is correct

**Answer: (a): Both Statement I & Statement II are correct & Statement II explains Statement I**

## Explanation

- Isotherms are lines on a map connecting points of equal temperature.
- In January, the Northern Hemisphere experiences winter, with significant temperature contrasts between land and oceans.
- During winter, landmasses cool more rapidly than oceans due to differences in heat capacity. Isotherms reflect these temperature gradients, bending to reflect colder temperatures over land and warmer temperatures over oceans.

- Specifically, isotherms shift equatorward (southward) over landmasses, indicating colder temperatures, and poleward (northward) over oceans, indicating warmer temperatures, due to the moderating effect of oceans.
- Oceans have higher heat capacity than land, retaining heat longer and moderating temperatures.
- In January, Northern Hemisphere oceans (e.g., North Atlantic, Pacific) remain warmer than landmasses, which lose heat rapidly due to lower heat capacity and radiative cooling.

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Advance Geography Test 06))***

***Covered in the PMF IAS Book? Yes, Completely Covered (Physical Geography Book – Page No. 287)***

#### **Seasonal Temperature Distribution – January**

##### **Northern Hemisphere**

- During January, it is winter in the northern hemisphere & summer in the southern hemisphere.
- The western margins of continents are warmer than their eastern counterparts since the **Westerlies** are able to carry high temperatures (from the oceans) into the landmasses.

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- The isotherms are **closer on the eastern margins** as the **temperature gradient is high** because of the **less moderating effect of the oceans** (westerlies flow from west to east).
- The isotherms deviate to the north over the ocean. For example, the presence of **warm Gulf Stream and North Atlantic drift** make the Northern Atlantic warmer and the isotherms show a **poleward shift** indicating that the currents are able to carry high temperatures poleward.
- The isotherms deviate equatorward over the continents (**due to continentality**) as the cold polar winds are able to penetrate southwards into the interiors.
- Lowest temperatures are recorded over northern Siberia and Greenland (**due to continentality**).

##### **Southern Hemisphere**

- The effect of the ocean is well pronounced, and the isotherms exhibit a more regular behaviour. The iso-

**68) Consider the following statements:**

- I. Statement I: In the context of effect of water on rocks, chalk is known as a very permeable rock whereas clay is known as quite an impermeable or least permeable rock.
- II. Statement II: Chalk is porous and hence can absorb water.
- III. Statement III: Clay is not at all porous.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement II and Statement III are correct and both of them explain Statement I
- b) Both Statement II and Statement III are correct but only one of them explains Statement I
- c) Only one of the Statements II and III is correct and that explains Statement I
- d) Neither Statement II nor Statement III is correct

***Answer: (c): Only one of the Statements II and III is correct and that explains Statement I***

### **Explanation**

---

- Chalk is very permeable due to its high porosity and interconnected pores, often forming aquifers. Clay is very low in permeability due to tightly packed fine grains, though it may still be porous.
- Thus, the statement is geologically sound. Statement II: Correct & Explains Statement I
- Chalk is porous, enabling it to absorb and transmit water, contributing to its permeability. Hence, this explains the chalk part of Statement I. Statement III: Incorrect
- Clay is porous but not permeable due to poor pore connectivity. The claim that clay is “not at all porous” is factually wrong.

***Covered in the PMF IAS Book? Yes, Partially Covered (Physical Geography Book - Page No. 171 [clay] and 216 [chalk])***

- Sea waves, aided by winds, currents, tides and storms carry on the erosional and depositional processes. The erosive work of the sea depends upon the size and strength of waves, slope, the height of the shore between low and high tides, the shape of the coast, the composition of rocks, depth of water, human activity etc.
- The wave pressure compresses the air trapped inside rock fissures, joints, faults, etc. forcing them to expand and rupture along the weak points. This is how rocks undergo weathering under wave action.
- Waves also use rock debris as instruments of erosion (glaciers are far good at this). These rock fragments carried by waves themselves get worn down by striking against the coast or one another.
- The solvent or chemical action of waves is another mode of erosion, but it is pronounced only in the case of soluble rocks like limestone and chalk.

### Marine Erosional Landforms

#### Chasms

- Chasms are narrow, deep indentations (a deep recess or notch) carved due to headward erosion (downcutting) through vertical planes of weakness in the rocks by wave action. With time, further headward erosion is hindered by lateral erosion of the chasm mouth, which itself keeps widening till a bay is formed.

## 13.2. Sedimentary Rocks or Detrital Rocks

- Sedimentary rocks are formed by **lithification** — consolidation and compaction of sediments (a result of denudation (weathering and erosion) of **all** types of rocks). Hence, they are layered or stratified of varying thicknesses. Example: **sandstone**, **shale** etc. Ice deposited sedimentary rocks are called **tillite**. Wind-deposited sediments are called **loess**.
- Sedimentary rocks cover 75 per cent of the earth's crust but volumetrically occupy only 5 per cent (because they are available only in the upper part of the crust). Depending upon the mode of formation, they are classified into:
  1. **mechanically formed** — **sandstone**, **conglomerate**, **limestone**, **shale**, **loess**, etc.
  2. **organically formed** — **geyserite**, **chalk**, **limestone**, **coal**, etc.
  3. **chemically formed** — **limestone**, **halite**, **potash**, etc.

### Mechanically Formed Sedimentary Rocks

- They are formed by mechanical agents like running water, wind, ocean currents, ice, etc. Some are arenaceous rocks (consisting of sand or large particles of a substance similar to sand). They are hard and **porous** and form the **best reservoirs for liquids like groundwater and petroleum**. E.g. **sandstone**. Argillaceous rocks have more clay and are fine-grained, softer, and **mostly impermeable** (mostly non-porous or have very tiny pores). E.g. **claystone** and **shales**.

### Chemically Formed Sedimentary Rocks

- Water containing minerals evaporates at the mouth of springs or salt lakes and gives rise to **stalactites** and **stalagmites** (deposits of lime left over by the lime-mixed water as it evaporates in the underground

- I. Without the atmosphere, the temperature would be well below the freezing point everywhere on the Earth's surface.
- II. Heat absorbed and trapped by the atmosphere maintains our planet's average temperature.
- III. Atmosphere's gases, like carbon dioxide, are particularly good at absorbing and trapping radiation.

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

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

***Answer: (D): II and III***

### **Explanation**

---

- Without an atmosphere, Earth's daytime temperatures could be extremely hot and nighttime temperatures could be extremely cold.
- Earth would experience extreme temperature swings, similar to the Moon, where daytime temperatures soar due to direct solar radiation and nighttime temperatures plummet due to rapid heat loss to space.
- While the average temperature would be below freezing ( $-18^{\circ}\text{C}$ ), and nighttime or polar temperatures would consistently be so, daytime temperatures in many regions would not be "well below freezing point."
- The greenhouse effect—heat trapped by atmospheric gases—maintains Earth's average temperature ( $\sim 15^{\circ}\text{C}$ ), preventing extreme cooling.
- Gases such as carbon dioxide ( $\text{CO}_2$ ), methane ( $\text{CH}_4$ ), and water vapour are excellent at absorbing and re-emitting longwave radiation, making them central to the greenhouse effect.

***Covered in the PMF IAS Book? Yes, Completely Covered (Physical Geography Book – Page No. 56 & 293)***

### Internal Structure of Various Solar System Objects

- The entire solar system was formed from a single nebular cloud, and the formation process of every solar system object is believed to be similar to that of the earth.

### Evolution & Present Composition of The Atmosphere

- For life to flourish on the surface of the earth, the atmosphere needs to have essential components like oxygen for respiration, CO<sub>2</sub> and other greenhouse gases to maintain the temperature on the surface, **ozone to protect life from ultraviolet radiation** and the right atmospheric pressure. All these components of the earth's atmosphere owe their existence to the **volcanic eruptions** that unlock them from the earth's interior.

### Mineral Exploration

- Understanding volcanic activity and the nature of rocks is essential for mineral exploration. Most of the minerals like **diamonds** that occur on the earth's surface are formed deep below the earth's surface (**at a depth of 150-800 km in the mantle**). They are brought to the surface by **volcanic activity**.

## 4.3. Direct Sources of Information

### 20.3. Importance of Earth's Atmosphere

- Earth is unique among planets as it has life and life on earth would not have been possible if not for the present state of the atmosphere.

#### Life-giving gases

- Plants require carbon dioxide to survive while animals and many other organisms need oxygen for their survival. Nitrogen is fixed by bacteria and lightning to produce ammonia used in the construction of nucleotides and amino acids.

#### Regulates the entry of solar radiation

- All life forms need a particular range of temperature and a specific range of frequencies of solar radiation to carry out their biophysical processes. The atmosphere absorbs certain frequencies and lets through some other frequencies of solar radiation. In other words, the atmosphere regulates the entry of solar radiation.

#### Temperature balance

- The atmosphere also keeps the temperature over the earth's surface within certain limits. **In the absence of the atmosphere extremes of temperature would exist between day and night.**

## 70) Consider the following statements about the Rashtriya Gokul Mission:

- I. It is important for the upliftment of rural poor as majority of low producing indigenous animals are reared and managed by farmers with small and marginal farmers and landless labourers.



- II. It was initiated to promote indigenous cattle and buffalo rearing and conservation in a scientific and holistic manner.

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

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

***Answer: (c): Both I and II***

### **Explanation**

---

- **Statement I is correct:** The RGM will result in enhanced productivity and benefit of the programme, percolating to all cattle and buffaloes of India especially with small and marginal farmers. This programme will also benefit women in particular since over 70% of the work involved in livestock farming is undertaken by women.
- **Statement II is correct:** It was started to enhance productivity of bovines and increasing milk production in a sustainable manner using advance technologies.

***Covered in the PMF IAS Test Series? Yes, Partially Covered (Economic Survey Test)***

***Covered in PMFIAS CA: Yes; Partially covered in Economic Survey and***

***<https://www.pmfias.com/current-affairs-for-upsc-civil-services-exam-july-11-2024/#:~:text=26th%20November.-,Rashtriya%20Gokul%20Mission,of%20the%20nondescript%20bovine%20population.>***

## Rashtriya Gokul Mission

- It was launched in 2014 for the development and conservation of **Indigenous breeds** through selective breeding in the breeding tract and genetic upgradation of the **nondescript bovine population**.
- **Implemented by:** Department of Animal Husbandry and Dairying under the **Ministry of Fisheries, Animal Husbandry & Dairying**.
- **Implementing agencies:** State Implementing Agency (SIA) viz Livestock Development Boards.
- **Participating agencies:** Other agencies having a role in Bovine Development like CFSPTI, CCBFs, ICAR, Universities, Colleges, NGOs, etc.

### Components

- Availability of High genetic Merit Germplasm
- Extension of Artificial Insemination Network
- Development and Conservation of indigenous Breeds
- Skill Development
- Farmers Awareness
- Research Development and Innovation in Bovine Breeding

### Objectives

- To enhance productivity of bovines & sustainably increase milk production using advanced technologies.
- To propagate the use of high genetic merit bulls for breeding purposes.
- To enhance Artificial insemination coverage through strengthening the breeding network and delivery of Artificial insemination services at farmers' doorstep.
- To promote indigenous cattle & buffalo rearing and conservation scientifically and holistically.

***Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.***

#### 4.1. {Dairy} National Gopal Ratna Award

- By Department of Animal Husbandry and Dairying since 2021 under the **Rashtriya Gokul Mission**.
- It consists of a **Certificate of merit**, a **memento**, and a **monetary prize** in the first two categories:
- In the case of the **Best Artificial Insemination Technician (AIT)** category, **no cash prize** is provided.
- The awards will be conferred on the occasion of **National Milk Day** on 26<sup>th</sup> November.
- One **Special award** for **North-Eastern Region (NER)** States (conferred from 2024 onwards).

#### Rashtriya Gokul Mission

- Launched in 2014 for the development and conservation of **Indigenous breeds**.
- **Implemented by:** Department of Animal Husbandry and Dairying under the **Ministry of Fisheries, Animal Husbandry & Dairying**.
- **Implementing agencies:** State Implementing Agency (SIA) viz Livestock Development Boards.

#### Objectives

- To enhance productivity of bovines & sustainably increase milk production using advanced technologies.
- To propagate the use of high genetic merit bulls for breeding purposes.
- To enhance Artificial insemination coverage through strengthening the breeding network.
- To promote indigenous cattle & buffalo rearing and conservation scientifically and holistically.

#### Funding pattern

- All the components have **100% grant-in-aid basis** except:
- ❖ **Accelerated breed improvement programme** under the component subsidy of **Rs 5000 per IVF pregnancy** will be made available to participating farmers as Gol share;
- ❖ **Promoting sex-sorted semen** under the component subsidy up to **50% of the cost** of it;
- ❖ **Establishment of a breed multiplication farm** under the component subsidy of up to **50% of the capital cost** maximum of up to **Rs.2.00 crore** of the project will be made available to entrepreneurs.

#### Initiatives under RGM

- Awards for encouraging farmers/breeder societies to rear Indigenous breeds of Bovines
- ❖ **Gopal Ratna awards:** For farmers maintaining the best

- ❖ **Kamdhenu awards:** For Best-managed Indigenous Herd by Institutions/Trusts/ NGOs/ Gaushalas.
- **Gokul Gram:** To develop indigenous breeds, including up to 40% nondescript breeds.
- **National Kamdhenu Breeding Centres:** Established as Centres of Excellence to develop and conserve Indigenous Breeds holistically and scientifically.
- **Pashu Sanjivni:** An Animal Wellness Programme encompassing the provision of Animal Health cards ('Nakul Swasthya Patra') along with UID identification and uploading data on a National database.
- **Advanced Reproductive Technology:** Including Assisted Reproductive Technique-In-vitro Fertilization (IVF)/ Multiple Ovulation Embryo Transfer (MOET) and sex-sorted semen technique to improve the availability of disease-free female bovines.
- **National Bovine Genomic Center for Indigenous Breeds (NBGC-IB):** For selection of breeding bulls of high genetic merit at a young age using highly precise gene-based technology.

⇒ **Follicle-stimulating hormones:** A hormone made in the **pituitary gland**. In females, it acts on the ovaries to make the follicles and eggs grow. In males, it acts on the testes to make sperm.

#### Sex-sorted (SS) semen

- Semen having X or Y bearing sperm to produce progenies of a desired sex either female or male (with about 80-90% accuracy) is known as sexed semen.
- Sperm are sorted by identifying differences between the X- and Y- bearing sperm. The X-chromosome (female) contains about **3.8% more DNA** than the Y-chromosome (male) in cattle.
- This difference in DNA content is used to sort the X- from the Y- bearing sperm.

#### White Revolution

- The **National Dairy Development Board** was established in September 1965.
- **Former PM Lal Bahadur Shastri** appointed **Kurien** as the chairman of this organisation.
- It laid the basis for the **Operation Flood** program.
- The **Operation Flood** contributed to India becoming the **world's largest milk producer** by 1998.
- **Ajarpura** was the **first Amul Dairy Cooperative Society (DCS)** to be registered on August 7, 1947. It played a crucial role in seeding the **White Revolution**.

## 71) Consider the following statements about Raja Ram Mohan Roy:

- I. He possessed great love and respect for the traditional philosophical systems of the East.
- II. He desired his countrymen to accept the rational and scientific approach and the principle of human dignity and social equality of all men and women.

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

- a) I only
- b) II only
- c) Both I and II

d) Neither I nor II

**Answer: (c): Both I and II**

## Explanation

- Raja Ram Mohan Roy focused on Reasoning. He opposed the blind reliance on the past. He ultimately relied on the power of human reason. He wanted his countrymen to accept the rational and scientific approach.
- Raja Ram Mohan Roy represented a synthesis of the thoughts of the East and West. He greatly respected the traditional philosophic systems of the East.

**Covered in the PMF IAS History Book? Yes, Completely Covered**

PMFIAS-Modern-Indian-History-First-Edition-PF.pdf  
Page 181 of 452

❖ To study the **Bible** in the original, he learnt Greek and Hebrew.

### Interpreting Hinduism

Rammohun Roy carried on a **persistent struggle against** the **religious** and **social evils** which were widely prevalent among the Hindus in Bengal. Roy vigorously **opposed** the **worship of idols**, the **rigidity of caste**, and the prevalence of meaningless religious rituals. He **condemned** the **priestly class** for encouraging and inculcating these practices. Roy firmly believed in the **Advaita philosophy** (one of the schools of Vedanta), which rejected caste, idolatry and superstitious rites and rituals. Roy believed in **monotheism**. He argued that the main ancient Hindu texts advocated monotheism (the worship of a single god). To prove his point, he **published** the **Bengali translation** of the **Vedas** and **five** of the **principal Upanishads**. Roy wanted to present the concept of **universal religion** by combining the best features of all leading religions of the world. The **Quranic concept** of Tauhid or **Unity of God** fascinated Roy. He admired the **Bible** as much as the **Vedanta** and the **Quran**.

### Focus on Reasoning

- Roy **opposed** the **blind reliance** on the **past**. He ultimately relied on the power of **human reason**. He wanted his countrymen to accept the **rational** and **scientific approach**.
- Roy declared that **one should not hesitate to depart from holy books**, scriptures, and inherited traditions **if human reason demands** it.
- He believed that the philosophy of **Vedanta** was based on this **principle of reason**.

### Rational Approach to All Religions

- Roy applied **rationalism** not only to Indian religions and traditions but also to **Christianity**, which disappointed his many missionary friends.

### The Blend of East and West

- Rammohun Roy represented a synthesis of the **thoughts of the East and West**. He greatly **respected** the **traditional philosophic** systems of the East, but he also believed that **modern culture** alone would help regenerate Indian society.
- Roy proposed that a **new India**, guided by **reason**, should acquire and treasure all that is **best in the East**.

**72) Consider the following subjects with regard to Non-Cooperation Programme:**

- I. Boycott of law-courts and foreign cloth
- II. Observance of strict non-violence

- III. Retention of titles and honours without using them in public
- IV. Establishment of Panchayats for settling disputes

***How many of the above were parts of Non-Cooperation Programme?***

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

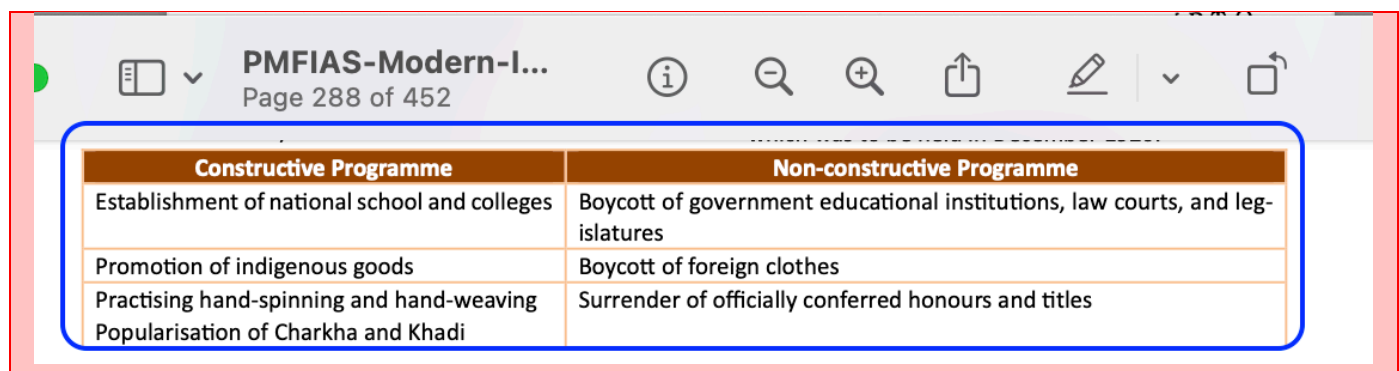
***Answer: (c): Only three***

**Explanation**

- Non-Cooperation Programme included:
  1. Establishment of national schools and colleges
  2. Promotion of indigenous goods
  3. Practising hand-spinning and hand-weaving
  4. Popularisation of Charkha and Khadi
  5. Boycott of government educational institutions, law courts, and legislatures
  6. Boycott of foreign clothes
  7. Surrender of officially conferred honours and titles
  8. Establishment of Panchayats for settling disputes

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Comprehensive Test 03)***

***Covered in the PMF IAS History Book? Yes, Completely Covered***



| Constructive Programme                        | Non-constructive Programme   |
|---|--|
| Establishment of national school and colleges | Boycott of government educational institutions, law courts, and legislatures |
| Promotion of indigenous goods                 | Boycott of foreign clothes   |
| Practising hand-spinning and hand-weaving     | Surrender of officially conferred honours and titles                         |
| Popularisation of Charkha and Khadi           |  |

**73) The irrigation device called 'Araghatta' was**

- a) a water bag made of leather pulled over a pulley

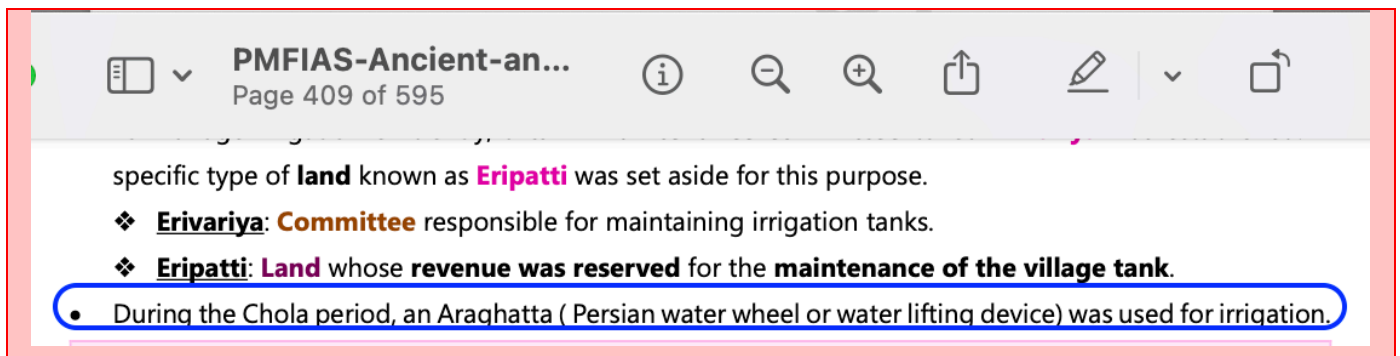
- b) a large wheel with earthen pots tied to the outer ends of its spokes
- c) a larger earthen pot driven by bullocks
- d) a large water bucket pulled up by rope directly by hand

**Answer: (b): a large wheel with earthen pots tied to the outer ends of its spokes**

### Explanation

- During the Chola period, an Araghatta (Persian water wheel or water lifting device) was used for irrigation.

**Covered in the PMF IAS History Book? Yes, Completely Covered**



**74) Who among the following rulers in ancient India had assumed the titles *Mattavilasa, Vichitrachitta and Gunabhara*?**

- a) Mahendravarman I
- b) Simhavishnu
- c) Narasimhavarman I
- d) Simhavarman

**Answer: (a): Mahendravarman I**

### Explanation

#### **Pallava Rulers: Titles**

- Mahendravarman I: Sankiranjati, Mattavilasa, Gunabhara, Chitrakarapuli, Vichitra Chitta
- Narasimhavarman: Vatapikonda (conqueror of Vatapi), Mamalla (great wrestler).

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test 03)**

**Covered in the PMF IAS History Book? Yes, Completely Covered**



|   |   |
|---|---|
| <div> <div>PMFIAS-Ancient-an...</div> <div>Page 575 of 595</div> </div> |   |
| Mahendravarman I  | <div> <div>✓ Mattavilasa Prahasana</div> <div>✓ Bhagavadajjuka</div> </div> |

***Covered in the PMF IAS Art and Culture Book? Yes, Completely Covered***

|   |
|---|
| <div>Mahendra Varman</div> <hr/> <div> <div> <div> <div>• He was a <b>Pallava king</b> of the 7<sup>th</sup> century and wrote a one-act play, <b>Mattavilasa Prahasana (A Farce of Drunken Sport)</b>, that pokes fun at religious sects such as Kapalika, Pasupata, Buddhism and Jainism.</div> <div>• The play is set in Kanchipuram, the capital city of the Pallavas, and it provides a fascinating look into life in Kanchipuram in the seventh century.</div> </div> </div> </div> |
|---|

**75) Fa-hien (Faxian), the Chinese pilgrim, travelled to India during the reign of**

- a) Samudragupta
- b) Chandragupta II
- c) Kumaragupta I
- d) Skandagupta

***Answer: (b): Chandragupta II***

### **Explanation**

- Fa-hien (Faxian) visited India during Chandragupta II's reign in the fifth century CE
- Xuan Zang Visited during Harsha's reign in the seventh century
- I-Qing came in the seventh century

***Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test 02 and Comprehensive Test 08)***

***Covered in the PMF IAS History Book? Yes, Completely Covered***



## 26.2. Foreign Travellers

| Foreign Traveller | Key Points  |
|-------------------|---|
| Megasthenes       | <ul style="list-style-type: none"><li>A <b>Greek ambassador</b> sent by Seleucus to the court of <b>Chandragupta Maurya</b>.</li><li>He wrote an account of the Maurya empire in his book 'Indica'.</li></ul> |
| Fa Xian (Fa Hien) | <ul style="list-style-type: none"><li>Chinese monk</li><li>Visited India during <b>Chandragupta II's reign</b> for around nine years, probably 400-410 CE.</li></ul>  |

**Covered in the PMF IAS Art & Culture Book? Yes, Completely Covered**

### Faxian (Fa-Hien) (5<sup>th</sup> Century CE)

- Native Country:** China
- In India:** 399-414 CE, during the reign of **Chandragupta II** (Gupta Empire)

#### Main Observations

- Described Buddhist practices and monasteries, highlighted the prosperity and **law-abiding nature** of Indian society and mentioned cities like Pataliputra and Mathura.
- His work 'A Record of the Buddhist Kingdoms'.

**76) Who among the following led a successful military campaign against the kingdom of Srivijaya, the powerful maritime State, which ruled the Malay Peninsula, Sumatra, Java and the neighbouring islands?**

- a) Amoghavarsha (Rashtrakuta)
- b) Prataparudra (Kakatiya)
- c) Rajendra I (Chola)
- d) Vishnuvardhana (Hoysala)

**Answer: (c): Rajendra I (Chola)**

### Explanation

- Rajaraja Chola led naval expeditions and defeated the Sri Lankan king Mahinda V, and conquered the northern part of Sri Lanka. He also conquered the Maldives.

- Rajendra Chola led the naval expedition against the Sri Vijaya empire of Southeast Asia. The empire was led by the Sailendra dynasty and extended over the Malay peninsula, Sumatra, Java and the neighbouring islands.

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test 03)**

**Covered in the PMF IAS History Book? Yes, Completely Covered**

**Rajendra Chola (1012- 1044 CE)**

- Rajaraja Chola appointed his son, Rajendra Chola, as his heir while he was still alive in 1012. They ruled the Chola kingdom together for two years.
- Rajendra Chola continued his father's policy of aggressive conquests and expansion. He led the expedition up to the Godavari River and sent a victorious **expedition to north India**. The Chola army crossed the Ganges by defeating a number of rulers on its way. To commemorate this successful north-Indian campaign, Rajendra founded the capital near the mouth of the Kaveri river and called it **Gangaikondacholapuram**. He also constructed the famous **Shiva temple** in that city.
- Rajendra Chola also conquered **southern Sri Lanka**, effectively bringing the entire island under Chola rule during his reign.
- Rajendra Chola led the naval expedition against the **Sri Vijaya empire** of **Southeast Asia**. The empire was led by the Sailendra dynasty and extended over the Malay peninsula, Sumatra, Java and the neighbouring islands. The expeditions led to the conquest of Kadaram and a number of other places in the Malay peninsula and Sumatra.

IAS Ancient & Medieval India 380

**Covered in the PMF IAS Art and Culture Book? Yes, Completely Covered**

**International Influence**

- The Chola Empire extended its influence across South India and even reached Southeast Asia through maritime expeditions. This resulted in a **cultural exchange** between India and regions like Sri Lanka, Indonesia, Cambodia, and Thailand, where the Chola art, architecture, and religious practices left a lasting impact.
- Chola temples and art in these regions reflect Indian influence in their religious iconography, particularly in the depiction of Hindu gods and temple structures.

**77) With reference to ancient India (600–322 BC), consider the following pairs:**

1. Asmaka: Godavari
2. Kamboja: Vipas

3. Avanti: Mahanadi
4. Kosala: Sarayu

**How many of the pairs given above are correctly matched?**

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

**Answer: (b): Only two**

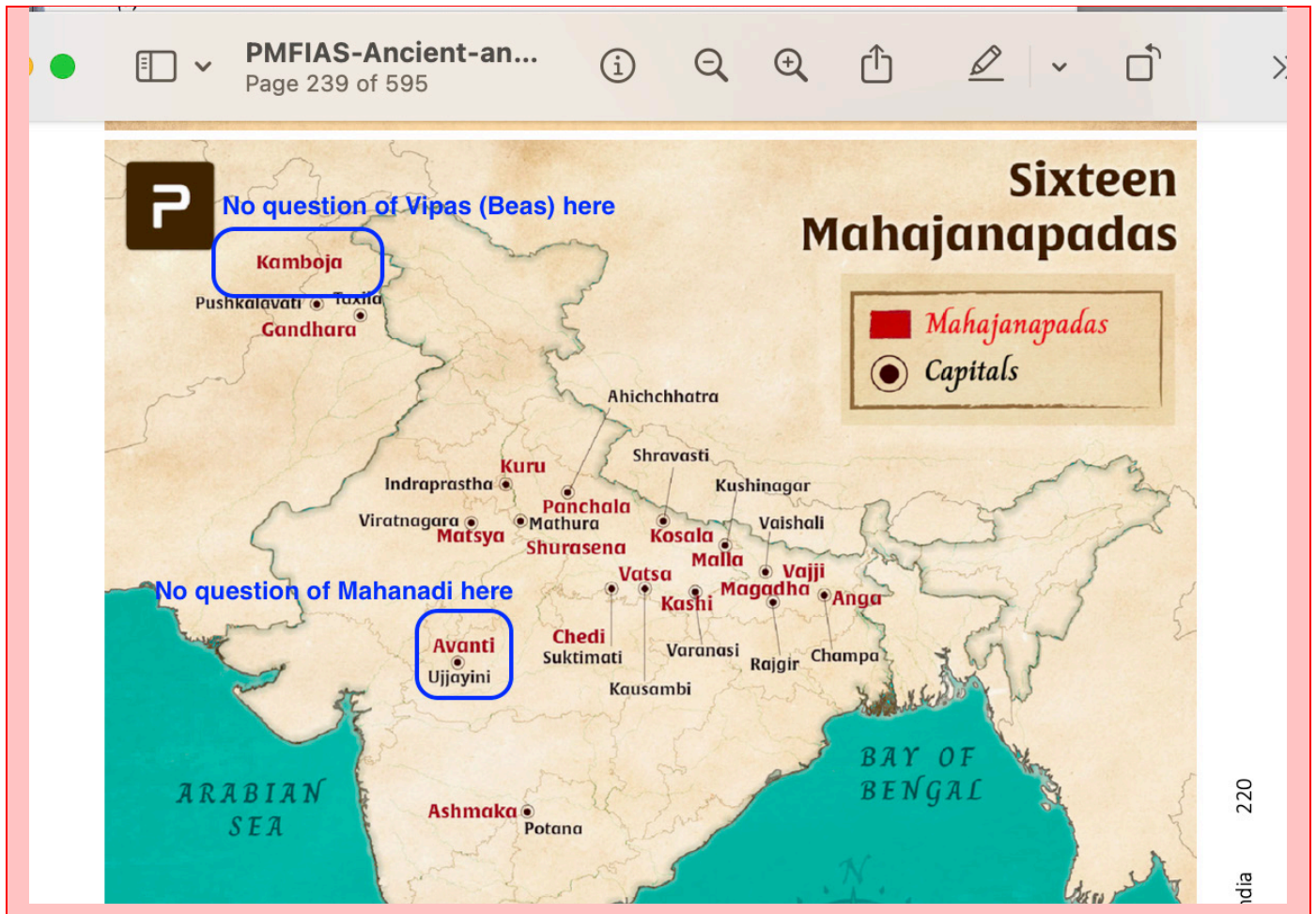
### **Explanation**

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1. The kingdom of Assaka was located along the Godavari River in Maharashtra.
2. Kamboja was not located along the Vipra (Beas river). The Kingdom of Kamboja includes the areas of Jammu, parts of the NWFP of Pakistan and parts of Afghanistan. Vipra (Beas river) passes through Himachal Pradesh and Punjab.
3. The kingdom of Avanti was located in the Malwa region of central India (Madhya Pradesh). It was not located in the region of Mahanadi which mainly flows through Chhattisgarh and Odisha.
4. The Kingdom of Kosala covered the eastern part of Uttar Pradesh. It was located near the Sarayu river.

***Covered in the PMF IAS Test Series? Yes, Partially Covered (Sectional Test 01)***

***Covered in the PMF IAS History Book? Yes, Completely Covered***



**78) The first Gandharva Mahavidyalaya, a music training school, was set up in 1901 by Vishnu Digambar Paluskar in**

- a) Delhi
- b) Gwalior
- c) Ujjain
- d) Lahore

**Answer: (d)**

**Covered in the PMF IAS Art & Culture Book? No**

**79) Ashokan inscriptions suggest that the *Pradeshika*, *Rajuka* and *Yukta* were important officers at the**

- a) village-level administration
- b) district-level administration
- c) provincial administration

d) level of the central administration

**Answer: (b): district-level administration**

## Explanation

- District administration: Pradesika, Rajuka and Yukta were officials at the district level. Their functions included - survey and assessment of land, tours and inspections, revenue collection, and maintaining law and order, etc.
1. Pradesika's position and functions were similar to those of modern collector (overall incharge of the district).
  2. Rajukas were responsible for the survey and assessment of land.
  3. Yuktas, or subordinate officials, assisted Rajukas.

**Covered in the PMF IAS Test Series? Yes, Completely Covered (Sectional Test 01)**

**Covered in the PMF IAS History Book? Yes, Completely Covered**

### Local Administration

- The provinces were divided into **smaller units**, and arrangements were made for both rural and urban administration. The administrative units were a set up at the district level consisting of a number of villages and at the same time each village had its own administrative unit.
- **District administration:** Pradesika, Rajuka and Yukta were officials at the district level. Their functions included - survey and assessment of land, tours and inspections, revenue collection, and maintaining law and order, etc.
  - ❖ Pradesika's position and functions were similar to those of modern collector (overall incharge of the district). Rajukas were responsible for the survey and assessment of land. Yuktas, or subordinate officials, assisted Rajukas.

PMF IAS Ancient & Medieval India

## 80) Consider the following statements in respect of the Non-Cooperation Movement:

- I. The Congress declared the attainment of 'Swaraj' by all legitimate and peaceful means to be its objective.
- II. It was to be implemented in stages with civil disobedience and non-payment of taxes for the next stage only if 'Swaraj' did not come within a year and the Government resorted to repression.



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

- a) I only
- b) II only
- c) Both I and II
- d) Neither I nor II

***Answer: (c): Both I and II***

### **Explanation**

---

- Gandhi's strategy for the Non-Cooperation Movement involved a phased approach. Initially, it emphasized non-violent non-cooperation, including the boycott of titles, law courts, government schools, and foreign goods. The next phase was mass civil disobedience, including non-payment of taxes. After the Chauri-Chaura Incident, Gandhi postponed the proposed civil disobedience.
- At the Nagpur Congress Session in 1920, Congress approved the non-cooperation resolution moved by C.R. Das. Congress creed changed from the goal of attainment of self-government through constitutional means to the attainment of Swaraj by peaceful and legitimate means.

***Covered in the PMF IAS Test Series? Yes, Partially Covered (Sectional Test 05)***

***Covered in the PMF IAS History Book? Yes, Completely Covered***



- On **1 February 1922**, Mahatma Gandhi sent an ultimatum to the viceroy that he would **start mass civil disobedience**, including **non-payment of taxes**, if **within seven days**:
  - The **political prisoners** were **not released**.
  - The **press** was **not freed** from government control.
- Since the whole country was not fit for **civil disobedience**, Gandhi decided to **launch** in **Bardoli**.

- Gandhi felt that **people** had **not learnt** or fully understood the **method of non-violence**.
- The **movement** was turning **violent**, which the British could easily suppress.
- The movement was showing **signs of fatigue**. This was natural, as any movement maintained at a high intensity for a prolonged period is unsustainable.
- The movement was gradually turning into a **no-rent movement** against the **Zamindars**. If the movement



1920

Nagpur

C. Vijayaraghavachariar

- ✓ Congress creed changed from the goal of attainment of self-government through constitutional means to the attainment of Swaraj by peaceful and legitimate means.
- ✓ Reaffirmed the non-cooperation resolution of Calcutta and approved non-cooperation resolution moved by C.R. Das.
- ✓ An All-India **Tilak Swaraj fund** started.
- ✓ A **Working Committee** of **fifteen** was appointed.
- ✓ **M. A. Jinnah** left INC.

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**Dr Vishwjeet Kavar**

Author of

1. PMF IAS Ancient and Medieval India  
2. PMF IAS Modern Indian History Book

## 81) Consider the following types of vehicles:

- I. Full battery electric vehicles
- II. Hydrogen fuel cell vehicles
- III. Fuel cell-electric hybrid vehicles

***How many of the above are considered as alternative powertrain vehicles?***

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

***Answer: (c): All the three***

### Explanation

- An alternative powertrain is a system that powers a vehicle **without relying solely on an internal combustion engine**. These systems aim to **reduce emissions** and **dependence on fossil fuels**. Examples include hybrid, electric, and hydrogen fuel cell powertrains.

| Vehicle Type                      | Alternative Power-train? | Reason   |
|-----------------------------------|--------------------------|--|
| Full Battery Electric Vehicle     | Yes                      | Uses batteries, no fossil fuels  |
| Hydrogen Fuel Cell Vehicle        | Yes                      | Uses hydrogen, emits water   |
| Fuel Cell–Electric Hybrid Vehicle | Yes                      | Combine <b>fuel cell</b> (usually hydrogen-based) with <b>battery storage</b> or another electric system |

***Covered in PMF IAS CA? Yes, Partially Covered***

**[Current Affairs November 28, 2023: IUCN Red List 2.0, Social Stock Exchange, eSIMs, Rat Hole Mining, Occupational Hazards, Electric Vehicles \(EVs\) - PMF IAS](#)**

### {GS3 - IE - Pollution} Electric Vehicles (EVs)

- **Context (TH):** Bike and taxi drivers in Delhi have hailed that switching to electric two-wheelers has rendered nearly 50,000 jobless.
  - An **electric vehicle** is equipped exclusively with one or more electric motors, **powered by a battery**.

#### Types of EVs

1. **Battery Electric Vehicle (BEV):** It is fully powered by electricity. These are **more efficient** compared to hybrid and plug-in hybrids.
2. **Hybrid Electric Vehicle:**
  - **Hybrid Electric Vehicle (HEV):** It uses both an **internal combustion** (usually petrol) engine and a **battery-powered motor powertrain**. The petrol engine is used both to drive and charge when the battery is empty. These vehicles are **not as efficient as fully electric** or **plug-in hybrid vehicles**.
  - **Plug-in Hybrid Electric Vehicle (PHEV):** Uses both an internal combustion engine and battery charged from an external socket (they have a plug). PHEVs are **more efficient than HEVs but less efficient than BEVs**.

### {GS3 - Envi - Air Pollution - 2023/09/28} First Green Hydrogen-Fuelled Bus

- **Context (IE | PIB):** **Indian Oil Corporation** (IOC) has started the operational trial of **green hydrogen-fuelled buses** in the National Capital Region (NCR).
- **Benefits:**
  - Fuel cells are **more efficient than conventional internal combustion (IC) engines**. The electrical efficiency of fuel cells is 55-60% compared to thermal efficiency of around 25% for IC engines.
  - Fuel cell vehicles are also **more efficient than Electrical Vehicles** (EVs).
  - Fuel cell vehicles have **zero carbon emissions** (only emit water vapour and warm air).

**82) With reference to Unmanned Aerial Vehicles (UAVs), consider the following statements:**

- I. All types of UAVs can do vertical landing.
- II. All types of UAVs can do automated hovering.
- III. All types of UAVs can use battery only as a source of power supply.

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

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

**Answer: (d): None**

## Explanation

---

- I. All types of UAVs can do vertical landing. – **Incorrect**
  - Only certain types of UAVs (like multirotors or VTOL drones) can do **vertical takeoff and landing (VTOL)**.
  - **Fixed-wing UAVs** generally require a runway or catapult to take off and land, not vertical landing.
- II. All types of UAVs can do automated hovering. – **Incorrect**
  - **Multirotor UAVs** can hover.
  - But **fixed-wing UAVs** cannot hover – they need forward motion to generate lift.
  - So, not all UAVs can do **automated hovering**.
- III. All types of UAVs can use battery only as a source of power supply. – **Incorrect**
  - Some UAVs use **internal combustion engines, hybrid systems, or solar power**.
  - Battery is common, but not the **only** source of power for all UAVs.

**Covered in PMF IAS CA? Partially Covered (Not directly, but addressed in multiple UAV articles)**

**Covered in the PMF IAS Test Series? Not directly, but addressed in multiple UAV related Questions (Comprehensive Test 01 and CA March Test 2024)**

55) With reference to the 'High-Altitude Platform System (HAPS)', consider the following statements:

1. It can fly at altitudes of 18-20 km from the ground.
2. It can generate solar power.
3. It does not require a rocket to get into space.

*How many of the above statement(s) is/are correct?*

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

**Explanation:**

- Recently, the **National Aerospace Laboratories (NAL)** has successfully completed the **first test of a solar-powered "pseudo satellite"**, a new age **unmanned aerial vehicle (UAV)** that can significantly increase India's surveillance and monitoring capabilities in the border areas.

*Statement 2 is correct*

- It can **generate solar power**, can remain in air for months, even years, offering it advantages of a satellite.
- The technology is crucial for future air combat, utilising solar energy for day travel and solar charged batteries for night flight.



### 8) Consider the following:

1. Aerial photography
2. Search and rescue operations
3. Crop spraying
4. Underwater exploration
5. Underground mining
6. Weather forecasting
7. Targeted strikes
8. Traffic monitoring

*How many of the above are uses of Unmanned Aerial Vehicles (UAVs)?*

- a) Only five
- b) Only six
- c) Only seven
- d) All eight

### Explanation

- **Unmanned Aerial Vehicles (UAVs)**, commonly known as **drones**, are aircraft without a human pilot on board.
- Their flight is **controlled remotely** by a pilot on the ground or autonomously by onboard computers.
- They come in various shapes and sizes, from small quadcopters to large, fixed-wing aircraft.
- **Uses of UAVs include:**
  - ❖ **Aerial photography and videography**
  - ❖ **Surveillance** and monitoring (e.g., border patrol, wildlife monitoring)

- ❖ Delivery of goods (e.g., packages, medical supplies)
- ❖ Agricultural applications (e.g., **crop spraying**, field analysis)
- ❖ **Search and rescue operations**
- ❖ Infrastructure inspection (e.g., bridges, pipelines)
- ❖ Weather forecasting and monitoring
- ❖ Military operations (e.g., reconnaissance, targeted strikes)
- ❖ Scientific research (e.g., atmospheric studies, environmental sampling)
- ❖ **Traffic monitoring**

**83) In the context of electric vehicle batteries, consider the following elements:**

- I. Cobalt
- II. Graphite
- III. Lithium
- IV. Nickel

***How many of the above usually make up battery cathodes?***

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

***Answer: (c): Only three***

### **Explanation**

---

- I. **Cobalt:** Cobalt is commonly used in EV battery cathodes, especially in Lithium Cobalt Oxide (LCO) and Nickel Manganese Cobalt (NMC) chemistries.
- II. **Graphite:** Graphite is used in anodes, not cathodes. It's the most common anode material in lithium-ion batteries.
- III. **Lithium:** Lithium is a core component of the cathode materials. Though it is also present in the electrolyte and anode, it is central to the cathode structure.
- IV. **Nickel:** Nickel is commonly used in cathodes, especially in high-energy batteries like NMC and NCA (Nickel Cobalt Aluminium).

***Covered in PMF IAS? Yes, Completely covered***

**[Lithium-ion battery, Internal Combustion Engine vs. Electric Vehicles - PMF IAS](#)**

- Anode, cathode, electrolyte and separator are the main components of a lithium ion (rechargeable) battery.
- The two electrodes are immersed in the electrolyte and are separated by the separator.
- The anode is usually made up of **graphite (carbon)**.
- Carbon graphite has a **layered structure** that can store the lithium ions in between its layers.
- The cathode is made up of a combination of **lithium-cobalt**.
- Lithium is unstable in the element form; hence the combination lithium-cobalt oxide is used for the cathode.

#### Role of cobalt in Lithium-ion batteries

- **Lithium-cobalt-oxide** is used as the **cathode in rechargeable batteries**.
- Lithium-cobalt-oxide is an intercalation compound with the lithium, cobalt and oxygen arranged in layers.
- Cobalt is indispensable to assure the **rate performance** (rate of charging & discharging occurs).
- When the lithium-ion arrives or departs from the cathode, cobalt changes its oxidation state (**compensates for the gain/loss of charge**) so that the **lithium-cobalt-oxide stays electrically neutral**.
- Cathodes are commonly oxides made from transition metals such as nickel, cobalt, copper, iron, etc.

### 84) Consider the following:

- I. Cigarette butts
- II. Eyeglass lenses
- III. Car tyres

**How many of them contain plastic?**

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

**Answer: (c): All three**

### Explanation

- i. **Cigarette butts:** Cigarette butts do contain plastic. The filter of a cigarette is primarily made of cellulose acetate, a type of plastic.
- ii. **Eyeglass lenses:** Most modern eyeglass lenses are made from plastic, not glass. Common materials include polycarbonate, CR-39 plastic, etc. These are lightweight, impact-resistant, and cheaper than glass.
- iii. **Car tyres:** Car tyres are not pure rubber; they contain synthetic polymers (plastics).
  - They are made from a blend of natural and synthetic rubber (like styrene-butadiene rubber, a plastic polymer).
  - They also contain nylon and polyester fibres, which are also plastic-based materials.

**Covered in PMF IAS? Yes, Partially covered PMF IAS General Science book PDF page 47**

## 8.6. Plastic

- Plastics are a group of **synthetic or semi-synthetic materials** that can be moulded to any shape. Plastics are primarily composed of **polymers**.

| Type of Plastic                          | Description  | Common Uses   |
|--|--|---|
| Polyethylene (PE)                        | The <b>most common plastic</b> , made from polymerising ethylene               | Plastic bags, bottles, toys, containers, packaging              |
| Polypropylene (PP)                       | A durable, <b>heat-resistant plastic</b> made from propylene monomer           | Food containers, ropes, automotive parts, textiles              |
| Polyvinyl Chloride (PVC)                 | A versatile plastic made from polymerising vinyl chloride                      | Pipes, flooring, medical tubing, window frames.                 |
| Polystyrene (PS)                         | A <b>brittle, clear plastic</b> made from polymerising styrene                 | Disposable cutlery, CD cases, packaging materials               |
| Polyethylene Terephthalate (PET or PETE) | A <b>strong, lightweight plastic</b> often used for bottles and containers     | Soft drink bottles, food containers, textiles (e.g., polyester) |
| Acrylonitrile Butadiene Styrene (ABS)    | A tough, impact-resistant plastic known for its strength and durability        | LEGO bricks, automotive parts, electronics casings              |
| Polycarbonate (PC)                       | A <b>strong, transparent plastic</b> with high-impact resistance               | Eyeglass lenses, optical discs (e.g., CDs), windows             |
| Polyamide (Nylon)                        | A strong, flexible plastic known for its abrasion resistance and toughness     | Clothing (e.g., stockings), ropes, automotive parts.            |
| Poly-lactic Acid (PLA)                   | A <b>biodegradable plastic</b> made from renewable resources like corn starch. | Packaging, biodegradable cutlery, 3D printing                   |

## 85) Consider the following substances:

- I. Ethanol
- II. Nitroglycerine
- III. Urea

***Coal gasification technology can be used in the production of how many of them?***

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

***Answer: (b): Only two***

### **Explanation**

---

- Coal gasification converts coal into syngas (a mixture of hydrogen ( $H_2$ ), carbon monoxide (CO), and  $CO_2$ ), which can be further processed to produce various chemicals and fuels.

### ***Ethanol***

- Ethanol can be synthesised indirectly from syngas via Fischer-Tropsch synthesis or catalytic conversion.
- Although ethanol is typically produced from biomass, coal-derived syngas can also be used as a feedstock.

### ***Nitroglycerine***

- Nitroglycerine is made from glycerol (glycerine) and nitric acid.
- Glycerol is typically derived from fats and oils, not from coal or syngas.
- It is not related to coal gasification.

### ***Urea***

- Urea is made from ammonia ( $NH_3$ ) and  $CO_2$ .
- Ammonia can be synthesised using hydrogen from syngas (coal gasification provides hydrogen) via the Haber-Bosch process.
- The  $CO_2$  byproduct is also available from coal gasification.

***Covered in PMF IAS? No.***

**86) What is the common characteristic of the chemical substances generally known as CL-20, HMX and LLM-105, which are sometimes talked about in media?**

- a) These are alternatives to hydrofluorocarbon refrigerants
- b) These are explosives in military weapons
- c) These are high-energy fuels for cruise missiles

d) These are fuels for rocket propulsion

**Answer: (b): These are explosives in military weapons**

### Explanation

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- These are alternatives to hydrofluorocarbon refrigerants – Incorrect
  - ❖ Hydrofluorocarbons (HFCs) are used in refrigeration and air conditioning. CL-20, HMX, and LLM-105 are not related to refrigeration.
- These are explosives in military weapons – Correct
  - ❖ CL-20 (Hexanitrohexaazaisowurtzitane), HMX (High Melting Explosive), and LLM-105 are high-energy explosives. These compounds are used in military applications due to their high detonation velocity and pressure, making them powerful and efficient in weapons like bombs and warheads.
- These are high-energy fuels for cruise missiles – Incorrect
- Although high-energy, these substances are not fuels but rather explosives. Fuels burn to release energy over time, while explosives detonate rapidly.
- These are fuels for rocket propulsion – Incorrect
- These are not fuels but explosives. Rocket propellants are usually in the form of liquid or solid fuels, not these substances.

**Covered in PMF IAS? No**

### 87) Consider the following statements:

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- I. It is expected that the Majorana 1 chip will enable quantum computing.
- II. Majorana 1 chip has been introduced by Amazon Web Services (AWS).
- III. Deep learning is a subset of machine learning.

**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

**Answer: (c): I and III only**

### Explanation

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- **Statement I is correct and Statement II is incorrect:** Majorana 1 is a quantum chip developed by Microsoft that aims to make quantum computing more stable and reliable by leveraging a new state of matter called Majorana particles. Their purpose is to create less error-prone qubits for practical quantum computing.
- **Statement III is correct:** Deep learning is a subset of machine learning that uses multi-layered artificial neural networks to model and understand complex data patterns. Unlike broader machine learning algorithms, deep learning excels in tasks like image recognition, natural language processing, and speech recognition

***Covered in the PMF IAS Test Series. Yes, Completely Covered (CA Feb 2025 Test)***

***Covered in the PMF IAS CA? Yes, Completely Covered (eliminate the second statement)***

***<https://www.pmfias.com/current-affairs-february-25-2025/#:~:text=to%20environmental%20disturbances.-,About%20Majorana%201,forming%20the%20world's%20first%20topoconductor>***

## {GS3 - S&T - Tech} Majorana 1: Quantum Computing Breakthrough \*

- **Context (TH):** Microsoft has unveiled **Majorana 1**, a quantum chip designed to make quantum computing more stable and reliable by leveraging a new state of matter.

### Qubits

- Qubit is short for quantum bit, the fundamental unit of quantum computation.
- **Superposition:** Qubits can exist in states 0, 1, or both simultaneously, unlike classical bits.
- **Entanglement:** Qubits can be linked across distances, enabling parallel computations.
- **Challenge:** Qubits are highly fragile and prone to errors due to environmental disturbances.

### About Majorana 1

- **Purpose:** To create less error-prone qubits for practical quantum computing.
- **Key Feature:** Uses topological superconductors (materials engineered to host Majorana fermions) to enhance qubit stability.
- **Material Used:** Indium arsenide and aluminium, forming the **world's first topoconductor**.

### What Makes Majorana 1 Different?

- Uses **Majorana fermions** (a particle that is its own antiparticle, making it unique in quantum physics), exotic particles theorised by Ettore Majorana in 1937.
- Majorana fermion in topological superconductor provides protection against noise & decoherence.
- If successful, topological qubits can be more reliable than conventional quantum computing methods.

***Covered in PMF IAS Prelims Magnum? Yes, Completely Covered (eliminate the second statement)***

## {Tech} Majorana 1: Quantum Computing Breakthrough \*\*

- ❖ **Microsoft** has unveiled **Majorana 1**, a **quantum chip** designed to make quantum computing more stable and reliable by leveraging a new state of matter.

### Qubits

- Qubit is short for quantum bit, the fundamental unit of quantum computation.
- **Superposition:** Qubits can exist in states 0, 1, or both simultaneously, unlike classical bits.
- **Entanglement:** Qubits can be linked across distances, enabling parallel computations.
- **Challenge:** Qubits are highly fragile and prone to errors due to environmental disturbances.

### About Majorana 1

- **Purpose:** To create less error-prone qubits for practical quantum computing.

Google Deepmind has unveiled the third major version of its "**AlphaFold**" artificial intelligence model.

Can predict the structure and interactions of all life's molecules, including proteins and DNA. It marks the **first time** that a single system has been able to predict the interactions between nearly all molecular types with state-of-the-art performance.

AlphaFold 3 expands beyond proteins to provide accurate predictions for protein interactions with other biomolecules in living cells - such as DNA, RNA, and small molecules.

Earlier versions of AlphaFold focused on predicting the 3D structures of 200m proteins, the building blocks of life, from their chemical constituents.

they are fed inputs & given corresponding outputs to learn & adjust for accurate predictions or decisions.

### Machine Learning (ML)

- It is a branch of **artificial intelligence (AI)** and **computer science** that uses data and algorithms to enable machines to learn from experience, similar to how humans learn.
- Used in various fields such as image and speech recognition, medical diagnosis, stock market analysis, and recommendation systems.

### How It Works

- **Decision Process:** The algorithm makes predictions or classifications based on input data.

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Prelims Magnum

Awards

Miscellaneous Topics – 23

**88) With reference to monoclonal antibodies, often mentioned in news, consider the following statements:**

- I. They are man-made proteins.
- II. They stimulate immunological function due to their ability to bind to specific antigens.
- III. They are used in treating viral infections like that of Nipah virus.

**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

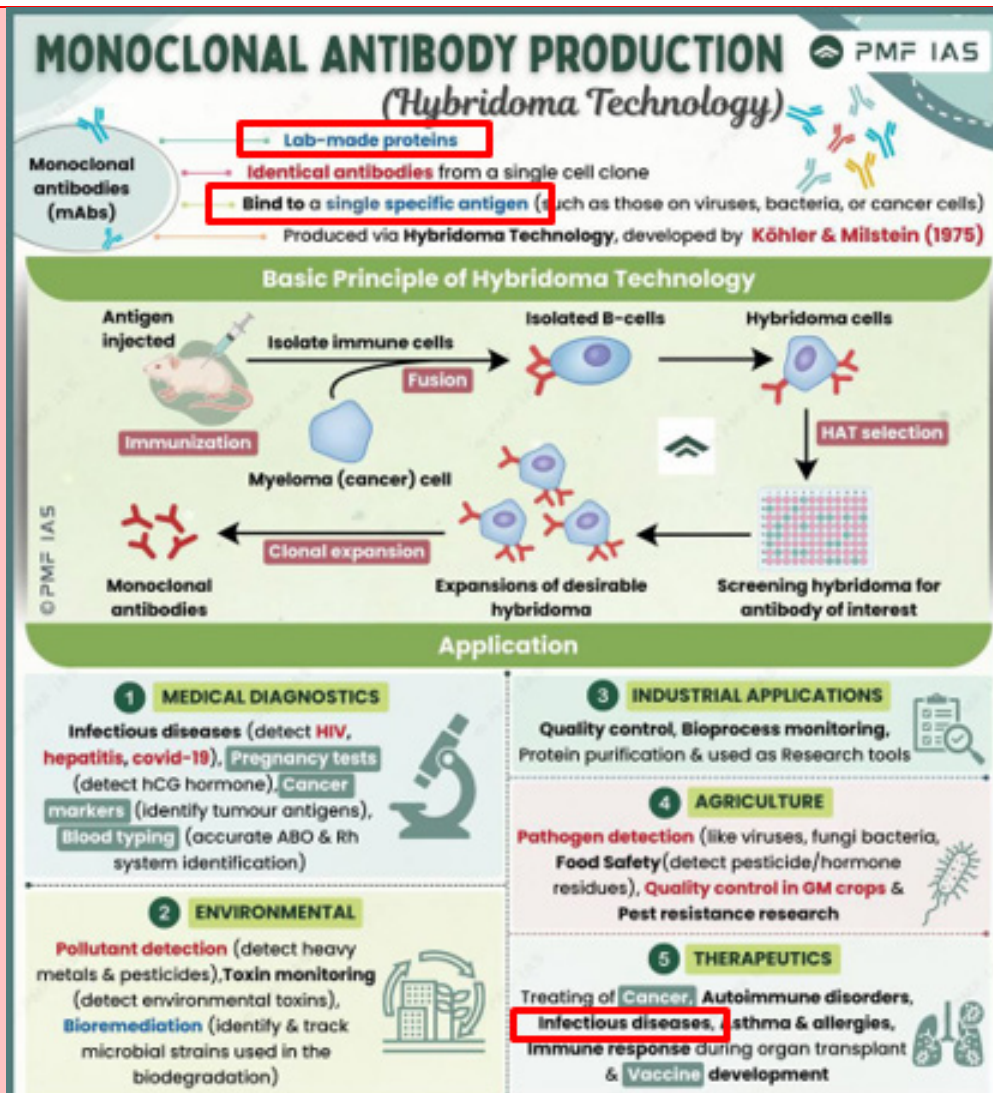
**Answer: (d): I, II and III**

**Explanation**

- I. They are man-made proteins. – **Correct**
- **Monoclonal antibodies (mAbs)** are **artificially created proteins** designed to mimic the immune system's ability to fight off harmful pathogens.
- II. They stimulate immunological function due to their ability to bind to specific antigens. – **Correct**
- mAbs **target specific antigens**, such as those on the surface of viruses or cancer cells. This **specific binding** helps stimulate the immune system or neutralise the target, assisting in treatment.
- III. They are used in treating viral infections like that of Nipah virus. – **Correct**
- mAbs have been used or developed to treat viral infections like **Ebola, SARS-CoV-2**, and the **Nipah virus**. E.g., m102.4 is an mAb that has shown promise against Nipah virus in experimental settings.

***Covered in the PMF IAS ? Yes, Completely Covered***

<https://www.pmfias.com/current-affairs-may-04-05-2025/#what-is-immuno-therapy>, <https://www.pmfias.com/ppqs-may-03-04-05-2025/>



## 89) Consider the following statements:

- I. No virus can survive in ocean waters.
- II. No virus can infect bacteria.
- III. No virus can change the cellular transcriptional activity in host cells.

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

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

**Answer key: (d): None**

**Explanation**

I. No virus can survive in ocean waters. – **Incorrect**

- The **ocean is full of viruses**, particularly **bacteriophages**, which infect marine bacteria. In fact, **viruses are the most abundant biological entities in the ocean**, playing a key role in regulating microbial populations and nutrient cycling.

II. No virus can infect bacteria. – **Incorrect**

- **Bacteriophages** (or simply **phages**) are viruses that specifically infect bacteria. They are extensively studied in molecular biology and even used in **phage therapy** as an alternative to antibiotics.

III. No virus can change the cellular transcriptional activity in host cells. – **Incorrect**

- Viruses commonly **alter host cells' transcriptional machinery to replicate their genetic material**. E.g., HIV and many other viruses hijack the host cell's transcription system for viral gene expression.

***Covered in PMF IAS? Yes, Partially Covered (General Science Book Page-28)***

***Covered in PMF IAS CA? Yes, Partially Covered***<https://www.pmfias.com/difference-virus-bacteria-dna-rna-viruses/>



## Virus

- M.W. Beijerinck discovered viruses. The term virus means **venom or poisonous fluid**.
- Viruses are **non-cellular pathogens** that are **inert outside the host cells**. They are **obligate parasites** (they cannot live or reproduce independently). Once they infect a cell, they take over the host cell's machinery to replicate, killing the host.
- Viruses are **nucleoproteins** with infectious genetic material. The genetic material is **either RNA or DNA**, but never both. Plant viruses typically have single-stranded RNA, while animal viruses may have single or double-stranded RNA or double-stranded DNA.
- **Bacteriophages**, which infect bacteria, usually have double-stranded DNA. The protein coat called **capsid** (made of small subunits called **capsomeres**) protects the nucleic acid in viruses.

## Viruses

- Viruses did not find a place in classification since **they are not truly 'living'**, if we **understand living as those organisms that have a cell structure**.
- The **viruses are non-cellular organisms** that are characterized by having an **inert crystalline structure** outside the living cell.
- Viruses are **obligate parasites**. Once they infect a cell, **they take over the machinery of the host cell to replicate themselves**, killing the host.
- The name virus that means venom or poisonous fluid was given by Pasteur.
- In addition to **proteins**, viruses also contain **genetic material, that could be either RNA or DNA**.
- **No virus contains both RNA & DNA.**
- In general,
  - **viruses that infect plants have single-stranded RNA &**
  - **viruses that infect animals have either single or double-stranded RNA or double-stranded DNA**
  - **bacteriophages (viruses that infect bacteria) are usually double-stranded DNA viruses.**
- The **protein coat called capsid** made of small subunits called **capsomeres** protects the nucleic acid.
- These capsomeres are arranged in helical or polyhedral geometric forms.

**90) Consider the following statements:**

- I. Statement I: Activated carbon is a good and an attractive tool to remove pollutants from effluent streams and to remediate contaminants from various industries.
- II. Statement II: Activated carbon exhibits a large surface area and a strong potential for adsorbing heavy metals.
- III. Statement III: Activated carbon can be easily synthesised from environmental wastes with high carbon content.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement II and Statement III are correct and both of them explain Statement I
- b) Both Statement II and Statement III are correct but only one of them explains Statement I
- c) Only one of the Statements II and III is correct and that explains Statement I
- d) Neither Statement II nor Statement III is correct

***Answer: (a): Both Statement II and Statement III are correct and both of them explain Statement I***

### **Explanation**

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- Activated carbon is widely used to remove pollutants because of its large surface area and strong adsorption ability—where pollutants accumulate on its surface—making it especially effective for heavy metals. Activated Carbon Filters (ACF) are also employed to remove PM<sub>2.5</sub>, Volatile Organic Compounds (VOCs), allergens, and harmful gases. It can be easily produced from carbon-rich environmental wastes such as coconut shells or wood, making it cost-effective and sustainable.
- Hence, both II and III are correct, and both contribute to explaining why activated carbon is considered a good and attractive tool for pollution control.

***Covered in the PMF IAS CA? Yes, Partially covered***

<https://www.pmfias.com/indoor-air-pollution/#air-purification-and-indoor-air-quality-monitoring>)

### **91) Consider the following statements:**

- I. Statement I: Studies indicate that carbon dioxide emissions from cement industry account for more than 5% of global carbon emissions.
- II. Statement II: Silica-bearing clay is mixed with limestone while manufacturing cement.
- III. Statement III: Limestone is converted into lime during clinker production for cement manufacturing.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement II and Statement III are correct and both of them explain Statement I
- b) Both Statement II and Statement III are correct but only one of them explains Statement
- c) Only one of the Statements II and III is correct and that explains Statement I
- d) Neither Statement II nor Statement III is correct

***Answer: (b): Both Statement II and Statement III are correct but only one of them explains Statement***

### **Explanation**

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- **Statement I:** Studies indicate that carbon dioxide emissions from cement industry account for more than 5% of global carbon emissions. – **Correct**
- Studies indicate that carbon dioxide emissions from the cement industry account for **more than 5% of global carbon emissions**, with some estimates reaching as high as 8%.
- The cement industry contributes significantly to global CO<sub>2</sub> emissions – both from fuel combustion and chemical processes like **calcination** (heating limestone).
- **Statement II:** Silica-bearing clay is mixed with limestone while manufacturing cement. – **Correct**
- In cement manufacturing, **limestone (CaCO<sub>3</sub>)** is mixed with **clay** (which contains **silica, alumina**, etc.) before heating to form **clinker**.
- **Statement III:** Limestone is converted into lime during clinker production for cement manufacturing. – **Correct**
- This refers to the **calcination process**:  $\text{CaCO}_3 \text{ (limestone)} \rightarrow \text{CaO (lime)} + \text{CO}_2$
- This process releases a significant amount of **CO<sub>2</sub>**, which **directly explains Statement I**.

***Covered in the PMF IAS Test Series? Yes, Partially Covered (Advanced Test 08 and Comprehensive Test 07)***

***Covered in PMF IAS CA? Yes, Partially covered***

(<https://www.pmfias.com/current-affairs-for-upsc-civil-services-exam-may-25-2024/#cement-carbon-emissions>)

## {GS3 - S&T - Tech} World's First 'Electric Cement' \*

- **Context (BBC):** Scientists from Cambridge University have found a way to **recycle cement** from demolished buildings.

### Cement & Carbon emissions

- Cement is the most common construction material. It binds sand and aggregate in concrete.
- It is a **major source of greenhouse gas emissions**. If cement were a country, it would be the **third largest** emitter after **China** and the **US**. Cement production accounts for **7.5%** of human-made **CO2**.
  - Heating limestone to **high temperatures** with **fossil fuels** causes emissions.

### About recycled cement

- The scientists found that they can **reactivate** used cement by heating it again. They are calling it "electric cement". This can be done using heat from **steel recycling**.
  - **Steel recycling** uses chemicals to create **slag**. Used cement has a similar composition to slag.

### Significance

## 92) Consider the following statements:

- Statement I: At the 28th United Nations Climate Change Conference (COP28), India refrained from signing the 'Declaration on Climate and Health'.
- Statement II: The COP28 Declaration on Climate and Health is a binding declaration; and if signed, it becomes mandatory to decarbonize health sector.
- Statement III: If India's health sector is decarbonized, the resilience of its healthcare system may be compromised.

**Which one of the following is correct in respect of the above statements?**

- Both Statement II and Statement III are correct and both of them explain Statement I
- Both Statement II and Statement III are correct but only one of them explains Statement I
- Only one of the Statements II and III is correct and that explains Statement I
- Neither Statement II nor Statement III is correct

**Answer: (c): Only one of the Statements II and III is correct and that explains Statement I**

## Explanation

- At COP28 (Dubai), the UAE Declaration on Climate and Health was launched to integrate health into climate action. It aimed to promote sustainable practices within the health sector to contribute to broader climate goals.
- **Statement I is correct:** India refrained from signing the declaration.
- **Statement II is incorrect:** The declaration is non-binding and serves as a voluntary commitment for countries to consider health in their climate policies but does not impose legal obligations.
- **Statement III is correct:** India cited that such decarbonisation could hinder the delivery of essential health services—especially in remote and underserved areas. It emphasized its own G20 health priorities: building a resilient healthcare system; ensuring access to medical countermeasures; and promoting digital health goods sharing.

***Covered in the PMF IAS Test Series? Yes, Completely Covered (CA December Test 2024 Test series)***

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( <https://www.pmfias.com/current-affairs-december-05-2023/#gs3-envi-unfccc-cop28-declaration-on-climate-and-health>

<https://www.preventionweb.net/publication/cop28-declaration-climate-and-health> )

### {GS3 - Envi - UNFCCC} COP28 Declaration on Climate and Health

- **Context (LM | TH | DTE):** India refrains from signing COP28 Health and Climate Declaration.
- The declaration aims to **promote sustainable practices within the health sector** to contribute to broader climate goals.
- 124 countries have signed the declaration.

#### Conferences of the Parties (COP) - UNFCCC

- The COP is the **decision-making body** of the [UN Framework Convention on Climate Change](#).
- All countries parties to the convention are represented at the COP.
- They review the implementation of any legal instruments that the COP adopts.
- The **first COP** meeting was held in **Berlin, Germany in 1995**.
- Since 1995, the COP **meets annually** (the 2020 COP was rescheduled to 2021 due to COVID-19).
- The **COP-28** is being held in the **UAE**.

#### Why did India Refrain from Signing the Declaration?

- The declaration included **reducing GHGs in healthcare infrastructure cooling applications**.
- India expressed concerns that GHG reduction for cooling in the health sector could **hinder its ability to meet the growing demands for medical services**, particularly in remote and underserved areas.
- The three health priorities that India emphasised in its **G20 declaration** are:
  1. Building a resilient healthcare system
  2. Creating a platform for improving access to medical countermeasures
  3. Sharing digital goods between countries

### 93) Consider the following statements:

- I. Statement I: Scientific studies suggest that a shift is taking place in the Earth's rotation and axis.
- II. Statement II: Solar flares and associated coronal mass ejections bombarded the Earth's outermost atmosphere with tremendous amount of energy.



III. Statement III: As the Earth's polar ice melts, the water tends to move towards the equator.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement II and Statement III are correct and both of them explain Statement I
- b) Both Statement II and Statement III are correct but only one of them explains Statement I
- c) Only one of the Statements II and III is correct and that explains Statement I
- d) Neither Statement II nor Statement III is correct

***Answer: (b): Both Statement II and Statement III are correct but only one of them explains Statement I***

### **Explanation**

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- A study by NASA indicates that Earth's rotation and axis are shifting due to climate-related mass redistribution.
- Melting ice sheets, dwindling groundwater, and rising sea levels cause polar motion (axis wobble) and lengthen days.
- Solar flares are intense bursts of radiation (X-rays, gamma rays, etc.) and coronal mass ejections (CMEs) are massive clouds of plasma and magnetic fields, often travelling at millions of miles per hour.
- When directed at Earth, flares affect the ionosphere, causing radio blackouts, while CMEs can disturb the magnetosphere, triggering geomagnetic storms, auroras, and potential damage to satellites or power grids (e.g., the 1859 Carrington Event).
- Melting polar ice (Greenland, Antarctica) and glaciers redistribute water toward the equatorial oceans due to Earth's shape and gravity. This mass shift, caused by climate change, slows Earth's rotation (and causes polar motion).

***Covered in the PMF IAS? No***

### **94) Consider the following statements:**

- I. Statement I: Article 6 of the Paris Agreement on climate change is frequently discussed in global discussions on sustainable development and climate change.
- II. Statement II: Article 6 of the Paris Agreement on climate change sets out the principles of carbon markets.
- III. Statement III: Article 6 of the Paris Agreement on climate change intends to promote inter-country non-market strategies to reach their climate targets.

***Which one of the following is correct in respect of the above statements?***

- a) Both Statement II and Statement III are correct and both of them explain Statement I
- b) Both Statement II and Statement III are correct but only one of them explains Statement I
- c) Only one of the Statements II and III is correct and that explains Statement I
- d) Neither Statement II nor Statement III is correct

***Answer: (a): Both Statement II and Statement III are correct and both of them explain Statement I***

## **Explanation**

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- **Statement I is correct:** Article 6 is central to global climate negotiations as it provides mechanisms for international cooperation through market and non-market approaches — essential for sustainable development and climate finance.
- **Statement II is correct:** It allows countries to trade carbon credits via Internationally Transferred Mitigation Outcomes (ITMOs). It also establishes the UNFCCC carbon market mechanism, often called the Paris Agreement Crediting Mechanism.
- **Statement III is correct:** It focuses on non-market approaches such as technology sharing, capacity building, and climate finance to help countries meet their climate targets without carbon trading.

***Covered in the PMF IAS Test Series. Yes, Partially Covered (Comprehensive Test 01 and Feb CA Test 2025)***

***Covered in the PMF IAS CA? Yes, Partially Covered***

***<https://www.pmfias.com/current-affairs-november-13-2024/#gs3-envi-cc-carbon-market-rules-for-article-64>, <https://www.pmfias.com/unfccc-cop29/>***

## Key Outcomes of COP29

- **Tripling Climate Finance:** COP29 agreed to increase climate finance for developing countries from USD 100 billion to **USD 300 billion annually** by **2035** under the **New Collective Quantified Goal** (NCQG), addressing the urgent funding gap for climate action.
- **Mobilisation of Additional Funds:** Aimed to mobilise **USD 1.3 trillion** annually by **2035** from both public and private sources under the **Baku Finance Goal**, ensuring sustained financial support for climate mitigation and adaptation.
- **Carbon Market Mechanisms:** Finalised agreements on **Article 6** of the **Paris Agreement**, resolving decade-long negotiations. These mechanisms enable bilateral carbon trading (**Article 6.2**) and a global crediting mechanism (**Article 6.4**), facilitating international cooperation in reducing emissions.
- **Baku Adaptation Road Map:** Introduced to enhance global climate resilience by promoting adaptive measures aligned with **Article 7** of the **Paris Agreement**, focusing on vulnerable regions and sectors.
- **Support for National Adaptation Plans (NAPs):** Established a comprehensive program to implement **NAPs**, providing technical and financial assistance to **Least Developed Countries** (LDCs) for medium- and long-term climate adaptation strategies.

## {GS3 - Envi - CC} Carbon Market Rules for Article 6.4

- **Context (DTE):** At [COP29](#) in **Baku, Azerbaijan**, rules governing **Article 6.4 of the carbon market** were endorsed, allowing countries to trade carbon credits generated from emission reductions.
  - Article 6.4 is seen as a tool for **climate finance**, potentially **saving \$250 billion annually** for implementing [Nationally Determined Contributions](#) (NDCs). However, experts have raised concerns about the rushed adoption, which they argue sidelines critical debate and transparency.
- **Article 6.4** is a mechanism under the [Paris Agreement](#) allowing countries to trade carbon credits derived from emission reductions.

**Covered in PMF IAS Prelims Magnum? Yes, Partially Covered.**

### 1.1. {CC} Carbon imperialism

- **Unequal sharing of the blame for carbon emissions and environmental harm.**
- Developed nations with historical emissions pressure developing nations to reduce emissions.

⇒ **Carbon colonialism** is the system by which the **Global North** outsources carbon emissions by moving dirty industry and waste to the **Global South**.

### 1.2. {CC} Carbon Market Rules for Article 6.4

- ❖ At COP29 in Baku, Azerbaijan, rules governing Article 6.4 of the carbon market were endorsed, allowing countries to trade carbon credits generated from emission reductions.

⇒ **Article 6.4** is a mechanism under the **Paris Agreement** allowing countries to trade carbon credits derived from emission reductions.

- ❖ Article 6.4 is seen as a tool for **climate finance**, potentially **saving \$250 billion annually** for implementing **Nationally Determined Contributions** (NDCs). However, experts have raised concerns about the rushed adoption, which they argue sidelines critical debate and transparency.

#### Concerns Over the Rushed Adoption of Rules

- **Early Endorsement sidelined Debate:** The adoption of rules on day 1 of COP29 led to **lack of adequate discussion** on the recommendations by the supervisory body of UNFCCC (overseen by CMA).
- **Set a Poor Precedent:** Issuing a quick decision on such contentious issues during the opening plenary reduces time for critical discussions, raising concerns about trust in the UNFCCC processes.

#### Issues with Carbon Credit Methodologies and Carbon Removal

⇒ **Carbon Credit** represents one tonne of CO<sub>2</sub> reduced or avoided. These credits come from activities that either reduce emissions (e.g., efficient cookstoves) or remove CO<sub>2</sub> (e.g., tree planting).

- **Carbon Removal and Reversal Risks:** Standards allow CO<sub>2</sub> removal and storage in natural sinks or products (e.g., biochar), but stored carbon risks being re-released, compromising long-term climate impact.
- **Inadequate Monitoring Period:** Current standards lack requirements for **post-crediting monitoring**

which is essential for ensuring long-term reliability and environmental integrity of carbon credits.

- Project developers may not always be required to **continue monitoring after crediting ends**, potentially undermining the environmental integrity of the credits.
- There is **ambiguity on how “negligible” reversal risk will be defined** and managed, with no guarantees on rigorous future work to address this.
- **Unclear Standards** on whether both **nature-based solutions** (e.g., reforestation) and **technological options** (e.g., carbon capture) qualify, leading to contention & potential inconsistency.

#### Expected Steps

- **CMA Intervention:** The CMA (the governing body of UNFCCC), which oversees the supervisory body, has the authority to refine the rules and ensure that carbon markets maintain environmental integrity and do not harm vulnerable communities.

### 1.3. {CC} Carbon Trading Mechanism in Agriculture Sector

- ❖ **Agriculture sector** is now included under the **Carbon Credit Trading Scheme, 2023**.

#### Carbon Credit Trading Scheme, 2023

- Under this, **carbon credit certificates** are issued by the **Bureau of Energy Efficiency (BEE)**.
- The **Ministry of Power** notifies **obligated entities** based on recommendations from the BEE.
- **Emission intensity targets** are set by the **Ministry of Environment, Forest, and Climate Change**, based on recommendations from the Ministry of Power.
- Entities failing to meet their targets **must purchase carbon credit certificates**.
- The scheme is overseen by a **National Steering Committee** chaired by the Power Secretary.
- The **Ministry of Agriculture & Farmers Welfare** has developed a framework to promote the **Voluntary Carbon Market (VCM)**, to promote carbon markets among the farming community.

### 1.4. {CC} Chadar trek

- An adventurous sport carried out on the frozen **Zaskar River**, a north-flowing **Indus River** tributary.
- **Second coldest place** in the world, **Drass** is also in Ladakh.

## 95) Which one of the following launched the 'Nature Solutions Finance Hub for Asia and the Pacific'?

- The Asian Development Bank (ADB)
- The Asian Infrastructure Investment Bank (AIIB)
- The New Development Bank (NDB)
- The International Bank for Reconstruction and Development (IBRD)

**Answer: (a): The Asian Development Bank (ADB)**

## Explanation

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- In **2023**, the **Asian Development Bank (ADB)** launched the **Nature Solutions Finance Hub**.
- This initiative aims to **mobilise finance** for **nature-based solutions** (NbS) such as:
  1. Ecosystem restoration
  2. Natural climate buffers (mangroves, forests)
  3. Sustainable land management
  4. Climate-resilient infrastructure
- It supports **Asia-Pacific countries** in integrating NbS into their development planning and accessing **blended finance**

***Covered in PMF IAS? No***

**96) With reference to 'Direct Air Capture', an emerging technology, which of the following statements is/are correct?**

- I. It can be used as a way of carbon sequestration.
- II. It can be a valuable approach for plastic production and in food processing.
- III. In aviation, it can be a source of carbon for combining with hydrogen to create synthetic low-carbon fuel.

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

- a) I and II only
- b) III only
- c) I, II and III
- d) None of the above statements is correct

***Answer: (c): I, II and III***

## Explanation

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- **Statement I is correct:** DAC captures carbon dioxide (CO<sub>2</sub>) directly from the atmosphere. The captured CO<sub>2</sub> can be stored underground (geological storage), making it a method of carbon sequestration. It supports climate goals by reducing atmospheric greenhouse gas concentrations.
- **Statement II is correct:** Captured CO<sub>2</sub> can be used as a feedstock for producing plastics (e.g., polycarbonates). In food processing, CO<sub>2</sub> is used in carbonated beverages, cold storage, and controlled atmosphere packaging. Thus, provides a sustainable CO<sub>2</sub> source for industry.

- **Statement III is correct:** CO<sub>2</sub> captured via DAC can be combined with green hydrogen to create synthetic aviation fuels (electrofuels or e-fuels). These fuels are low-carbon alternatives and can help decarbonize the aviation sector.

**Covered in the PMF IAS Test Series? Yes, Partially Covered (April CA 2024 Test)**

**Statement 2 is not correct**

- BECCS or '**Bioenergy with Carbon Capture and Storage**' is the combination of biomass, which is used to generate bioenergy, with **Capture and Carbon Sequestration (CCS)** to prevent emissions reaching the atmosphere.
- It involves burning biomass to **produce energy** and **then capturing and storing the carbon dioxide (CO<sub>2</sub>) that is produced**.
- It can provide net atmospheric CO<sub>2</sub> removals, unlike the application of CCS on fossil infrastructure.
- **Direct Air Capture with Carbon Capture and Storage (DACCS)** combines CCS with chemical processes to capture **CO<sub>2</sub> from ambient air**, which is then stored underground.
- **Risks associated with BECCS:**
  - ❖ Land competition between biomass production and agriculture.
  - ❖ Freshwater use.
  - ❖ Destruction of natural ecosystems for biomass production.
  - ❖ Consequent diminishing of biodiversity and vital ecosystem services.
  - ❖ Biomass plantations can also be invasive monoculture crops, which further harm local biodiversity and displace existing ecosystems.

**97) Regarding Peacock tarantula (Gooty tarantula), consider the following statements:**

- It is an omnivorous crustacean.
- Its natural habitat in India is only limited to some forest areas.
- In its natural habitat, it is an arboreal species.

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

- I only
- I and III
- II only
- II and III



**Answer: (d): II and III**

## **Explanation**

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**I.** It is an omnivorous crustacean. – **Incorrect**

- The **Peacock tarantula** is a **spider**, not a **crustacean**.
- It is an **arachnid** and **carnivorous**, feeding mainly on insects and small animals, not omnivorous.

**II.** Its natural habitat in India is only limited to some forest areas. – **Correct**

- This species is **endemic to a small region** in the **Eastern Ghats** of Andhra Pradesh, India.
- Its habitat is highly **restricted and fragmented**, making it vulnerable.

**III.** In its natural habitat, it is an arboreal species. – **Correct**

- The Gooty tarantula is an **arboreal (tree-dwelling)** spider.
- It builds silken retreats in **tree holes and bark crevices**.

***Covered in the PMF IAS Test Series and Daily PPQs Yes, Completely Covered (Sectional Test 16,***

***<https://www.pmfias.com/ppqs-april-22-2025/#:~:text=Gooty%20Sapphire%20Tarantula%20also%20known,in%20Gooty%20in%20Andhra%20Pradesh.>***

***Covered in PMF IAS? Yes, Completely Covered (<https://www.pmfias.com/current-affairs-april-22-2025/#gooty-sapphire-tarantula-poecilotheria-metallica>)***

## Gooty Sapphire Tarantula (*Poecilotheria metallica*)



Credit: [Wikipedia](#), [IUCN](#)

- Also known as the Gooty sapphire ornamental tarantula, blue ornamental tarantula, and peacock tarantula, it is a very large **spider** with long, hairy legs. Its **venomous fangs** kill its prey.
- It is an **arboreal species** and was 1<sup>st</sup> discovered in Gooty in Andhra Pradesh.
- **Habitat:** Deciduous forests of **Andhra Pradesh** (Near **Nallamalla Hills**).
- **Diet:** Tasty flies, moths, fruit flies, mantis, etc
- **Conservation Status:** IUCN: **Critically Endangered**, I CITES: **Appendix II**.
- **Threats:** Hunting and Poaching, deforestation, etc.

### 98) Consider the following statements:

- Carbon dioxide (CO<sub>2</sub>) emissions in India are less than 0.5 t CO<sub>2</sub> / capita.
- In terms of CO<sub>2</sub> emissions from fuel combustion, India ranks second in Asia-Pacific region.
- Electricity and heat producers are the largest sources of CO<sub>2</sub> emissions in India.

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

- I and III only
- II only
- II and III only
- I, II and III

**Answer: (c): II and III only**

### Explanation

- **Statement I is incorrect:** India's per capita CO<sub>2</sub> emissions are approximately 2.07 tonnes, significantly higher than 0.5 tonnes.
- **Statement II is correct:** India is the second-largest emitter of CO<sub>2</sub> from fuel including combustion in the Asia-Pacific region, following China.

- **Statement III is correct:** The electricity and heat production sector is the largest source of CO<sub>2</sub> emissions in India, accounting for 53% of total energy-related CO<sub>2</sub> emissions.

**Covered in the PMF IAS Test Series? Yes, Partially Covered (CA November Test)**

**16) Consider the following statements regarding the Climate Change Performance Index (CCPI):**

1. It is released by United Nations Environment Programme (UNEP) along with the New Climate Institute and Climate Action Network.
2. The index evaluates countries based on four categories: GHG Emissions, Renewable Energy, Energy Use and Climate Policy.
3. The top three ranks in the index are intentionally left empty.
4. In the latest ranking, India is placed 10th, dropping two spots compared to last year.

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

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

• **Key Findings:**

- ❖ The top three ranks remain empty, followed by Denmark (4th), Netherlands (5th), and the UK (6th).
- ❖ India ranks 10th, dropping two spots compared to last year.
- ❖ Among G20 nations, only India and the UK are classified as high performers.
- ❖ India's per capita emissions stand at 2.9 tons of CO<sub>2</sub> equivalent (t CO<sub>2</sub> e), significantly lower than the global average of 6.6 t CO<sub>2</sub> e.
- ❖ The lowest-ranked countries are Iran (67th), Saudi Arabia (66th), UAE (65th), and Russia (64th)—all major oil and gas producers.

**99) Consider the following pairs:**

| Plant                | Description          |
|----------------------|----------------------|
| i. Cassava           | Woody shrub          |
| ii. Ginger           | Herb with pseudostem |
| iii. Malabar spinach | Herbaceous climber   |
| iv. Mint             | Annual shrub         |
| v. Papaya            | Woody shrub          |

**How many of the above pairs are correctly matched?**

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

**Answer: (b): Only three**

## Explanation

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I. Cassava : Woody shrub – **Correct**

- **Cassava** is a **woody shrub** grown mainly for its edible starchy tuberous root.

II. Ginger : Herb with pseudostem – **Correct**

- **Ginger** is a **herbaceous plant**. What looks like a stem is actually a **pseudostem**, formed by rolled leaf bases.

III. Malabar spinach : Herbaceous climber – **Correct**

- **Malabar spinach** is a **fast-growing, soft-stemmed vine** – a **herbaceous climber**.

IV. Mint : Annual shrub – **Incorrect**

- **Mint** is a **perennial herb**, not a shrub. It spreads through runners and has **soft, non-woody stems**.

V. Papaya : Woody shrub – **Incorrect**

- **Papaya** is a **herbaceous plant**, despite its tree-like appearance.
- It has a **soft, hollow stem** and is **not woody**.

**Covered in PMF IAS? No**

**100) With reference to the planet Earth, consider the following statements:**

- I. Rain forests produce more oxygen than that produced by oceans.
- II. Marine phytoplankton and photosynthetic bacteria produce about 50% of world's oxygen.
- III. Well-oxygenated surface water contains several folds higher oxygen than that in atmospheric air.

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

- a) I and II
- b) II only
- c) I and III
- d) None of the above statements is correct

**Answer key: (b): II only**

## **Explanation**

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- I. Rain forests produce more oxygen than that produced by oceans. – **Incorrect**
- Although **rainforests** (especially the Amazon) are significant oxygen producers, they contribute **less oxygen** than the **oceans**.
- II. Marine phytoplankton and photosynthetic bacteria produce about 50% of world's oxygen. – **Correct**
- Marine organisms like **phytoplankton**, **cyanobacteria**, and **algae** contribute to **~50% or more** of the planet's oxygen via **photosynthesis**, making the **oceans the largest source**.
- III. Well-oxygenated surface water contains several folds higher oxygen than that in atmospheric air. – **Incorrect**
- This is **scientifically inaccurate**. Even **well-oxygenated water** holds **far less oxygen** than air. Dissolved oxygen in water is typically **8–14 mg/L**, whereas atmospheric air contains **~210,000 mg/L of oxygen** (21% of 1,000,000 mg/L).

**Covered in PMF IAS? No**



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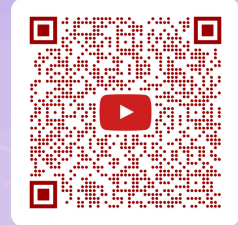
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