

Test Code
01012525



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CA-VA : CURRENT AFFAIRS

ALL INDIA OPEN TEST

GENERAL STUDIES

Answer Key

1. (b)	21. (b)	41. (a)	61. (a)	81. (a)
2. (a)	22. (a)	42. (c)	62. (d)	82. (b)
3. (b)	23. (a)	43. (d)	63. (d)	83. (a)
4. (a)	24. (b)	44. (c)	64. (d)	84. (a)
5. (a)	25. (c)	45. (b)	65. (a)	85. (c)
6. (a)	26. (d)	46. (b)	66. (b)	86. (b)
7. (c)	27. (a)	47. (d)	67. (d)	87. (d)
8. (b)	28. (c)	48. (d)	68. (c)	88. (c)
9. (a)	29. (d)	49. (a)	69. (a)	89. (a)
10. (a)	30. (b)	50. (d)	70. (a)	90. (a)
11. (a)	31. (a)	51. (a)	71. (a)	91. (a)
12. (c)	32. (a)	52. (d)	72. (d)	92. (b)
13. (d)	33. (d)	53. (c)	73. (a)	93. (b)
14. (b)	34. (b)	54. (b)	74. (a)	94. (a)
15. (d)	35. (c)	55. (a)	75. (b)	95. (a)
16. (c)	36. (b)	56. (c)	76. (b)	96. (d)
17. (b)	37. (c)	57. (a)	77. (a)	97. (a)
18. (d)	38. (b)	58. (c)	78. (b)	98. (d)
19. (b)	39. (a)	59. (a)	79. (b)	99. (a)
20. (a)	40. (b)	60. (a)	80. (b)	100. (a)

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CA-VA : CURRENT AFFAIRS

All India OPEN Mock Test | GENERAL STUDIES

1. (b)

Why in the news?

The court upheld an order by the Motor Accident Claims Tribunal determining the age of a deceased on the basis of school leaving certificate to fix the compensation.

Statement 1: Aadhaar acts as proof of identity - Correct

- Aadhaar establishes identity through biometric (fingerprints, iris scans) and demographic (name, date of birth, gender) data stored in a centralized database managed by UIDAI.
- It is widely accepted as proof of identity for government schemes, financial services, and opening bank accounts.

Statement 2: Aadhaar acts as proof of residence - Correct

- Aadhaar reflects the address provided by the applicant at enrolment, which is verified by UIDAI, making it valid proof of residence.
- It confirms the applicant's current address but does not indicate permanent residency or domicile.

Statement 3: Aadhaar acts as proof of date of birth - Incorrect

- Aadhaar mentions the date of birth, but it is **self-declared unless validated** through supporting documents (e.g., birth certificate, school certificate).
- It cannot be considered official proof unless verified during enrolment.

Statement 4: Aadhaar acts as proof of citizenship - Incorrect

- Aadhaar is issued to **residents**, including citizens and non-citizens (e.g., foreign nationals legally residing in India).

- **Section 9 of the Aadhaar Act, 2016** explicitly states Aadhaar does not establish citizenship.
- UIDAI has clarified Aadhaar is not a document to confer or validate nationality.

Statement 5: Aadhaar acts as proof of domicile - Incorrect

- Aadhaar confirms the **current address** but does not establish a domicile, which requires legal proof under **state-specific domicile laws**.
- Domicile denotes a permanent legal connection to a state, often necessary for benefits like education or employment quotas, which Aadhaar does not validate.

2. (a)

Why in the news?

In the 18th Lok Sabha Election, citizens above 85 years & PwDs started voting from home.

Statement 1: The right to contest elections is a fundamental right guaranteed under the Constitution - Incorrect

- The right to contest elections is **not a fundamental right** but a **statutory right** granted under the **Representation of the People Act, 1951**.
- Fundamental rights are guaranteed under **Part III of the Constitution**, whereas contesting elections is subject to eligibility criteria outlined in statutory laws.

Statement 2: Individuals in prison, whether convicted or undertrial, do not have voting rights - Correct

- As per **Section 62(5) of the Representation of the People Act, 1951**, individuals in prison, whether convicted or undertrial, are disqualified from voting.

Statement 3: Individuals in police custody retain their voting rights - Incorrect

- Individuals in police custody are considered “in prison” under **Section 62(5)** and are, therefore, not eligible to vote.

Statement 4: Individuals under preventive detention cannot vote - Incorrect

- Proviso to sub-Section (5) of Section 62 of the Representation of the People Act, 1951 confers voting rights on the electors subjected to preventive detention.
- As per **Rule 18 of the Conduct of Elections Rules, 1961**, the electors under preventive detention are entitled to cast their votes by post.

Statement 5: Individuals who are out on bail are eligible to vote - Correct

- Individuals out on bail are not considered “in prison” under **Section 62(5)** and retain their voting rights.
- They can vote in elections like any other eligible citizen.

3. (b)

Why in the News ?

Arrest and release of a famous actor as well as many other cases in the news.

Statement 1: Anticipatory bail can be applied for only after an individual has been arrested for an offense - Incorrect

- **Anticipatory bail** is sought **before** an arrest, as a pre-emptive measure to prevent detention in cases where an individual apprehends arrest for a non-bailable offense.
- It provides protection from arrest but does not nullify the investigation or the court’s authority to impose conditions.

Statement 2: Regular bail is granted after arrest, while anticipatory bail is granted to prevent arrest - Correct

- **Regular bail:** Granted post-arrest, allowing the accused to be released from custody.

Statement 3: Bail ensures personal liberty and presumes innocence until proven guilty, but courts can impose restrictions

such as not leaving the country without permission - Correct

- **Presumption of Innocence:** A fundamental principle of criminal jurisprudence in India under Article 21 (Right to Life and Personal Liberty) of the Constitution.
- **Court-imposed conditions:** Courts often impose restrictions such as:
 - Requiring the accused to surrender their passport.
 - Restricting travel without permission.
 - Mandating periodic appearances before authorities.

Statement 4: Both regular bail and anticipatory bail can be applied only for offenses punishable by imprisonment of less than three years - Incorrect

- Both **regular bail** and **anticipatory bail** can be sought for **both bailable and non-bailable offenses**, irrespective of the duration of imprisonment, provided the offense is not excluded under specific laws (e.g., special provisions for heinous crimes).
- **Limitations:** Certain offenses, such as those under special laws like **PMLA (Prevention of Money Laundering Act)** or **UAPA (Unlawful Activities Prevention Act)**, may restrict the grant of bail.

4. (a)

Row 1: Shompen Tribe - Arunachal Pradesh - Incorrect

- The **Shompen Tribe** is indigenous to the **Nicobar Islands**, not Arunachal Pradesh.
- They are considered one of the six aboriginal tribes of the Andaman and Nicobar Islands and are classified as a Particularly Vulnerable Tribal Group (PVTG).

Row 2: Chakma and Hajong Tribes - Great Nicobar Island - Incorrect

- The **Chakma and Hajong Tribes** primarily reside in **Arunachal Pradesh**, not the Great Nicobar Island.

- These tribes migrated from the Chittagong Hill Tracts of present-day Bangladesh during the 1960s.

Row 3: Zomi Tribe - Manipur - Correct

- The **Zomi Tribe** resides in **Manipur**.
- They are a recognized tribal community in India and share cultural and ethnic ties with the Chin-Kuki-Mizo groups in Northeast India.

Row 4: Oraon Tribe - Telangana and Andhra Pradesh - Incorrect

- The **Oraon Tribe** is primarily found in **Jharkhand, Chhattisgarh, Odisha**, and parts of West Bengal, not Telangana or Andhra Pradesh.
- They are one of the major Scheduled Tribes in India.

Row 5: Koya Tribe - Jharkhand and Chhattisgarh - Incorrect

- The **Koya Tribe** is predominantly found in the states of **Telangana, Andhra Pradesh, and Odisha**. Though small populations are present in Chhattisgarh, they are primarily present in Telangana and Andhra Pradesh. The question could have mentioned the word primarily to make it more specific.

5. (a)

Part IX: Panchayati Raj Institutions

- Part IX of the Constitution deals with **Panchayati Raj Institutions (PRIs)** and was added by the **73rd Constitutional Amendment Act, 1992**.
- It provides a framework for the establishment and functioning of PRIs in rural areas for decentralized governance.

Part XVII: Official Language

- Part XVII deals with the **Official Language** of the Union, States, and regional languages.
- It includes Articles **343 to 351**, specifying Hindi in the Devanagari script as the official language of the Union and provisions for English and regional languages.

Part XVIII: Emergency Provisions

- Part XVIII of the Constitution encompasses **Emergency Provisions**, which include:
 - National Emergency (Article 352)
 - President's Rule (Article 356)
 - Financial Emergency (Article 360).

These provisions allow for the centralization of power during crises to safeguard national security and governance.

Part XX: Amendment of the Constitution

- Part XX contains Article **368**, which provides the procedure for the **Amendment of the Constitution**.
- It specifies the methods for introducing and ratifying constitutional amendments, ensuring flexibility while maintaining the basic structure.

6. (a)

Why in the news?

The Ministry of Ports, Shipping, and Waterways, in collaboration with Observer Research Foundation, hosted the inaugural Sagarmanthan: The Great Oceans Dialogue, focusing on advancements in India's maritime sector, including logistics, ports, and shipping.

Statement 1: The inaugural edition of Sagarmanthan conference was held in 2024 in New Delhi

- **Correct.** The **Sagarmanthan: The Great Oceans Dialogue** is a recent initiative to foster cooperation among Indian Ocean Rim countries.
- The first edition was indeed hosted in **2024 in New Delhi**, focusing on sustainable use of ocean resources, blue economy, and maritime governance.

Statement 2: The primary purpose of Sagarmanthan was to enhance maritime defense cooperation and military alliances among participating nations

- **Incorrect.** The primary goal of **Sagarmanthan** was **not** military

alliances or defense cooperation but rather discussions on:

- **Blue Economy:** Promoting economic growth through sustainable use of ocean resources.
- **Maritime Security:** Addressing non-traditional threats such as piracy, illegal fishing, and marine pollution.
- **Climate Change and Ocean Governance:** Enhancing international collaboration to mitigate the adverse impacts of climate change on oceans.
- It focuses on **civilian and economic cooperation** rather than defense or military alliances.

7. (c)

Why in the news?

As autonomous driving gains momentum globally, India emerges as a significant market, with a surge in demand for Advanced Driver Assistance Systems (ADAS).

Statement 1: ADAS uses sensors such as cameras, radar, and LiDAR to detect surrounding objects and assist in safe driving

- **Correct.** **Advanced Driver Assistance Systems (ADAS)** rely on a combination of sensors, including **cameras, radar, and LiDAR (Light Detection and Ranging)**, to detect objects, vehicles, pedestrians, and obstacles in the vehicle’s surroundings.
- These systems enhance safety by providing alerts, taking corrective actions, or assisting the driver in various situations like collision prevention.

Statement 2: ADAS cannot function in adverse weather conditions such as heavy rain or fog

- **Incorrect.** While adverse weather conditions like **heavy rain, fog, or snow** may reduce the **efficiency** of ADAS sensors (e.g., cameras or LiDAR may have limited visibility), many ADAS systems are equipped with advanced radar technologies that can still function effectively in such conditions.

- Therefore, **ADAS does not entirely fail** but may face limitations in accuracy.

Statement 3: ADAS features include functionalities such as lane-keeping assist, adaptive cruise control, and automatic emergency braking

- **Correct.** ADAS offers a wide range of features, including:
 - **Lane-Keeping Assist (LKA):** Helps keep the vehicle centered within its lane.
 - **Adaptive Cruise Control (ACC):** Maintains a safe following distance from the vehicle ahead.
 - **Automatic Emergency Braking (AEB):** Applies brakes automatically to prevent collisions.

Statement 4: ADAS makes vehicles fully autonomous

- **Incorrect.** ADAS does **not make vehicles fully autonomous**; it only provides **Level 1 to Level 2 automation**, as per the SAE (Society of Automotive Engineers) levels of automation.
- Fully autonomous vehicles correspond to **Level 5 automation**, which requires no human intervention, and ADAS currently does not achieve this level.

8. (b)

Why in the news?

Places frequently seen in the news.

1. **Cook Islands – South Pacific Ocean (d)**

- The **Cook Islands** are a group of 15 islands located in the **South Pacific Ocean**, in free association with New Zealand.
- They are known for their coral atolls and lagoons.

2. **New Caledonia – South West Pacific Ocean (c)**

- **New Caledonia** is a French territory located in the **Southwest Pacific Ocean**, east of Australia.

- It is rich in natural resources, particularly nickel, and is a biodiversity hotspot.

3. Nadabet – Gujarat, India (a)

- **Nadabet** is located in the state of **Gujarat, India**, near the **India-Pakistan border**.
- It is part of the **Seema Darshan Project**, developed to promote border tourism.

4. Khartoum – Sudan, Africa (b)

- **Khartoum** is the capital city of **Sudan**, located at the confluence of the Blue and White Nile rivers.
- It serves as a political and cultural hub of Sudan.

5. Aleppo – Syria, Middle East (e)

- **Aleppo** is a historic city in **Syria**, located in the **Middle East**.
- It has been significantly impacted by the ongoing Syrian civil war but remains a symbol of Syria's rich cultural heritage.

9. (a)

Why in the news?

Recent studies have highlighted the challenges ants face in adapting to rising global temperatures.

Statement 1: Foraging ants use chemical pheromones to self-organize and mark trails to food sources

- **Correct.** **Pheromones** are chemical signals released by ants to mark trails toward food sources, ensuring efficient navigation and coordination within colonies.
- This self-organizing behavior helps ants find and transport food effectively, showcasing a decentralized decision-making system.

Statement 2: Ant colonies are structured hierarchically, with distinct roles for queens and workers

- **Correct.** Ant colonies exhibit a **hierarchical social structure**, where:
 - The **queen** lays eggs to ensure colony reproduction.

- **Workers** (non-reproductive females) forage for food, care for larvae, and maintain the nest.

- **Soldiers** (in some species) defend the colony.

- This division of labor optimizes colony survival and resource utilization.

Statement 3: Ant populations are highly adaptable to human-induced climate changes

- **Incorrect.** While ants are ecologically resilient and adaptable to various environments, **climate change negatively impacts many ant species** by altering their habitats, food sources, and temperature-dependent behaviors.
- Some specialized ant species are particularly vulnerable to rising temperatures and habitat loss.
 - While few ants may adapt over time, that would not make entire species of ant **highly** adaptable.

Statement 4: Recent research demonstrated that ants always maintain trails to all equidistant food sources without preferring the shortest path

- **Incorrect.** Research has consistently shown that ants often prefer the **shortest path** to food sources.
 - Through **pheromone reinforcement**, ants optimize foraging efficiency by concentrating trails on the shortest route, saving energy and time.

10. (a)

- In tropical rainforests, most nutrients are stored in the biomass (plants, trees, and organic matter) rather than in the soil.
- When vegetation is removed, the nutrient cycle halts, and the soil quickly becomes nutrient-poor due to:
 - **Heavy Rainfall:** Causes leaching of nutrients.
 - **Low Organic Content:** The topsoil, rich in organic matter, is rapidly degraded after deforestation.

- This nutrient deficiency makes regeneration slow and difficult compared to tropical deciduous forests.

11. (a)

Why in the News?

Key Geographical terms frequently seen in news.

1. Southern Oscillation – Variations in atmospheric pressure between the eastern and western Pacific, measured by the Southern Oscillation Index (SOI)

- The **Southern Oscillation** refers to the periodic fluctuations in atmospheric pressure between the **eastern (Tahiti)** and **western (Darwin, Australia)** tropical Pacific Ocean.
- It is closely linked to the **El Niño-Southern Oscillation (ENSO)** phenomenon, and the **Southern Oscillation Index (SOI)** is used to measure these pressure differences.

2. Walker Circulation – East-west atmospheric circulation over the tropical Pacific, influenced by differences in sea surface temperature

- The **Walker Circulation** is a large-scale **east-west atmospheric circulation** in the tropical Pacific, driven by differences in **sea surface temperatures (SSTs)** and pressure gradients.
- It is responsible for normal trade wind patterns and is disrupted during **El Niño** and **La Niña** events.

3. Arctic Oscillation (AO) – Shifts in atmospheric pressure between the poles and mid-latitudes, impacting winter severity in mid-latitudes

- The **Arctic Oscillation (AO)** refers to a climate pattern characterized by **shifts in atmospheric pressure** between the Arctic and mid-latitudes.
- A **positive AO** indicates strong polar vortex conditions, keeping cold air confined to the Arctic.

- A **negative AO** leads to weakened polar vortex, allowing cold air to spill into mid-latitudes, causing severe winters.

4. Madden-Julian Oscillation (MJO) – A tropical weather cycle of enhanced and suppressed rainfall traveling eastward across the globe

- The **Madden-Julian Oscillation (MJO)** is an intraseasonal tropical weather phenomenon characterized by **eastward-moving pulses** of enhanced and suppressed convection (rainfall) over the Indian and Pacific Oceans.
- It impacts global weather patterns, including **monsoon activity**, cyclones, and ENSO dynamics.

12. (c)

Statement-I: Hydrothermal vents are significant sources of mineral deposits, including copper, zinc, and cobalt – Correct

- Hydrothermal vents emit mineral-rich fluids that precipitate and deposit **sulfides of metals like copper, zinc, cobalt**, and other rare earth elements.
- These deposits are referred to as **polymetallic sulfides**, making hydrothermal vents valuable for mineral exploration.

Statement-II: Hydrothermal vents are formed when cold seawater seeps into tectonic cracks, is heated by magma, and emerges as hot water, forming chimney-like structures – Correct

- Hydrothermal vents are found in tectonically active regions, such as **mid-ocean ridges**, where seawater penetrates **fractures in the Earth’s crust**, interacts with magma, and becomes superheated.
- The superheated water re-emerges, depositing minerals and forming **chimney-like structures**, often called **black smokers** or **white smokers** depending on the minerals emitted.
- Since the **process described in Statement-II leads to the mineral deposits**

mentioned in Statement-I, Statement-II provides the scientific explanation for why hydrothermal vents are rich in minerals, thereby justifying and supporting Statement-I.

Statement-III: Organisms found around hydrothermal vents depend on sunlight and photosynthesis for survival - Incorrect

- Life around hydrothermal vents does **not rely on sunlight** or photosynthesis. Instead, organisms depend on **chemosynthesis**, a process where bacteria utilize energy from chemical reactions (e.g., hydrogen sulfide and methane) to produce food.
- This makes hydrothermal vents unique ecosystems where life thrives in **complete darkness** under extreme conditions.

13. (d)

Statement 1: White marble was used in making Buland Darwaza and Khanqah at Fatehpur Sikri

- **Incorrect.** The **Buland Darwaza**, commissioned by **Emperor Akbar** in 1601 AD, is constructed predominantly of **red sandstone**, with **minimal white marble inlays** used for decorative purposes.
- The **Khanqah** and other structures in the Fatehpur Sikri complex also primarily feature **red sandstone**, a hallmark of Akbar's architectural style during this period.
 - Thus, **white marble is not the primary material**, making this statement incorrect.

Statement 2: Red sandstone and marble were used in making Bara Imambara and Rumi Darwaza at Lucknow

- **Incorrect.** The **Bara Imambara** and **Rumi Darwaza**, constructed under the patronage of **Nawab Asaf-ud-Daula** in the late 18th century, are notable examples of **Awadhi architecture**.
- These structures are built using **Lakhauri bricks** (a type of thin brick) and **lime**

plaster (instead of red sandstone or marble).

- The architectural style focuses on large, smooth surfaces and intricate plasterwork rather than stone construction.

14. (b)

Why in the news?

Recently, over 37 cities in the northern and central regions experienced temperatures exceeding 45°C, posing severe risks to millions of vulnerable people.

• **Pair 1: Heat Dome – Incorrect**

- A **Heat Dome** is a high-pressure system that traps heat over a region, leading to prolonged periods of high temperatures.
- It is not caused by **oceanic currents** but rather by **atmospheric conditions**, including the **jet stream's behavior**.
- The given definition, attributing it to a “**low-pressure system**,” is incorrect.

• **Pair 2: Heat Wave – Correct**

- **Heat Wave** is defined as a prolonged period of excessively high temperatures, often exacerbated by high humidity.
- It is characterized by a **persistent increase in temperature** beyond the normal range for a particular region and season, impacting human health and ecosystems.

• **Pair 3: Urban Heat Island (UHI) – Correct**

- **Urban Heat Island** refers to the phenomenon where urban areas experience higher temperatures than surrounding rural areas due to human activities, including concrete structures, lack of vegetation, and vehicular emissions. .

• **Pair 4: Atmospheric Blocking – Incorrect**

- **Atmospheric Blocking** occurs when a persistent **high-pressure system** prevents the usual movement of weather patterns, often leading to prolonged weather events like heatwaves or heavy rainfall.
- However, the given definition (“trapping hot air”) oversimplifies its role. Atmospheric blocking is about disrupting

the normal movement of air masses, not necessarily trapping hot air.

15. (d)

Option (a): Repayment of public debt – Not inflationary

- **Repayment of public debt** involves the government returning borrowed funds, often financed by taxation or surplus revenue.
- This does **not increase the money supply**, as it merely redistributes existing money within the economy.

Option (b): Borrowing from the public to finance a budget deficit – Less inflationary

- Borrowing from the public through instruments like **government bonds** does not directly increase the money supply.
- The public’s savings are used, so the **money supply remains constant**, making this option less inflationary.

Option (c): Borrowing from the banks to finance a budget deficit – Moderately inflationary

- Borrowing from banks increases the money supply indirectly through the **creation of credit**.
- Banks use their reserves to lend to the government, and this increases liquidity in the market, causing moderate inflationary pressure.

Option (d): Creation of new money to finance a budget deficit – Most inflationary

- Printing new money (also known as **monetization of deficit**) increases the **money supply** directly without a corresponding increase in the production of goods and services.
- This leads to **demand-pull inflation**, as more money chases the same amount of goods and services, increasing prices significantly.
- Historically, this has been a major cause of hyperinflation in countries like Zimbabwe and Venezuela.

16. (c)

Why in the news?

GM Mustard is frequently seen in the news.

1. Agricultural Produce (Grading and Marking) Act, 1937 – Not applicable

- This Act regulates the grading and marking of agricultural produce to ensure quality standards.
- It does **not directly regulate genetically modified (GM) crops**.

2. Food Safety and Standards Act, 2006 – Regulates GM crops

- The **Food Safety and Standards Authority of India (FSSAI)**, established under this Act, regulates the safety of food, including **GM food products**.
- It sets standards and ensures that GM food entering the market is safe for human consumption.

3. Seeds Act, 1966 – Regulates GM crops

- This Act regulates the production, distribution, and quality of seeds, including **genetically modified seeds**.
- It mandates labeling and certification for seeds, ensuring that GM seeds meet prescribed standards.

4. Environment Protection Act, 1986 – Regulates GM crops

- The **Environment Protection Act, 1986** governs the environmental release of GM crops.
- Under this Act, the **Genetic Engineering Appraisal Committee (GEAC)**, established under the Ministry of Environment, Forest and Climate Change (MoEFCC), is responsible for granting approval for the release of GM crops in the environment.

17. (b)

Why in the news?

Important key concepts in news.

1. Kuznets Curve – Highlights the link between economic growth and income inequality (d)

- The **Kuznets Curve**, proposed by economist **Simon Kuznets**, illustrates the relationship between **economic growth** and **income inequality**.
 - It suggests that as an economy develops, inequality initially rises but decreases after reaching a certain level of income.
2. **Preston Curve – Demonstrates the relationship between income levels and life expectancy (c)**
- The **Preston Curve**, introduced by **Samuel H. Preston**, highlights the positive correlation between **per capita income** and **life expectancy**.
 - It shows that higher income levels are generally associated with improved life expectancy, though the marginal gains decrease at higher incomes.
3. **Laffer Curve – Shows the relationship between tax rates and government revenue (b)**
- The **Laffer Curve**, attributed to economist **Arthur Laffer**, demonstrates that government revenue increases with tax rates up to a point but decreases if tax rates are too high, as they discourage economic activity.
4. **Keeling Curve – Tracks atmospheric CO₂ levels over time, indicating climate change trends (a)**
- The **Keeling Curve**, named after **Charles David Keeling**, is a graph that plots the concentration of **atmospheric carbon dioxide (CO₂)** over time.
 - It is a critical indicator of **climate change** and shows the steady rise in CO₂ levels due to human activities.

18. (d)

Why in the news?

The Union Cabinet approved the Unified Pension Scheme (UPS) based on recommendations of the T. V. Somanathan Committee (2023).

Row 1: Target Beneficiaries

- **Unified Pension Scheme (UPS):** The proposed scheme aims to include

government employees (not all working citizens), enabling broader pension coverage. Hence, this is **incorrect**.

- **National Pension System (NPS):** NPS is open to all **citizens of India**, not limited to just government and private-sector employees. Hence, this is **incorrect**.
- **Old Pension Scheme (OPS):** This is restricted to **government employees who joined before 2004**, which is correctly stated in this row.

Row 2: Funding Mechanism

- **Unified Pension Scheme (UPS):** The funding mechanism has not been standardized as “equally shared” yet. Current discussions involve mixed contributions from employees and the government. Thus, this is **incorrect**.
- **NPS:** Contributions are **individual and employer-funded**, correctly stated here.
- **OPS:** The scheme is **entirely funded by the government**, making this accurate.

Row 3: Minimum Pension

- **Unified Pension Scheme (UPS):** It guarantees an assured minimum pension, after minimum 10 years of service. Hence, this is **incorrect**.
- **NPS:** Offers no **minimum pension guarantee**, correctly stated.
- **OPS:** Provides a **minimum assured pension** equal to 50% of the last drawn salary, as stated.

19. (b)

Why in the news?

The Supreme Court has launched a week-long Lok Adalat drive to address and resolve long-standing disputes.

Statement 1: Lok Adalats are a mechanism of alternative dispute resolution

- **Correct.** **Lok Adalats** are part of the Indian judicial system for resolving disputes through **alternative dispute resolution (ADR)**.
- They aim to provide **speedy, amicable, and cost-effective justice** without the need for formal litigation.

Statement 2: Lok Adalats are established under the Arbitration and Conciliation Act, 1996

- **Incorrect.** Lok Adalats are established under the **Legal Services Authorities Act, 1987**, not the Arbitration and Conciliation Act, 1996.
- They are organized by the **National Legal Services Authority (NALSA)** and State Legal Services Authorities.

Statement 3: Lok Adalats are authorized to hear only civil cases

- **Incorrect.** Lok Adalats can hear **both civil and compoundable criminal cases**, including matrimonial disputes, debt recovery cases, and motor accident claims.

Statement 4: The awards passed by Lok Adalats are final and binding, with no mechanism of appeal

- **Correct.** The awards passed by Lok Adalats are **final, binding, and enforceable as a decree of a civil court.**

Statement 5: Lok Adalats charge a nominal fee for the cases brought before them for dispute resolution, which is refunded if the parties reach an amicable settlement

- **Incorrect.** Lok Adalats do **not charge any fee** for the resolution of disputes.
- This is a significant feature that promotes accessibility and encourages parties to resolve disputes amicably.

20. (a)

Why in the news ?

Assam's Charaideo Moidam has been officially added to the World Heritage List by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Statement 1: Megalithic traditions in India were inspired by the architectural design of Charaideo Maidams

- **Incorrect.** The **Charaideo Maidams**, also known as the **pyramids of Assam**, were constructed as burial mounds for royalty and nobles of the Ahom dynasty.

- While the Maidams are significant in the context of the Ahom dynasty, they are not linked to **megalithic traditions**, which are prehistoric burial practices seen in parts of India like Meghalaya and the Deccan plateau.

Statement 2: Charaideo Maidams have been selected as a UNESCO World Heritage Site under the category of natural heritage sites

- **Incorrect.** The Charaideo Maidams have been included in **India's tentative list for UNESCO World Heritage Sites**, but they are yet to be officially recognized as a World Heritage Site.
- Moreover, if selected, they would fall under the **cultural heritage category**, not natural heritage, as they are man-made structures.

Statement 3: The Ahom Dynasty, under which the Charaideo Maidams were built, ruled Assam for over 600 years

- **Correct.** The Ahom dynasty ruled Assam for nearly **600 years** (1228–1826 AD), marking a significant historical and cultural period in the region.
- The **Charaideo Maidams** were built as the **sacred burial sites** for Ahom kings and queens, symbolizing their cultural legacy.

Statement 4: Lachit Borphukan, a legendary general of the Ahom Dynasty, is not buried in Charaideo Maidams, as they were reserved for royalty and nobles

- **Correct.** **Lachit Borphukan**, the celebrated Ahom general known for his role in the **Battle of Saraighat (1671)** against the Mughals, is not buried in Charaideo Maidams.
- He was buried at Teok in Jorhat in a Maidam but not in Charaideo Maidams.

21. (b)

To arrange the cities geographically from **South to North**, let us analyze their relative positions:

1. **Gaza City (31.5° N Latitude)**
 - Located in **Palestine**, Gaza City lies along the Mediterranean coast and is the southernmost city in the list.
2. **Jerusalem (31.7° N Latitude)**
 - Situated slightly north of Gaza City, **Jerusalem** is a city of great historical and religious significance in Israel.
3. **Tel Aviv (32.1° N Latitude)**
 - **Tel Aviv**, a major city in Israel, lies further north along the Mediterranean coast.
4. **Beirut (33.9° N Latitude)**
 - **Beirut**, the capital of **Lebanon**, is located further north than Tel Aviv.
5. **Ankara (39.9° N Latitude)**
 - The capital of **Turkey**, **Ankara**, is the northernmost city among those listed.

22. (a)

Why in the news?

The Opposition parties decided to submit a notice (under Article 67(b)) to move a motion of no-confidence against the Vice-President.

Statement 1: The election of the Vice President follows the system of proportional representation by means of a single transferable vote

- **Correct.** The **Vice President** is elected by an **electoral college** consisting of members of both Houses of Parliament.
- The election follows the **system of proportional representation** by means of a **single transferable vote**, ensuring proportionality and inclusivity.
 - Voting is conducted through a **secret ballot**.

Statement 2: Electoral College for the Vice President does not include Members of Legislative Assemblies (MLAs) of states

- **Correct.** Unlike the Presidential election, where **MLAs** of states and Union Territories participate, the Vice Presidential election is restricted to members of **Parliament only** (Lok Sabha and Rajya Sabha).

Statement 3: The grounds for removal of the Vice President, which include violation of the Constitution, are explicitly enumerated in the constitution

- **Incorrect.** The grounds for removal of the Vice President are **not explicitly stated in the Constitution**.
- The Vice President can be removed by a **resolution of the Rajya Sabha**, passed by a majority of its members and agreed to by the Lok Sabha, without a specific enumeration of grounds.

Statement 4: A resolution for the removal of the Vice President requires a 14-day advance notice signed by at least 1/4th of the members of the initiating house

- **Incorrect.** The removal process does require a **14-day notice**, but the notice must be **signed by at least 20 members of the initiating house**, not 1/4th of the members.

23. (a)

Why in the news?

The Supreme Court's nine-judge Constitution Bench in *Property Owners Association v. State of Maharashtra* restricted state powers in acquiring private property. The case examined Article 39(b) of the Indian Constitution, questioning whether privately owned property qualifies as "material resources of the community" for equitable distribution.

Statement 1: The Right to Property is a constitutional right and not a fundamental right - Correct

- The **Right to Property** was a fundamental right under **Article 19(1)(f)** and **Article 31** of the Constitution until the **44th Constitutional Amendment Act, 1978**.
- This amendment removed the Right to Property from the list of Fundamental Rights, making it a **constitutional right under Article 300A**, enforceable only through legal proceedings and not directly under writ jurisdiction.

Statement 2: The doctrine of eminent domain allows the state to acquire private property for public purposes under Article 39(b), without the obligation to provide compensation to the property owner – Incorrect

- The doctrine of **eminent domain** allows the state to acquire private property for public purposes.
- However, the **state is obligated to provide fair compensation** under various laws like the **Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013**.
- **Article 39(b)** relates to **Directive Principles of State Policy (DPSP)** for equitable distribution of resources and does not negate the obligation of compensation.

Statement 3: Article 31C protects laws enacted to implement the principles under Articles 39(b) and (c) from being challenged for violating fundamental rights under Article 21 – Incorrect

- Article 31C provides protection to laws implementing **Directive Principles under Articles 39(b) and (c)** from being challenged for violating **Articles 14 (Equality) and Article 19 (Freedom)**.
 - However, it does not extend this immunity to **Article 21 (Right to Life and Personal Liberty)**.

24. (b)

Why in the news?

World Antimicrobial Awareness Week (WAAW) 2024 highlights the global challenge of antimicrobial resistance (AMR) with the theme “Educate. Advocate. Act now.” It focuses on understanding antimicrobials – antibiotics, antivirals, and antifungals – and their appropriate use to combat AMR effectively.

Statement 1: Viruses depend heavily on host cell machinery, limiting unique drug targets

- **Correct.** Viruses rely on the host’s cellular machinery for replication and protein synthesis.
- This dependency limits the availability of unique viral targets for drugs without affecting the host cells, making antiviral drug development challenging.

Statement 2: Viral latency or integration into the host genome allows viruses to evade drug action

- **Correct.** Certain viruses, such as **HIV and herpesviruses**, can integrate into the host genome or enter a dormant (latent) phase.
- These mechanisms help viruses evade drug action, requiring prolonged treatment or specific drugs like reverse transcriptase inhibitors.

Statement 3: Broad-spectrum antiviral drugs are as common as broad-spectrum antibiotics

- **Incorrect.** Broad-spectrum antibiotics are effective because bacteria share common cellular mechanisms.
- Viruses are highly diverse and depend on host-specific pathways, making the development of broad-spectrum antivirals rare.
- Examples of broad-spectrum antivirals like **interferons** exist but are much less common than antibiotics.

Statement 4: High mutation rates in viruses, especially RNA viruses, contribute to drug resistance

- **Correct.** RNA viruses (e.g., **HIV, influenza**) have high mutation rates due to error-prone replication processes.
- This leads to frequent changes in their genetic makeup, contributing to drug resistance and making antiviral drug development more complex.

25. (c)

Why in the news?

Using the Green Bank Telescope (GBT), astronomers detected a new millisecond

pulsar associated with a recently observed globular cluster known as Terzan 6.

1. Pulsars → b. Rapidly spinning neutron stars emitting beams of radiation

- Pulsars are highly magnetized, rapidly rotating neutron stars that emit beams of electromagnetic radiation from their magnetic poles.
- These beams are observed as pulses when they sweep across the Earth, hence the name “Pulsar.”

2. Nebulae → c. Giant clouds of dust and gas in space

- A nebula is an interstellar cloud of dust, hydrogen, helium, and other ionized gases.
- Nebulae are often the birthplaces of stars or remnants of supernova explosions. Examples include the Orion Nebula and the Crab Nebula.

3. Quasars → a. Active galactic nuclei emitting immense energy

- Quasars are extremely luminous active galactic nuclei powered by supermassive black holes at their center.
- They emit enormous amounts of energy, including visible light, radio waves, and X-rays, and are among the brightest objects in the universe.

26. (d)

Why in the news?

Ministry of New And Renewable Energy (MNRE) has released Scheme Guidelines for funding of testing facilities, infrastructure, and institutional support for the development of Standards and Regulatory framework under the National Green Hydrogen Mission.

Statement 1: Hydrogen is naturally abundant in its elemental form in the atmosphere, making it easy to extract and use.

- **Incorrect.** Hydrogen is not available in its free elemental form in the atmosphere;

instead, it exists in compounds like water (H₂O) or hydrocarbons. Extracting hydrogen from these compounds requires energy-intensive processes such as electrolysis or steam reforming. Hence, it is not easily extractable.

Statement 2: Hydrogen has the highest energy content per unit mass among all fuels, making it highly efficient for energy generation.

- **Correct** Hydrogen has an extremely high energy content of **120 MJ/kg**, which surpasses that of conventional fuels like gasoline or diesel. This property makes hydrogen an efficient fuel for specific applications such as fuel cells and space exploration.

Statement 3: Hydrogen does not require oxygen for combustion, thus making hydrogen-powered cryogenic engines suitable for anaerobic environments like outer space.

- **Incorrect.** Hydrogen does require oxygen to combust, whether from the atmosphere or cryogenic oxygen tanks. For example, liquid hydrogen is paired with liquid oxygen (LOX) in rockets as a propellant. It is not suitable for anaerobic conditions without an oxygen source.

Statement 4: Hydrogen can be used in combustion engines without requiring any modifications to existing infrastructure.

- **Incorrect.** Hydrogen combustion engines require significant modifications to infrastructure, including high-pressure storage systems, fuel injectors, and combustion chambers designed for hydrogen. Therefore, hydrogen cannot directly replace conventional fuels in existing engines without adjustments.

27. (a)

Ramjet operates by compressing incoming air for combustion at subsonic speeds, while Scramjet does so at supersonic speeds; both are air-breathing jet engines that require forward motion to operate.

- **Ramjet Technology:**
 - Ramjet engines are air-breathing jet engines that rely on forward motion to compress incoming air for combustion at **subsonic speeds** (less than the speed of sound).
 - They do not have moving parts like compressors or turbines and are efficient between speeds of **Mach 1 to Mach 5**.
- **Scramjet Technology:**
 - Scramjet engines are advanced air-breathing engines designed to operate at **supersonic and hypersonic speeds** (above Mach 5).
 - They compress and combust atmospheric oxygen directly at supersonic speeds, making them suitable for hypersonic applications like spaceplane launches.
- Both technologies are **air-breathing**, meaning they rely on atmospheric oxygen for combustion, reducing the need to carry an onboard oxidizer.

28. (c)

Why in the news?

The UN announced plans to bolster United Nations Interim Force in Lebanon (UNIFIL) to better support the Lebanese army once a truce is agreed upon, highlighting the evolving role of peacekeeping forces in conflict zones.

Statement 1: UN Peacekeeping missions were established in 1948.

- **Correct** .The **first UN peacekeeping mission, UNTSO (United Nations Truce Supervision Organization)**, was established in **1948** to monitor ceasefire agreements between Israel and its neighboring Arab countries. This marks the beginning of formal UN peacekeeping missions.

Statement 2: UN peacekeepers enjoy immunity for acts performed in their official capacity.

- **Correct.** UN peacekeepers do enjoy **immunity** for acts performed in their official capacity, which is granted under the **Convention on the Privileges and Immunities of the United Nations (1946)**. This immunity helps maintain the neutrality and security of peacekeepers while they carry out their missions.

Statement 3: UN Peacekeeping missions' mandate includes protecting sovereign democratically elected governments.

- **Incorrect** .UN **peacekeeping missions are not specifically mandated** to protect sovereign governments or democratically elected governments. According to the **UN Charter** and the guidelines for peacekeeping missions, their primary mandate is to **maintain peace and security** in conflict zones. This often involves **securing ceasefires, providing humanitarian aid**, and supporting the political process in post-conflict situations. Protection of governments is not a stated objective of UN peacekeepers unless it is part of a broader political solution or peace agreement. Therefore, **Statement 3 is incorrect.**

Statement 4: Since its inception, India has been one of the largest troop contributors to UN peacekeeping missions.

- **Correct.** **India has consistently been one of the largest troop contributors** to UN peacekeeping missions since their inception. India has provided personnel for numerous peacekeeping operations across the world, including in regions like Africa, the Middle East, and Southeast Asia.

29. (d)

Row 1: International Criminal Court (ICC)

- **Authority (Created By):** Incorrect
 - The ICC was established under the **Rome Statute** (adopted in 1998, entered into force in 2002), not under the UN Charter.

- Although it works in collaboration with the United Nations, it is an independent judicial body.
- **Focus:** Correct
 - The ICC focuses on prosecuting **individual crimes**, such as genocide, war crimes, crimes against humanity, and aggression.

Row 2: International Court of Justice (ICJ)

- **Authority (Created By):** Incorrect
 - The ICJ was established under the **UN Charter** in 1945, not under the Rome Statute. It is the principal judicial organ of the United Nations.
- **Focus:** Correct
 - The ICJ resolves **disputes between states** and provides advisory opinions on legal questions referred by UN organs and specialized agencies.

Row 3: International Criminal Police Organization (Interpol)

- **Authority (Created By):** Incorrect
 - Interpol was not created by the **General Assembly of Interpol**. It was established in 1923 as the **International Criminal Police Commission (ICPC)**, later renamed Interpol in 1956.
 - It operates independently of the UN or any formal legislative authority.
- **Focus:** Incorrect
 - Interpol focuses on **transnational crimes**, such as human trafficking, drug smuggling, cybercrime, and terrorism. It does not deal with **political or religious crimes**, as its Constitution prohibits involvement in political, military, religious, or racial issues.

30. (b)

(b) El Niño weakens the Walker Circulation, shifting warm waters eastward, and causes a negative Southern Oscillation Index (SOI).

- El Niño does not strengthen the Walker Circulation.

- Walker Circulation refers to the zonal (east-west) atmospheric circulation across the equatorial Pacific, driven by trade winds.
- During El Niño, trade winds weaken or even reverse, disrupting the Walker Circulation.
- This results in a **negative Southern Oscillation Index (SOI)** due to reduced pressure difference between Tahiti (high pressure) and Darwin (low pressure).

Option (b): Correct

- El Niño is characterized by **weakening of the Walker Circulation** and the movement of warm waters from the western Pacific to the eastern Pacific.
- **Key impacts include:**
 - Weakening of trade winds.
 - Reduction in upwelling of cold nutrient-rich waters in the eastern Pacific, disrupting marine ecosystems.
 - Negative SOI, as the pressure difference between the western and eastern Pacific reduces.
 - Global weather anomalies such as droughts in India and Australia and heavy rainfall in South America.

Option (c): Incorrect

- El Niño has a **direct impact on the Walker Circulation**.
 - It disrupts the trade winds, weakens the Walker Circulation, and alters the flow of atmospheric and oceanic currents.
 - This also results in significant changes in global rainfall and temperature patterns.

Option (d): Incorrect

- El Niño **does not enhance upwelling in the eastern Pacific**.
 - Instead, it **reduces upwelling**, as warm waters shift eastward, suppressing the rise of cold, nutrient-rich water to the surface.
 - This leads to **droughts in regions like Australia and Indonesia** and

affects fisheries along the Peruvian and Chilean coasts.

31. (a)

1. PM-KUSUM → (c): Promotes solar energy use in the agriculture sector to reduce dependency on conventional energy sources

- **Objective:** Launched in 2019, the **Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM-KUSUM)** aims to promote the use of **solar energy in agriculture** by installing solar pumps and grid-connected renewable power plants.
- **Key Focus:** Reducing dependence on diesel and electricity for irrigation and encouraging renewable energy adoption.

2. PM-PRANAM → (a): Promotes the reduction of chemical fertilizer use through eco-friendly agricultural practices

- **Objective:** **PM Programme for Restoration, Awareness, Nourishment, and Amelioration of Mother Earth (PM-PRANAM)** aims to reduce the use of **chemical fertilizers** in agriculture.
- **Key Focus:** Incentivizing states to promote the adoption of organic and sustainable farming practices to ensure environmental sustainability and improve soil health.

3. PM-CARES → (d): Created to provide disaster management, pandemic response, and emergency assistance

- **Objective:** The **Prime Minister’s Citizen Assistance and Relief in Emergency Situations (PM-CARES) Fund** was established in 2020 to provide relief during disasters and emergencies such as the **COVID-19 pandemic**.
- **Key Focus:** Supporting disaster management efforts, pandemic preparedness, and other national emergencies.

4. PM Gati Shakti → (b): Aims to boost infrastructure connectivity and logistics for economic growth

- **Objective:** Launched in 2021, the **PM Gati Shakti National Master Plan** is aimed at enhancing **infrastructure connectivity**, improving logistics, and ensuring seamless multi-modal transportation.
- **Key Focus:** Facilitating economic growth by integrating various infrastructure initiatives like **Bharatmala, Sagarmala, UDAN**, and freight corridors.

32. (a)

What are Derivative Contracts?

- **Derivative contracts** are financial instruments that derive their value from an underlying asset (such as stocks, commodities, currencies, or interest rates).
- These contracts include **Futures, Forwards, Options, and Swaps**, which are commonly used for hedging, speculation, or arbitrage.

Statement Analysis:

1. Futures – Correct

- Futures are standardized derivative contracts where two parties agree to buy or sell an asset at a predetermined price on a future date.
- Traded on exchanges, they are legally binding.

2. Spot Contracts – Incorrect

- Spot contracts involve the immediate purchase or sale of an asset at the current market price.
- They are not derivative contracts, as they do not derive their value from another asset.

3. Forwards – Correct

- Forwards are customized derivative contracts where two parties agree to buy or sell an asset at a specific price on a future date.

- Unlike futures, forwards are **over-the-counter (OTC)** contracts, meaning they are not traded on exchanges.

4. Government Bonds – Incorrect

- Government bonds are **fixed-income securities** issued by governments to borrow money.
- They are not derivative contracts as their value is not derived from another asset.

5. Options – Correct

- Options are derivative contracts that give the holder the right (but not the obligation) to buy or sell an asset at a predetermined price before or on a specific date.
- Two types: **Call Option (buy)** and **Put Option (sell)**.

6. Swaps – Correct

- Swaps are derivative contracts in which two parties exchange cash flows or financial obligations, such as interest rate swaps or currency swaps.
- Commonly used for hedging or managing risk.

33. (d)

Why in the news?

India and the US are reviving their civil nuclear deal, with Holtec International's Small Modular Reactor(SMR)-300 leading the development.

Statement 1: SMRs are nuclear reactors with an electrical output typically less than 300 MW(e)

- **Correct.** Small Modular Reactors (SMRs) are defined as nuclear reactors with an electrical output of **300 megawatts electric (MW(e)) or less**, much smaller than traditional reactors, which typically produce 1,000 MW(e) or more.
- These reactors are modular, meaning they can be assembled in factories and transported to sites, reducing construction time and costs.

Statement 2: SMRs are more suited for decentralized grid operations as compared to normal reactors

- **Correct.** SMRs are ideal for **decentralized and smaller grid operations**, especially in remote areas where large nuclear reactors may not be feasible.
- Their flexibility allows them to complement renewable energy sources, ensuring grid stability and reducing dependency on large centralized power plants.

Statement 3: SMRs primarily use natural uranium as fuel, eliminating the need for fuel enrichment

- **Incorrect.** SMRs **do not primarily use natural uranium**. Most SMRs require **enriched uranium** as fuel, similar to conventional nuclear reactors.
- Natural uranium has low fissionable isotope content (0.7% U-235), which is insufficient for most nuclear reactors, including SMRs.

Statement 4: SMRs have a smaller reactor core compared to conventional nuclear reactors

- **Correct.** SMRs are designed with **smaller reactor cores**, which enhances safety and reduces the risks of overheating or meltdowns.
- Advanced designs allow for passive cooling systems and more compact reactor configurations.

34. (b)

Why in the news?

China, India, and other BASIC country partners Brazil and South Africa have been complaining against the Carbon Border Adjustment Mechanism (CBAM) introduced by the EU last year.

A trade-based mechanism that imposes a levy on imported goods based on their carbon footprint, ensuring that domestic industries are not undercut by foreign competitors from countries with less stringent carbon regulations.

- The **Carbon Border Adjustment Mechanism (CBAM)** is a **trade-based mechanism** proposed by the **European Union (EU)** to address carbon leakage.
- It applies a **carbon levy on imported goods** (like steel, cement, and aluminum) based on their embedded carbon emissions.
- **Purpose:** To protect domestic industries from unfair competition posed by imports from countries with weaker carbon emission regulations and to encourage global adoption of stricter carbon pricing policies.

35. (c)

Why in the News ?

In Indore an Iron Scrap replica of Sanchi Stupa was unveiled to mark Dr. BR Ambedkar’s Death Anniversary.

Statement 1: It was originally commissioned by King Ashoka and his wife Devi

- **Correct.** The **Great Stupa at Sanchi** was commissioned by **Emperor Ashoka** during the **Mauryan period** in the 3rd century BCE.
- It was built to house the relics of Lord Buddha and promote Buddhism.
- Historical texts mention that Ashoka’s wife, **Devi**, who was the daughter of a merchant from Vidisha, played an important role in its construction.

Statement 2: Pushyamitra Shunga’s son Agnimitra destroyed the original Stupa

- **Incorrect.** There is no historical evidence to support that **Agnimitra**, son of Pushyamitra Shunga, destroyed the Stupa.
- Instead, the Sunga rulers are known to have **restored and expanded the Sanchi Stupa**, including adding railings and elaborate gateways (toranas) during the 2nd century BCE.

Statement 3: Along with Jatakas, miracles performed by Buddhas is also a common theme recorded in the Stupa’s reliefs

- **Correct.** The reliefs on the Sanchi Stupa primarily depict **Jataka tales**, which narrate the previous lives of Buddha, along with scenes from his **life and miracles** performed by him.
- The artwork also includes symbolic representations of Buddha, such as the **Bodhi tree, footprints, and empty throne.**

36. (b)

Why in the News?

India became a member of the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement, popularly known as the “Treaty of the High Seas.”

Statement 1: The BBNJ Agreement mandates the equitable sharing of benefits derived from marine genetic resources

- **Correct.** The **Biodiversity Beyond National Jurisdiction (BBNJ) Agreement**, also known as the **High Seas Treaty**, aims to ensure the **equitable sharing of benefits** derived from the use of **marine genetic resources (MGRs)** found in areas beyond national jurisdiction.
- This includes resources used for pharmaceuticals, biotechnology, and other commercial purposes.
- The treaty focuses on **equity, access, and benefit-sharing**, especially for developing nations.

Statement 2: The treaty establishes the concept of Exclusive Economic Zones (EEZs) to govern marine biodiversity in high seas

- **Incorrect.** **EEZs** are already defined under the **United Nations Convention on the Law of the Sea (UNCLOS)** and extend up to **200 nautical miles from a country’s coastline.**
- The BBNJ Agreement specifically focuses on areas **beyond national jurisdiction**, such as the **high seas and seabed areas**, which fall outside EEZs.

Statement 3: It requires Environmental Impact Assessments (EIAs) to be conducted for activities in the high seas

- **Correct.** The agreement includes a framework for **Environmental Impact Assessments (EIAs)** to ensure that activities in the high seas (such as deep-sea mining, exploration, and other industrial activities) are assessed for their potential environmental impacts.
- This provision is critical to **preserve marine biodiversity** and mitigate risks to fragile ecosystems.

37. (c)

Why in the news ?

Bhandara's unique Tussar Silk (Kosa) was mentioned by PM Narendra Modi in Mann Ki Baat, praising the self-help groups.

Statement 1: Bhandara's unique Tussar silk, also known as Kosa, is produced from wild silkworms

- **Correct.** **Tussar silk** (commonly referred to as **Kosa silk**) is produced from **wild silkworms**, specifically *Antheraea mylitta*, which feed on trees like Sal and Arjun.
- **Bhandara district** in Maharashtra is renowned for producing high-quality Tussar silk.
- It is valued for its natural, textured appearance and durability.

Statement 2: The Karvat Kathi saree, made from Bhandara Tussar silk, has gained national recognition but has not yet received a Geographical Indication (GI) tag

- **Incorrect.** The **Karvat Kathi saree**, made from Tussar silk, has **received the GI tag** for its unique designs and traditional weaving process.
- GI tags ensure recognition and protection of the unique cultural and geographical heritage of such products.

Statement 3: Mulberry silk is known for its soft and lustrous texture

- **Correct.** **Mulberry silk** is the most common type of silk produced in India and globally, derived from **silkworms (Bombyx mori)** that are reared on mulberry leaves.
- It is prized for its **smooth, shiny texture**, making it suitable for high-quality textile production.

Statement 4: Eri silk is known as "non-violent" silk because the silkworms are not killed in the process

- **Correct.** **Eri silk**, produced primarily in **Assam**, is often referred to as the "**Ahimsa silk**" because the **silkworms (Samia ricini)** are not killed during the extraction of the silk.
- Instead, the silk is extracted from open-ended cocoons after the silkworms leave, aligning with ethical and sustainable practices.

38. (b)

Why in the news?

The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act completed 10 years in 2024.

Statement 1: The total number of street vendors permitted in an area cannot exceed 2.5% of the total population

- **Correct.** According to the **Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014**, the total number of street vendors in a **ward, zone, town, or city** shall not exceed **2.5% of its population**, as determined by the **Town Vending Committee (TVC)** through a survey.
- This provision ensures a **structured approach to street vending**, balancing the **livelihood security of vendors** with **urban management concerns**, including **public space utilization and congestion control**.

Statement 2: The Act divides urban areas into three vending zones: free, restricted, and no-vending zones, with free vending

zones exempting vendors from paying fees

- **Incorrect.** The Act does provide for the division of areas into **vending zones**, including **free-vending, restricted-vending, and no-vending zones**, based on a city’s Master Plan.
- However, vendors in free-vending zones are **not exempt from paying fees**. They are still required to pay the prescribed vending fees or charges.

Statement 3: Vendors who are issued Certificates of Vending have lifetime validity

- **Incorrect.** Certificates of Vending issued under the Act are **not valid for a lifetime**. They must be renewed periodically as per the rules framed by the respective local authorities.
- This renewal process ensures compliance with updated regulations and proper management of vending activities.

39. (a)

Why in the news?

Israel had banned United Nations Secretary-General (UNSG) António Guterres from entering the country.

Statement 1: “Persona non grata” refers to a formal declaration that a diplomat is unwelcome in the host country

- **Correct.** Under **Article 9 of the Vienna Convention on Diplomatic Relations (1961)**, a host country can declare a diplomat as **persona non grata (PNG)** if the diplomat’s behavior is considered unacceptable.
- This declaration requires the diplomat to leave the host country within a specified period, failing which they may lose diplomatic privileges.

Statement 2: The Vienna Convention mandates that written grounds be provided for declaring a diplomat PNG

- **Incorrect.** The Vienna Convention **does not mandate written grounds or reasons** for declaring a diplomat PNG.

- The host country has the discretion to declare a diplomat PNG without providing any justification.

Statement 3: A diplomat declared as PNG loses their immunity for both past and future actions

- **Incorrect.** Diplomats retain **diplomatic immunity** under **Article 31 of the Vienna Convention**, even if declared PNG.
- Immunity protects them from prosecution for both **past and future actions** carried out in their official capacity while they remain in the host country.
- Once they leave, their immunity ceases to apply for any subsequent actions in the host country.

40. (b)

Why in the news?

Rules have been notified by the Department of Telecommunication in exercise of powers conferred by the Telecommunications Act, 2023 to operationalize the Digital Bharat Nidhi (DBN).

Statement 1: Digital Bharat Nidhi (DBN) has been created under the Telecommunications Act, 2023 for funding telecom schemes

- **Correct.** The **Telecommunications Act, 2023**, introduces the **Digital Bharat Nidhi (DBN)** to replace existing mechanisms for funding telecom-related initiatives.
- It is aimed at funding universal access to telecom services, digital inclusion, and other telecom infrastructure projects.

Statement 2: It replaces the Universal Service Obligation Fund (USOF) created under the erstwhile Indian Telegraph Act, 1885

- **Correct.** The DBN replaces the **Universal Service Obligation Fund (USOF)**, which was established under the **Indian Telegraph Act, 1885**, to support rural telecom infrastructure.
- The DBN modernizes the funding framework to align with contemporary

telecom requirements, such as 5G deployment and digital inclusion.

Statement 3: Contributions to the Digital Bharat Nidhi are directly credited to the DBN fund without passing through the Consolidated Fund of India (CFI)

- **Incorrect.** As per the provisions of the **Telecommunications Act, 2023**, contributions to the DBN fund **must pass through the Consolidated Fund of India (CFI)** before allocation.
- This ensures accountability and parliamentary oversight over the utilization of the fund.

41. (a)

1. **Oligarchy** → a. A system where a small group of people holds power, often based on wealth, family ties, or political influence

- **Oligarchy** is a form of governance where power is concentrated in the hands of a few individuals or groups.
- The ruling class often derives its influence from **wealth, kinship, corporate power, or political connections.**

2. **Plutocracy** → b. Governance controlled by the wealthy class, where policies often favor the affluent

- **Plutocracy** refers to governance by the **wealthy elite**, where economic power translates into political control.
- Policies in such systems are often designed to benefit the **rich and influential.**

3. **Democracy** → c. A system of government where power is vested in the people, directly or through elected representatives

- In a **democracy**, the people exercise sovereignty either **directly** (direct democracy) or through **elected representatives** (representative democracy).

- It is characterized by **free and fair elections, rule of law, and citizen participation.**

4. **Aristocracy** → d. Governance led by a hereditary privileged class or nobility, often based on lineage

- **Aristocracy** is a form of government where power is held by a privileged **hereditary elite or nobility.**
- It is often associated with historical monarchies or societies where social hierarchy is rigidly defined by birth.

42. (c)

Statement-I: The Arctic Tundra has shifted from being a carbon sink to a carbon emitter due to rising global temperatures

- **Correct:** Rising global temperatures have caused the **Arctic Tundra**, which previously acted as a **carbon sink** (absorbing CO₂), to release greenhouse gases like CO₂ and CH₄, thereby becoming a **carbon emitter.**
- This phenomenon is driven by the thawing of **permafrost**, which contains large amounts of organic carbon.

Statement-II: Thawing permafrost releases trapped carbon dioxide (CO₂) and methane (CH₄), contributing to greenhouse gas emissions

- **Correct:** Thawing permafrost releases **carbon dioxide** and **methane**, potent greenhouse gases, which were previously trapped in frozen organic matter.
- Methane, in particular, is a more potent greenhouse gas than CO₂ and accelerates global warming.
- This directly explains Statement-I, as permafrost thawing contributes to the Arctic Tundra's shift from a carbon sink to a carbon emitter.

Statement-III: Wildfires in the Arctic Tundra are primarily caused by human activities such as agriculture and urbanization

- **Incorrect:** While **wildfires in the Arctic Tundra** are increasingly common due to **rising temperatures and drier conditions**, they are not primarily caused by human activities like agriculture or urbanization.
- Instead, these wildfires are mainly triggered by **natural causes**, such as lightning, and are exacerbated by climate change.
- The Arctic has minimal agricultural or urban activity, making human-induced fires rare in this region.

43. (d)

Why in the news?

The 7th Session of the International Solar Alliance (ISA) was held in New Delhi from November 3 to 6, 2024.

Statement 1: The ISA was initiated by India and France during the UN Climate Change Conference in Paris

- **Correct.** The **International Solar Alliance (ISA)** was launched jointly by **India and France** during the **21st Conference of Parties (COP-21)** to the **UNFCCC in Paris, 2015**.
- The initiative focuses on promoting solar energy utilization and addressing challenges in solar energy deployment globally.

Statement 2: ISA aims to mobilize USD 1,000 billion in investments, install 1,000 GW of solar energy capacity, and provide clean energy access to 1,000 million people globally

- **Correct.** The ISA's key goal is to:
 - **Mobilize USD 1,000 billion** in investments by 2030.
 - Support the installation of **1,000 GW of solar capacity globally**.
 - Ensure **clean energy access** to 1,000 million (1 billion) people worldwide, particularly in tropical countries.

Statement 3: 'Ease of Doing Solar Report 2020' was released by ISA

- **Correct.** The **Ease of Doing Solar Report 2020** was published by the ISA to help countries simplify policies and remove barriers to solar energy adoption.
- The report highlights best practices for solar energy development and offers recommendations to improve solar energy deployment efficiency.

44. (c)

Why in the News?

The **53rd Pacific Islands Forum (August 2024)** was held in **Nuku'alofa, Tonga**, leaders discussed the implementation of the **2050 Strategy and regional security concerns**.

Pacific Islands Forum (PIF):

The **Pacific Islands Forum (PIF)** is a regional organization aimed at promoting cooperation between countries in the **Pacific Ocean** region. It includes island nations located within or bordering the Pacific region, excluding Indian Ocean or non-Pacific countries.

Analysis of the Countries:

1. Kiribati – Member:

- Kiribati is a member of the Pacific Islands Forum. It is a prominent Pacific island nation participating in regional development and climate change discussions.

2. Samoa – Member:

- Samoa is a member of the Pacific Islands Forum and plays an active role in Pacific regional cooperation and policy formulation.

3. Maldives – Not a Member:

- The Maldives is located in the **Indian Ocean** and is not a Pacific Island nation. Hence, it is not a member of the PIF.

4. Fiji – Member:

- Fiji is one of the founding members of the Pacific Islands Forum and a key player in its initiatives for regional stability and economic growth.

5. Seychelles – Not a Member:

- Seychelles, located in the **Indian Ocean**, is not a part of the Pacific Islands Forum as it lies outside the Pacific region.

45. (b)

The **Jan Vishwas Act, 2023** seeks to **decriminalize minor offences** across **42 laws** by replacing criminal penalties with **civil penalties** or fines. The aim is to reduce compliance-related stress, improve the ease of doing business, and foster **trust-based governance** in various sectors.

46. (b)

Why in the news?

India has joined the US-led Minerals Security Finance Network, an initiative aimed at strengthening global cooperation in securing critical mineral supply chains.

Statement 1: India recently joined the MSFN, as part of a U.S.-led initiative to strengthen critical mineral supply chains

- **Correct.** The **Minerals Security Finance Network (MSFN)** is a **U.S.-led initiative** aimed at building **secure, sustainable, and diversified supply chains** for **critical minerals** essential for clean energy technologies and other advanced industries.
- India recently joined this initiative to reduce dependency on a few dominant players, like China, in the critical minerals market.

Statement 2: The MSFN includes mining of rare earth minerals and plutonium

- **Incorrect.** While **rare earth minerals** are a major focus of the MSFN due to their critical role in clean energy technologies (e.g., wind turbines, EV batteries), **plutonium is not included** in this initiative.
- Plutonium is a radioactive element primarily used in nuclear reactors and weapons, not in the scope of critical

mineral supply chains for clean technologies.

Statement 3: By joining the MSFN, India aims to diversify its supply of critical minerals

- **Correct.** India's primary objective in joining the MSFN is to **reduce reliance on a single supplier** for critical minerals (e.g., lithium, cobalt, and nickel) and **diversify its sources**.
- This is critical for India's ambitions in clean energy, EV manufacturing, and reducing dependency on imports from limited sources like China.

47. (d)

Why in the news?

Recently, it is revealed that tech companies and startups market themselves as using AI, but not doing so which forms the basis of 'AI washing'.

- **AI washing** is a term used to describe the **overhyping or exaggeration of AI capabilities** by companies to attract attention, customers, or investors.
- For instance, companies may label products as "AI-powered" even when they use basic automation or traditional programming, rather than true AI.
- This practice often creates **misleading expectations** and undermines trust in the AI industry.

48. (d)

Why in the news ?

Recent studies have shown that **junk DNA** comprising the vast majority of the genome, is vital for **unexplored genomic frontier**.

- Historically, "junk DNA" referred to non-coding regions of DNA with no known purpose. However, modern research has shown that much of this DNA is involved in:
 - **Gene regulation:** Enhancers, silencers, and promoters.
 - **Chromosomal stability:** Telomeres and centromeres.

- **Epigenetic regulation and evolutionary innovation.**
- Thus, “junk DNA” is now recognized as potentially functional.

49. (a)

1. Down Syndrome – Genetic Disorder

- Down Syndrome is a **genetic disorder** caused by the presence of an **extra copy of chromosome 21 (trisomy 21)**.
- It leads to developmental delays, intellectual disability, and characteristic facial features.

2. Sickle Cell Anemia – Genetic Disorder

- Sickle Cell Anemia is an **inherited genetic disorder** caused by a mutation in the **HBB gene**, which affects hemoglobin in red blood cells.
- It results in abnormally shaped red blood cells that can block blood flow and cause pain and anemia.

3. Huntington’s Disease – Genetic Disorder

- Huntington’s Disease is an **autosomal dominant genetic disorder** caused by a mutation in the **HTT gene**.
- It leads to the progressive breakdown of nerve cells in the brain, causing movement, cognitive, and psychiatric disorders.

4. Cerebral Palsy – Not a Genetic Disorder

- Cerebral Palsy is a group of disorders affecting movement and posture caused by **damage to the developing brain** during pregnancy, birth, or early childhood.
- It is not caused by genetic mutations and is therefore **not a genetic disorder**.

5. Parkinson’s Disease – Not a Genetic Disorder

- Parkinson’s Disease is a neurodegenerative disorder caused by the loss of dopamine-producing neurons in the brain.
- While there is a **genetic predisposition** in some cases, it is primarily caused by a combination of **genetic and**

environmental factors, making it **not purely a genetic disorder**.

6. Turner Syndrome – Genetic Disorder

- Turner Syndrome is a **genetic condition** affecting females caused by the complete or partial absence of one **X chromosome** (monosomy X).
- It results in short stature, infertility, and other physical abnormalities.

50. (d)

Statement 1: The property or income of corporations and companies owned by a state cannot be taxed by the Centre

- **Incorrect.** Under the **Indian Constitution**, there is no exemption for **state-owned corporations and companies** from central taxation.
- Such corporations are considered separate legal entities and are subject to **central taxes** like any other corporation.
- Example: Companies like **State Electricity Boards** and other state enterprises pay **corporate tax** to the Centre.

Statement 2: All the property of the Centre within a state are subject to State taxation

- **Incorrect.** Article **285** of the Indian Constitution provides that the **property of the Union is exempt from state taxation** unless expressly provided by Parliament.
- States cannot levy taxes on property owned by the Centre, ensuring **financial independence** of the Union.

51. (a)

Why in the news?

The Department of Telecommunication and Prasar Bharati are exploring the feasibility of a D2M technology.

Statement 1: D2M enables the transmission of content directly to mobile devices using broadcast frequencies, bypassing traditional cellular networks

- **Correct.** **Direct-to-Mobile (D2M) technology** enables the delivery of content directly to mobile devices using **broadcast spectrum frequencies** like those used for television and radio.
- It bypasses **traditional cellular networks**, reducing the load on mobile networks and offering a seamless content experience.

Statement 2: D2M technology relies on 4G/5G cellular towers for delivering content to users, ensuring uninterrupted streaming in remote areas

- **Incorrect.** D2M does **not rely on cellular towers** for content delivery. Instead, it uses **terrestrial broadcasting infrastructure** to transmit content over **broadcast frequencies**.
- This eliminates dependence on mobile network towers, particularly in **low-connectivity or remote areas**.

Statement 3: D2M facilitates efficient spectrum usage by integrating traditional broadcasting with next-generation mobile network capabilities

- **Correct.** D2M optimizes **spectrum usage** by combining **traditional broadcasting capabilities** with **mobile device technology**.
- For example, it can enable **broadcasting live TV content** directly to smartphones without consuming mobile data bandwidth.

Statement 4: D2M is limited to live television broadcasts and cannot support on-demand content or interactive services

- **Incorrect.** While D2M is primarily used for **live broadcasting**, advancements in technology allow integration with **on-demand and interactive services**, such as personalized content delivery or hybrid solutions combining cellular and broadcast infrastructure.

52. (d)

Why in the News?

Despite a decade since the H1 rule's announcement, no State government had

adopted it until Kerala recently initiated Operation AMRITH (Antimicrobial Resistance Intervention for Total Health). The programme - Operation AMRITH - enforces the original H1 rule, mandating a doctor's prescription for acquiring any class of antibiotics.

Statement 1: AMR refers to the ability of microorganisms like bacteria, viruses, fungi, and parasites to resist the effects of medications

- **Correct.** **Antimicrobial Resistance (AMR)** occurs when microorganisms evolve to survive exposure to medications designed to kill them or inhibit their growth.
- This includes **bacteria, viruses, fungi, and parasites**, leading to reduced effectiveness of treatments like antibiotics, antivirals, antifungals, and antiparasitic drugs.

Statement 2: Bacteria can acquire resistance genes from other bacteria through processes like conjugation

- **Correct.** Bacteria develop resistance through genetic mutations or by acquiring **resistance genes** from other bacteria.
- Methods include:
 - **Conjugation:** Transfer of plasmids containing resistance genes through direct contact.
 - **Transformation:** Uptake of free DNA from the environment.
 - **Transduction:** Gene transfer mediated by bacteriophages (viruses that infect bacteria).

Statement 3: India's initiatives to tackle AMR include Schedule H1 drugs

- **Correct.** India has introduced **Schedule H1 drugs** under the **Drugs and Cosmetics Act** to regulate the sale of certain antibiotics and curb misuse.
 - These drugs are available only with a **prescription**, and pharmacists must maintain a record of sales to monitor usage.

- Other initiatives include:
 - **National Action Plan on AMR (2017–2021).**
 - **Red Line Campaign** to spread awareness about rational use of antibiotics.

Statement 4: The WHO’s Essential Medicines List (EML) includes antibiotics like colistin and other drugs, which have been banned globally by the organization

- **Incorrect.** The **World Health Organization (WHO)** has not banned antibiotics like **colistin** globally but classifies them under its **Access, Watch, and Reserve (AWaRe)** framework to promote rational use.
- Colistin is listed in the **Reserve category**, which means it should be used as a last-resort antibiotic.
- Misuse or overuse of such antibiotics is discouraged, but they are not banned.

53. (c)

Why in the news ?

Recent demands of statutory backing for Minimum Support Price by Farmers’ Associations.

Statement 1: MSP does not have direct statutory backing under any specific law in India

- **Correct.** The **Minimum Support Price (MSP)** is announced by the **Government of India** based on the recommendations of the **Commission for Agricultural Costs and Prices (CACP).**
- However, **MSP does not have legal or statutory backing**, meaning farmers cannot legally enforce the sale of their produce at MSP.

Statement 2: MSP ensures that farmers are compensated for their costs of production with a margin of at least 50%

- **Correct.** In 2018, the Government of India announced that **MSP would be fixed at a level that provides farmers with a margin of at least 50% over the cost of**

production (Cost A2+FL), which includes actual expenses and family labor.

- This is aimed at ensuring **remunerative prices** for farmers.

Statement 3: MSP is legally enforceable under the Essential Commodities Act, 1955

- **Incorrect.** The **Essential Commodities Act, 1955**, is primarily designed to regulate the production, supply, and distribution of essential commodities to control hoarding and black marketing.
- **MSP has no statutory backing.**

Statement 4: Procurement at MSP is conducted primarily by the Food Corporation of India (FCI) and the National Agricultural Cooperative Marketing Federation of India (NAFED)

- **Correct.** FCI is the main agency responsible for the procurement of food grains like **wheat and rice** at MSP for distribution under the **Public Distribution System (PDS).**
- **NAFED** handles the procurement of oilseeds, pulses, and other crops under MSP.
- These agencies ensure farmers have a guaranteed buyer for their produce at MSP.

54. (b)

Why in the news?

India’s first additional Tier I (AT-1) perpetual bond was issued after recent rule changes to make them more appealing.

Statement 1: Perpetual bonds have no fixed maturity date

- **Correct.** **Perpetual bonds** are a type of bond that does not have a fixed maturity date.
- The issuer is not obligated to repay the principal amount, making these bonds unique compared to traditional bonds.
- They pay **interest (coupons)** indefinitely, subject to the issuer’s financial condition and discretion.

Statement 2: Principal repayment is not guaranteed

- **Correct.** The principal amount in perpetual bonds is **not guaranteed** for repayment.
- The bondholder relies on the periodic coupon payments, which may also be deferred or canceled under certain conditions, especially in the case of financial stress faced by the issuer.

Statement 3: Perpetual bonds are primarily issued to finance infrastructure or green energy projects

- **Incorrect.** While perpetual bonds can be used for a variety of purposes, they are **not primarily issued for infrastructure or green energy projects.**
- They are primarily issued by **financial institutions**, including banks, to strengthen their capital base.
- Specific-purpose bonds, like **green bonds**, are more commonly used for financing green energy or infrastructure projects.

Statement 4: Perpetual bonds are often used by financial institutions to raise Tier-I capital under regulatory frameworks

- **Correct.** Perpetual bonds are widely used by **banks and financial institutions** to raise **Additional Tier-I (AT1) capital**, which is part of their regulatory capital under frameworks like the **Basel III norms.**
- These bonds help banks meet their capital adequacy requirements while providing investors with higher returns compared to traditional bonds.

55. (a)

Why in the news ?

A recent study suggests that Mount Everest's height may be increasing due to the erosion of the Arun River, located near the base of the Himalayas.

1. Statement I: Mount Everest rises in height by ~2 mm annually.

- This occurs due to:

- **Tectonic plate convergence:** Collision of the Indian and Eurasian Plates.
- **Isostatic rebound:** Crustal uplift due to erosion and mass redistribution.

2. Statement II: Accelerated erosion from Arun-Kosi river merger causes isostatic imbalance.

- Erosion reduces surface weight on the crust.
- Crust adjusts by rising (isostatic rebound), contributing to Mount Everest's uplift.
- River merger ~89,000 years ago triggered massive sediment removal, intensifying this process.

56. (c)

Why in the news?

The Global Multidimensional Poverty Index (MPI) Report 2024 published recently, provides comprehensive insights into poverty beyond traditional income-based measures.

Statement 1: The Global Multidimensional Poverty Index (MPI) Report 2024 identifies India as the country with the largest number of people living in extreme multidimensional poverty.

- **Correct.** According to the 2024 Global MPI, **16.4% of India's population** (approximately **234 million people**) are multidimensionally poor.
- This is the highest absolute number of multidimensionally poor individuals in any country.

Statement 2: India has developed its own National Multidimensional Poverty Index (NMPI), introduced by NITI Aayog in collaboration with UNDP.

- **Correct.** NITI Aayog, in partnership with the United Nations Development Programme (UNDP), launched India's NMPI.
- The NMPI employs **12 indicators** across **health, education, and standard of living** to assess poverty at national, state, and district levels.

57. (a)

Statement 1: Tamil Sangam, assemblies of Tamil poets and scholars, primarily dealt with literature and societal themes

- **Correct.** The Tamil Sangam assemblies were gatherings of poets and scholars during ancient times, focusing on literature, culture, and societal themes.
- The Sangam period (circa 300 BCE to 300 CE) is known for producing classical Tamil literature, reflecting themes like love, war, ethics, and governance.

Statement 2: The Sangam literature is written in Sanskrit and is known for its epic poetry

- **Incorrect.** Sangam literature is composed in classical Tamil, not Sanskrit.
- It primarily consists of short lyrical poems rather than epic poetry, although some epics like Silappadikaram and Manimekalai were composed later in Tamil.

Statement 3: The Sangam literature is classified into Aham (inner life) and Puram (outer life) categories

- **Correct.** Sangam literature is broadly categorized into:
 - **Aham:** Inner life, focusing on love and personal emotions.
 - **Puram:** Outer life, addressing themes like war, politics, and public life.

Statement 4: Tolkappiyam, Thirukkural, and Periya Puranam are texts related to Sangam literature

- **Incorrect.** While Tolkappiyam is an early Sangam-era text on Tamil grammar and poetics, Thirukkural and Periya Puranam are post-Sangam texts.
 - **Thirukkural** (authored by Thiruvalluvar) focuses on ethics and morality.
 - **Periya Puranam** (authored by Sekkizhar) is a medieval text on the lives of Saivite saints.

58. (c)

Why in the news?

Madhya Pradesh gets its 8th tiger reserve in Ratapani.

Statement 1: Ratapani Tiger Reserve is located in the Vindhya Mountain Ranges and runs parallel to the northern side of the Narmada River

- **Correct.** The Ratapani Tiger Reserve is situated in the state of Madhya Pradesh and is part of the Vindhya Mountain Ranges.
- It lies parallel to the northern side of the Narmada River, covering diverse landscapes that include dense forests, hilly terrains, and riverine habitats.

Statement 2: Ratapani Tiger Reserve includes the Bhimbetka rock shelters, a UNESCO World Heritage Site known for prehistoric rock paintings

- **Correct.** The Bhimbetka rock shelters, a UNESCO World Heritage Site, are located within the Ratapani Tiger Reserve.
- These shelters are renowned for their prehistoric rock paintings, which date back to the Paleolithic and Mesolithic periods, showcasing early human life and cultural evolution.

59. (a)

Statement I: The efficiency of semi-cryogenic engines is higher as compared to cryogenic engines.

- **Correct.** Semi-cryogenic engines are more efficient in terms of thrust-to-weight ratio when compared to cryogenic engines. This is because kerosene (RP-1), the fuel used in semi-cryogenic engines, is denser than liquid hydrogen (LH2), used in cryogenic engines. This allows semi-cryogenic engines to have a higher mass flow rate and greater thrust for the same tank volume, making them more suitable for lower stages of rockets where high thrust is required.

Statement II: Semi-cryogenic engines use a combination of liquid oxygen (LOX) as an oxidizer and refined kerosene (RP-1) as fuel.

- **Correct.** Semi-cryogenic engines use liquid oxygen (LOX) as the oxidizer and refined kerosene (RP-1) as the fuel, which is more dense than liquid hydrogen. This combination results in better **density efficiency** and higher thrust for the engine.

60. (a)

Why in the news?

The Space Docking Experiment (SpaDeX) is a mission by the Indian Space Research Organisation (ISRO) to demonstrate in-space docking. The mission was launched on December 30, 2024 and the docking operation was completed on January 16, 2025.

Statement 1: SpaDeX is an ISRO mission demonstrating autonomous docking of spacecraft for applications like satellite servicing and interplanetary exploration.

- **Correct.** The Space Docking Experiment (SpaDeX) is a mission by the Indian Space Research Organisation (ISRO) aimed at demonstrating autonomous docking capabilities. This technology is crucial for applications such as satellite servicing, space station operations, and interplanetary exploration.

Statement 2: The target spacecraft (SDX02) in SpaDeX was equipped with LiDAR and video monitors for facilitating docking operations.

- **Incorrect.** The available information does not specify that the target spacecraft (SDX02) was equipped with LiDAR and video monitors. Both spacecraft are described as being androgynous, meaning either can act as the chaser or target during docking operations.

Statement 3: The success of SpaDeX establishes India as the fifth country in the world to achieve space docking technology.

- **Incorrect.** Upon the successful completion of the SpaDeX mission, **India became the fourth country** to achieve space docking technology, following the United States, Russia, and China.

61. (a)

Why in the News?

India invoked the peace clause fifth time for rice in the World Trade Organization(WTO).

- The **Bali Peace Clause**, agreed during the **2013 WTO Ministerial Conference in Bali**, allows developing countries to continue **public stockholding programs for food security purposes**.
- It temporarily protects these countries from being challenged under **WTO's Agreement on Agriculture (AoA)**, even if they breach the subsidy limits (de minimis limits).

62. (d)

Statement 1: The rocket will have reduced fuel weight.

- **Correct.** Scramjet engines do not carry onboard oxidizers, as they rely on **atmospheric oxygen** for combustion. This reduces the weight of the fuel tanks compared to conventional rocket engines, which require both fuel and oxidizer.

Statement 2: Scramjet engines provide high efficiency at high speeds.

- **Correct.** Scramjets are specifically designed to operate efficiently at **high speeds** (Mach 5 and above). They utilize atmospheric oxygen, making them highly efficient at supersonic and hypersonic speeds.

Statement 3: The use of a scramjet engine would increase payload capacity.

- **Correct.** By removing the need to carry oxidizers and relying on atmospheric oxygen, **scramjets** reduce the weight of the rocket. This allows more space for **payloads**, increasing the overall payload capacity of the rocket.

Statement 4: The rocket will fail to take off.

- **Correct. Scramjets** require the rocket to already be moving at **supersonic speeds** to function effectively. They cannot operate at **zero speed**, meaning the rocket would need an **initial boost** from traditional rocket engines for takeoff.
- If the rocket is assumed to rely solely on the scramjet from the first stage without additional assistance, **the rocket would not be able to lift off.**

63. (d)

Statement 1: The price of an empty CNG cylinder would be higher than that of an empty LPG cylinder

- **Correct. CNG cylinders** are built to withstand higher pressures compared to LPG cylinders, requiring **stronger materials** and more robust construction.
- This makes empty CNG cylinders more expensive than LPG cylinders.

Statement 2: Transitioning to CNG would reduce environmental pollution

- **Correct . CNG** is a cleaner fuel than LPG, emitting lower levels of pollutants such as:
 - **Carbon dioxide (CO₂)**
 - **Carbon monoxide (CO)**
 - **Nitrogen oxides (NO_x)**
 - **Particulate matter**
- This transition contributes to reduced environmental pollution and better air quality.

Statement 3: May lead to reduction of India’s energy import bill

- **Correct.** India imports a significant portion of its **LPG requirements**, whereas CNG can be sourced domestically.
- Using **domestic natural gas reserves** under policies like the **Hydrocarbon Exploration and Licensing Policy (HELP)** would help lower the overall energy import bill.

64. (d)

Why in the news?

Recently, the Supreme Court(SC) overturned a 25-year-old majority opinion in the JMM(Jharkhand Mukti Morcha) bribery case.

Statement-I: Bribery committed by a Member of Parliament for voting in the House is protected under the parliamentary privilege of immunity from legal proceedings – Incorrect

- In a landmark judgment in March 2024, the Supreme Court of India unanimously held that MPs and Members of Legislative Assemblies (MLAs) do not enjoy immunity under Articles 105(2) and 194(2) for acts of bribery related to their legislative functions. This ruling overruled the earlier 1998 judgment in *P.V. Narasimha Rao v. State*, which had extended such immunity.

Statement-II: Members of Parliament are exempt from criminal proceedings for acts done during the course of their legislative duties under Article 105(2) of the Constitution – Correct

- 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 him in Parliament or any committee thereof, and 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, votes or proceedings.
- This immunity is designed to ensure **freedom of speech and independent decision-making** within Parliament.

65. (a)

Why in the News?

The Public Accounts Committee (PAC) will hold a performance review of “regulatory bodies established by Act of Parliament”, such as the Securities and Exchange Board of India (SEBI).

Statement-I: The CAG is referred to as the “friend, philosopher, and guide” of the PAC-Correct .

- The **Comptroller and Auditor General (CAG)** acts as the primary advisor to the **Public Accounts Committee (PAC)**.
- The CAG assists the PAC in scrutinizing government accounts and audit reports, earning the title “**friend, philosopher, and guide**” due to their indispensable role in supporting the committee’s work.

Statement-II: The Public Accounts Committee (PAC) is responsible for scrutinizing the audit reports submitted by the Comptroller and Auditor General (CAG)–Correct

- The **PAC** examines the **CAG’s audit reports** on the accounts of the Union and State Governments, ensuring transparency and accountability in public expenditure.
- It ensures that public funds are used efficiently and for the intended purposes.

66. (b)

Why in the news?

The International Labour Organisation’s (ILO) “World Employment and Social Outlook (WESO): Trends 2025” report states that the global unemployment rate remained at a historic low of 5% in 2024.

Statement 1: It is released by the World Economic Forum

- **Incorrect**. The “**World Employment and Social Outlook: Trends 2025**” report is published by the **International Labour Organization (ILO)**, not the World Economic Forum.

Statement 2: The global unemployment rate remained at a historical low of 5%

- **Correct**. The global unemployment rate stayed at **5%** in 2024, marking a **historical low**, as noted in the ILO report.

Statement 3: Youth unemployment remains higher than the overall unemployment rate

- **Correct**. Youth unemployment in 2024 was **12.6%**, significantly higher than the overall global unemployment rate of 5%,

reflecting persistent challenges for young people in the labor market.

Statement 4: Global economic growth slowed down in 2024 as compared to 2023

- **Correct**. The global economic growth rate decreased to **3.2% in 2024**, compared to **3.3% in 2023**, indicating a slowdown in global economic activity.

67. (d)

Why in the news?

Important location often seen in the news.

Statement 1: Gulf of Aden – Horn of Africa

- **Correct**. The **Gulf of Aden** is located between the **Horn of Africa** (including **Somalia, Djibouti**, and parts of **Ethiopia**) and the Arabian Peninsula. It is a critical passage linking the **Red Sea** to the **Arabian Sea** and is strategically significant for international trade routes.

Statement 2: Panama Canal – Connects the Atlantic and Pacific Oceans via Panama

- **Correct**. The **Panama Canal** is a major artificial waterway that **connects the Atlantic Ocean** to the **Pacific Ocean** through **Panama**. It shortens the maritime route between the east and west coasts of the Americas, thus reducing shipping times.

Statement 3: Philadelphia Corridor – Israel, Palestinian Territories

- **Incorrect**. The **Philadelphia Corridor** is located between the **Gaza Strip** (Palestinian territories) and **Egypt**, not between Israel and Palestine. It serves as a **border region** for monitoring movement, particularly related to smuggling activities, but it does not serve as a corridor between Israel and the Palestinian territories.

Statement 4: Dardanelles Strait – Turkey, connects Aegean Sea to Sea of Marmara, Europe to Asia

- **Correct**. The **Dardanelles Strait** is an essential natural waterway that connects

the **Aegean Sea** to the **Sea of Marmara**, passing through Turkey. It also serves as a geographical boundary between **Europe and Asia**, making it a vital maritime route for trade and military purposes.

68. (c)

Why in the news?

The Global E-Waste Monitor 2024 was recently released.

- 1. Arsenic – Incorrect** Arsenic, while occasionally found in trace amounts, is typically not associated with e-waste.
- 2. Cadmium – Correct.** Cadmium is present in **batteries** (especially nickel-cadmium batteries) and can cause severe environmental and health issues, including kidney damage and bone fragility.
- 3. Chromium – Correct.** **Hexavalent chromium** is used in electronics for corrosion protection. It is a hazardous substance that can cause respiratory issues and is a carcinogen.
- 4. Heptachlor – Incorrect.** Heptachlor is a **pesticide** and not found in e-waste. It is unrelated to electronic devices or components.
- 5. Mercury – Correct.** Mercury is found in **fluorescent lamps**, some types of batteries, and older electronic devices. It can lead to neurological and developmental damage if released into the environment.
- 6. Lead – Correct.** Lead is extensively used in **soldering components**, CRT monitors, and batteries. Improper disposal of e-waste releases lead into the environment, which can cause neurological and reproductive damage.
- 7. Uranium – Incorrect.** Uranium is not a constituent of e-waste. It is a radioactive element mainly associated with nuclear energy and weaponry, not electronic waste.

69. (a)

Why in the News?

An academic paper by NABARD and ICRIER cautioned against a complete switch to natural farming, warning it could hamper national food production.

1. Use of bio-fertilizers for enhancing soil fertility

- **Correct.** Zero Budget Natural Farming (ZBNF) emphasizes natural inputs like **bio-fertilizers** (e.g., Jeevamrut) to improve soil fertility while reducing dependency on chemical fertilizers.

2. Mulching with organic crop residues

- **Correct.** **Mulching** is a ZBNF practice where crop residues are used to conserve soil moisture, improve fertility, and prevent weed growth. It aligns with sustainable farming by promoting organic material recycling.

3. Use of hybrid seeds for higher yields

- **Incorrect.** ZBNF discourages the use of **hybrid seeds**, as these often require chemical inputs for optimal performance, contradicting the philosophy of natural farming. ZBNF encourages indigenous, naturally adapted seeds.

4. Minimal irrigation principle

- **Correct.** ZBNF promotes **minimal irrigation** techniques such as mulching and moisture conservation to ensure sustainable water usage and reduce wastage.

5. Application of organic pesticide formulations

- **Correct.** ZBNF recommends natural pesticides like **Dashparni Ark** and **Neem extracts** to manage pests without harming the environment or soil health.

6. Climate-resilient genetically modified (GM) crops for minimal environmental impact

- **Incorrect.** ZBNF opposes the use of **GM crops**, as these require synthetic

inputs, contradicting the principle of farming without chemicals or external interventions.

70. (a)

Why in the News?

New research shows that a fork fern species, called *Tmesipteris oblancoolata*, has a genome – all the genetic information of an organism – that is 7% larger than that of the previous record-holder, the Japanese flowering plant *Paris japonica*, and more than 50 times the size of the human genome.

1. It is a rare fern species endemic to New Caledonia

- **Correct.** *Tmesipteris oblancoolata* is a rare fern-like vascular plant species found in New Caledonia, an archipelago in the Pacific Ocean. Its endemic nature means it is unique to this region and not naturally found elsewhere.

2. It possesses the largest known genome of all living organisms

- **Correct.** Recent studies revealed that *Tmesipteris oblancoolata* has the **largest genome** ever recorded among living organisms, surpassing many other species in terms of DNA content. This contributes to its biological uniqueness and scientific interest.

3. The genus *Tmesipteris* is primarily found in the Himalayas and South Asia

- **Incorrect.** The genus *Tmesipteris* is primarily found in Australasia, including regions like New Zealand, Australia, and New Caledonia, and not in the Himalayas or South Asia.

4. It has evolved in the last 50 million years, making it a relatively young species

- **Incorrect.** The genus *Tmesipteris* is considered ancient, tracing its evolutionary origins back to prehistoric times, far earlier than 50 million years ago. It is considered a “living fossil,” retaining traits from its ancient lineage.

71. (a)

Why in the news?

Achieving 15% ethanol blending in 2024, India targets 20% by 2025.

1. Sugarcane – Correct

- Sugarcane is a major feedstock for **bioethanol production** due to its high sugar content, which can be easily fermented to produce ethanol. Brazil is a leading example of sugarcane-based ethanol production.

2. Molasses – Correct

- **Molasses**, a by-product of sugar production from sugarcane or sugar beets, is widely used in ethanol production due to its rich sugar content.

3. Jatropha – Incorrect

- **Jatropha** is primarily used for **biodiesel production** as it is rich in non-edible oil, but it is not a common feedstock for bioethanol production.

4. Corn – Correct

- Corn, especially in the United States, is one of the largest sources of bioethanol. The **starch** in corn is broken down into sugars, which are then fermented into ethanol.

5. Neem oil – Incorrect

- **Neem oil** is not a feedstock for bioethanol production. Like Jatropha, neem oil is primarily used in biodiesel or for its medicinal and pesticidal properties.

6. Wheat straw – Correct

- **Wheat straw**, a type of **lignocellulosic biomass**, is used in second-generation bioethanol production. Its cellulose and hemicellulose are converted into fermentable sugars to produce ethanol.

Note: These are common or primary uses. Some minor cross-use would not be considered as primary use.

72. (d)

Why in the news?

The New Collective Quantified Goal on Climate Finance (NCQG) has emerged as a key

initiative to mobilize resources for developing countries in response to climate change threats.

The NCQG seeks to establish a target to support developing countries in both mitigation and adaptation efforts, with a target of \$300 billion annually by 2035.

- The NCQG aims to establish a **climate finance target of \$300 billion annually by 2035** to assist **developing countries**.
- The financial support under the NCQG will be used for:
 - **Mitigation efforts** (e.g., emissions reduction).
 - **Adaptation initiatives** (e.g., resilience-building in vulnerable communities).
 - **Capacity-building and technology transfer**.

73. (a)

Why in the news?

Odisha tribals await forest department nod, to sell Kendu leaf, which is a minor forest produce.

Statement 1: Bamboo

- **Correct. Bamboo** is classified as a **Minor Forest Produce (MFP)** under the **Forest Rights Act (FRA), 2006**.
- It is used for various purposes like construction, handicrafts, and paper production and is a key livelihood resource for forest-dependent communities.

Statement 2: Timber

- **Incorrect. Timber** is classified as a **Major Forest Produce** and not as **MFP**.
- Major forest produce refers to resources like large logs and wood used in industries, unlike the smaller-scale items included in **MFP**.

Statement 3: Honey

- **Correct. Honey** is an **MFP** under the **FRA, 2006**.
- It is a non-timber resource and a critical income source for forest-dwelling communities engaged in its collection.

Statement 4: Pulpwood

- **Incorrect. Pulpwood** (wood used to make paper or fiber products) is considered **Major Forest Produce**, as it involves large-scale industrial usage and does not fall under the **MFP** category.

Statement 5: Kendu Leaves

- **Correct. Kendu leaves**, used in the production of bidis (local cigarettes), are included in the list of **MFP** under the **FRA, 2006**.
- These leaves provide significant income to forest-dependent communities in central and eastern India.

74. (a)

Why in the news?

The RBI stated that small finance banks (SFBs) must have a minimum net worth of Rs 1,000 crore to become universal banks under on-tap licensing norms.

Statement 1: These banks combine commercial and investment banking activities.

- **Correct. Universal Banks** provide both **commercial banking** (e.g., loans, deposits) and **investment banking** services (e.g., asset management, underwriting).
- This holistic approach enables these banks to cater to a wide array of financial needs under one entity.

Statement 2: Only scheduled banks are allowed to apply for transitioning to universal banking.

- **Correct. The Reserve Bank of India (RBI)** mandates that **only scheduled banks** with strong financial standing and compliance history are allowed to transition into **Universal Banks**.
- Non-scheduled banks, being smaller and less regulated entities, are excluded from this provision.

Statement 3: FDI under the automatic route is allowed up to 100%.

- **Incorrect. While 100% FDI is permitted under the automatic route** in private

sector banks, this is **not exclusive to Universal Banks**.

- The FDI limit in **public sector banks** is restricted to **20% under government approval**, but this condition is not specific to universal banking regulations.
- This statement generalizes FDI norms without exclusively addressing Universal Banks.

75. (b)

Why in the news?

The Seventh Session of the International Solar Alliance (ISA) culminated in New Delhi. During the site visit, the practical implementation of agrivoltaic systems was showcased to the delegates of various countries.

The simultaneous use of land for agriculture and solar energy production, optimizing both food and energy outputs.

- Agrivoltaics refers to the **simultaneous use of land for agriculture and solar energy production**.
- Solar panels are installed in a way that allows sufficient sunlight for crop growth while also producing renewable energy.
- This dual-purpose system optimizes **land use efficiency** by combining food production and clean energy generation.

76. (b)

Why in the news ?

Switzerland suspended the Most Favoured Nation status for India.

Statement 1: Increased tariffs on goods from the affected country

- **Correct.** Withdrawal of **Most Favoured Nation (MFN)** status allows the withdrawing country to impose **higher tariffs** or trade barriers on goods from the affected country.
- This leads to **discriminatory trade practices**, as the affected country no longer enjoys equal treatment in trade.

Statement 2: Increased trade volumes between the two countries

- **Incorrect.** With the withdrawal of MFN status, trade between the two countries generally **declines** due to higher tariffs, trade barriers, and strained political or economic relations.

Statement 3: Reduced consumer choices in the withdrawing country

- **Correct.** Higher tariffs and restrictions on imports from the affected country can reduce the availability of certain goods, leading to **fewer choices for consumers** in the withdrawing country.

Statement 4: If one country withdraws MFN, it has to withdraw MFN status from all countries to whom it has granted it

- **Incorrect.** The withdrawal of MFN status applies **only to the specific country** targeted by the action. It does not mandate withdrawing MFN status from other countries.

77. (a)

Why in the news?

The gross non-performing assets (GNPAs) ratio of scheduled commercial banks (SCBs) declined to the lowest in more than 13 years at 2.5 per cent at the end of September 2024, a Reserve Bank of India (RBI) report said.

Statement 1: The bank is required to make up to 100% provisioning against the loan amount

- **Correct.** When a loan is classified as a **Loss Asset**, it is deemed irrecoverable.
- As per **RBI norms**, banks must make **100% provisioning** for the outstanding loan amount to safeguard their financial stability.
- This ensures the potential loss does not overstate the bank's profitability.

Statement 2: Loss assets improve the Capital Adequacy Ratio (CAR) under Basel III norms

- **Incorrect.** Loss assets adversely affect a bank's **Capital Adequacy Ratio (CAR)**,

as they reduce **Tier-1 capital** due to the provisioning requirement.

- CAR measures a bank’s ability to absorb losses, and the presence of loss assets worsens this metric.

Statement 3: Banks may initiate recovery actions under the SARFAESI Act, 2002

- **Correct.** Banks can initiate recovery actions for loss assets under the **SARFAESI Act, 2002**, which empowers banks to:
 - Seize secured assets without judicial intervention.
 - Auction such assets to recover dues. .

Statement 4: The loss asset is written off but continues to appear as Net Advances in the bank’s financial statements

- **Incorrect.** Once an asset is written off, it is **removed from the Net Advances** in the bank’s balance sheet and accounted for separately.

78. (b)

Why in the news?

*India faced challenges in meeting fertilizer demand due to **import dependency**, with the **Ukraine and Gaza crisis** posing risks to **availability and prices**.*

Statement 1: At present, the retail price of chemical fertilisers is market-driven and not administered by the Government

- **Incorrect.** The retail price of key fertilisers, such as **urea**, is heavily **regulated and subsidised by the Government of India**.
- Under the **Nutrient Based Subsidy (NBS) Scheme**, the prices of other fertilisers like **DAP** (Diammonium Phosphate) are also partially controlled through subsidies.

Statement 2: Ammonia, which is an input of urea, is produced from natural gas

- **Correct.** **Ammonia** is a critical input for urea production and is produced through the **Haber-Bosch process**, which requires **natural gas** as a primary feedstock.
- Natural gas acts as both a **source of hydrogen** and an energy input in this process.

Statement 3: Sulphur, which is a raw material for phosphoric acid fertilizer, is a by-product of oil refineries

- **Correct.** **Sulphur** is obtained as a by-product during the refining of crude oil and natural gas.
- It is used to produce **phosphoric acid**, which is a key ingredient in the production of **phosphatic fertilisers** like DAP.

79. (b)

Why in the news?

Google Deepmind has unveiled the third major version of its “AlphaFold” artificial intelligence model, designed to help scientists design drugs and target disease more effectively.

A revolutionary artificial intelligence driven technology that predicts the three-dimensional structures of proteins.

- **AlphaFold**, developed by **DeepMind**, is an **artificial intelligence (AI)-based technology** that predicts the **three-dimensional structure of proteins** from their amino acid sequences.
- It leverages advanced **machine learning algorithms** to solve the protein folding problem, a long-standing challenge in biology.
- Applications include:
 - **Drug discovery**
 - **Disease research**
 - **Understanding cellular processes**

80. (b)

Why in the news?

*Nobel prize in Physiology or Medicine awarded for discovery of **microRNAs**.*

Statement (a): siRNA (small interfering RNA) – Incorrect

- siRNA is also a small, double-stranded RNA molecule involved in RNA interference (RNAi).
- However, it has **perfect complementarity** to its target mRNA and causes **specific degradation** rather than translational repression.

- The description provided in the question aligns more with miRNA, which has **partial complementarity**.

Statement (b): miRNA (microRNA) - Correct

- **miRNA (microRNA)** is a **single-stranded RNA** molecule, typically **20–24 nucleotides long**, involved in **RNA interference (RNAi)**.
- It binds to **partially complementary sequences** on target mRNAs, leading to:
 - **Translational repression** (inhibiting protein synthesis).
 - **Degradation** of the mRNA molecule.
- miRNAs regulate gene expression in various biological processes like cell differentiation, apoptosis, and disease mechanisms.

Statement (c): Dicer - Incorrect

- **Dicer** is an enzyme involved in the RNAi pathway.
- It processes double-stranded RNA precursors into short RNA fragments like **miRNAs** and **siRNAs**.
- Dicer itself is not responsible for binding target mRNAs or regulating translation.

Statement (d): RISC (RNA-Induced Silencing Complex) - Incorrect

- **RISC** is a molecular complex that uses **miRNA or siRNA** as a guide to target mRNAs.
- While RISC is part of the RNAi mechanism, the molecule described in the question is **miRNA**, not the RISC complex itself.

81. (a)

Why in the news?

Important Diseases and vectors often seen in the news.

Row 1: Human Metapneumovirus (HMPV)

- **Causative Agent:** Correctly identified as a **virus**.
- **Vector: Incorrect.** HMPV is a **respiratory virus** and does not have a vector. It spreads

through droplets or direct contact, not via **Culex mosquitoes**.

Row 2: Leishmaniasis (Kala-azar)

- **Causative Agent:** Correctly identified as a **protozoan**, specifically **Leishmania**.
- **Vector:** Correctly identified as **female Phlebotomus sandflies**.

Row 3: Sleeping Sickness

- **Causative Agent: Incorrect.** The causative agent is a **protozoan** (*Trypanosoma brucei*), not a bacterium.
- **Vector:** Correctly identified as **Tsetse Fly (Glossina species)**.

Row 4: Malaria

- **Causative Agent: Incorrect.** Malaria is caused by **protozoan parasites** of the genus **Plasmodium**, not a virus.
- **Vector:** Correctly identified as **mosquitoes (Anopheles species)**.

82. (b)

Why in the news?

During its G20 presidency, India promoted Digital Public Infrastructure (DPI) as a key driver of inclusive and sustainable development through technological innovation.

DPI refers to foundational technology systems and platforms that enable secure, inclusive, and transparent interactions among citizens, businesses, and governments in the digital ecosystem.

Statement (a):

- **Incorrect.** This option emphasizes **private commercial services** like online shopping and entertainment, which are not related to DPI. DPI focuses on **public, foundational technology systems** rather than consumer-facing private services.

Statement (b):

- **Correct.** DPI represents **foundational public technology systems and platforms** that facilitate **secure, inclusive, and transparent digital interactions** among citizens, businesses, and governments. Examples include **India Stack**, which

powers systems like Aadhaar, UPI, and DigiLocker.

Statement (c):

- **Incorrect.** DPI is not limited to **hardware infrastructure** like data centers or undersea cables. Instead, it is broader, encompassing both hardware and software components that enable the digital ecosystem. Hence, it does not best explain DPI.

Statement (d):

- **Incorrect.** DPI is not restricted to **government-exclusive tools**. It aims to create **inclusive public platforms** accessible to all citizens, fostering economic growth and efficient governance.

83. (a)

Why in the news?

Important regions and locations often seen in the news.

Row 1: Diego Garcia

- **Incorrect.** Diego Garcia is located in the **Indian Ocean**, not the **Bay of Bengal**. It serves as a key strategic U.S. military base in the Indo-Pacific, but its location in the given match is incorrect.

Row 2: Kursk

- **Incorrect.** Kursk is a city in Russia and has no relevance to being a **buffer zone along the Israel-Lebanon border**. The description is incorrect.

Row 3: Great Coco Island

- **Correct.** The Great Coco Island is situated in the **northeastern Bay of Bengal** and is alleged to host a **Chinese naval facility**, raising significant strategic concerns for India and regional security. This match is accurate.

84. (a)

Why in the news?

The 2024 Shanghai Cooperation Organization(SCO) Summit was held in Astana, Kazakhstan.

Statement 1: After the 6 founding members, only India, Pakistan, Iran, and

Belarus have become full-time members of the SCO.

- **Correct.** The Shanghai Cooperation Organization (SCO) was originally founded by 6 members: China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. India and Pakistan were inducted as full members in 2017, Iran in 2022 and Belarus in 2024 were granted full membership status.

Statement 2: RATS, one of the core bodies of SCO, is headquartered in Islamabad, Pakistan.

- **Incorrect.** The Regional Anti-Terrorist Structure (RATS) of the SCO is not headquartered in Islamabad. It is actually based in **Tashkent, Uzbekistan**. RATS is responsible for coordinating regional efforts in combating terrorism, separatism, and extremism.

85. (c)

Why in the news?

The third edition of the INDUS-X Summit concluded in the United States, marking a progress in the advancement of a joint defence innovation ecosystem in India and the USA.

A defense innovation platform created to foster industrial cooperation, technological advancements, and academic partnerships between India and the U.S.

INDUS-X stands for **India-U.S. Defense Industrial Cooperation Framework**. It is a platform aimed at fostering industrial cooperation, promoting technological advancements, and facilitating academic partnerships between India and the U.S. in the defense sector. This initiative seeks to leverage the innovation ecosystems of both nations to enhance defense capabilities.

86. (b)

Why in the News?

Dark oxygen was found to be released from mineral deposits located 4,000 meters (13,000

feet) below the surface in the Pacific Ocean's Clarion-Clipperton Zone.

The generation of oxygen through electrochemical reactions in lightless environments, such as the deep ocean, facilitated by polymetallic nodules.

The generation of oxygen through electrochemical reactions in lightless environments, such as the deep ocean, facilitated by polymetallic nodules, is **correct**. Recent studies suggest that polymetallic nodules can act as catalysts, enabling electrochemical reactions that generate oxygen in oxygen-deprived conditions.

87. (d)

Why in the news?

A Great Indian Bustard (GIB) chick was successfully hatched through artificial insemination at the Sudasari Breeding Centre, Jaisalmer, Rajasthan – a critical conservation milestone for the critically endangered species with fewer than 150 individuals remaining, primarily in Rajasthan.

Statement 1: The Great Indian Bustard is a large flightless bird.

- **Incorrect.** The Great Indian Bustard (GIB) is a large bird, but it is **not flightless**. It is capable of flying, though it prefers to walk or run in its habitat.

Statement 2: The GIB typically lays a single egg on the ground, making its nest highly vulnerable to predators like stray dogs, jackals, and crows.

- **Correct.** The GIB lays a **single egg** on open ground, which exposes it to high risks from predators like stray dogs, jackals, and crows, as well as anthropogenic disturbances.

Statement 3: Conservation efforts for the Great Indian Bustard are undertaken through sanctuaries such as the Desert National Park in Rajasthan.

- **Correct.** The **Desert National Park** in Rajasthan is a key habitat for the GIB. Conservation efforts include habitat protection, predator control, and breeding programs under initiatives like the **Great Indian Bustard Recovery Programme**.

Statement 4: The frontal vision of the GIB is limited due to the side positioning of its eyes, which restricts its ability to detect objects directly in front.

- **Correct.** The **lateral positioning of the eyes** reduces the GIB's ability to detect objects directly in front, making it prone to collisions with power lines and other obstacles.

88. (c)

Why in the news?

Thazhakara became the first Grama Panchayat in Alappuzha and among the first in Kerala to update and publish a **People's Biodiversity Register (PBR)** with local community participation.

Statement 1: It is prepared by State Biodiversity Boards (SBBs) in association with the National Biodiversity Authority (NBA).

- **Incorrect.** The **People's Biodiversity Register (PBR)** is prepared at the **local level** by **Biodiversity Management Committees (BMCs)**, with guidance and technical support from **State Biodiversity Boards (SBBs)** and the **National Biodiversity Authority (NBA)**.
- The primary responsibility lies with **BMCs**, not directly with SBBs or NBA.

Statement 2: It utilizes advanced tools like Geographic Information Systems (GIS) and ENVIS platforms for data collection and mapping.

- **Correct.** Modern tools like **GIS**, **remote sensing**, and **ENVIS (Environmental Information System)** are employed to map biodiversity and collect data on local ecosystems for the PBR.

Statement 3: It serves as evidence for implementing the Access and Benefit Sharing (ABS) provisions, a fundamental component of the Nagoya Protocol.

- **Correct.** The **PBR** documents local biological resources and traditional knowledge, which is crucial for implementing **Access and Benefit Sharing (ABS)** provisions under the **Nagoya Protocol**.
- It ensures that benefits derived from the use of biological resources are shared equitably with the local communities.

89. (a)

Why in the news?

Pradhan Mantri Jan-Dhan Yojana marks 10 years in 2024.

Statement 1: PMJDY accounts offer an accidental insurance cover of ₹2 lakh for accounts opened after August 28, 2018, and a life insurance cover of ₹30,000 for accounts opened before January 26, 2015.

- **Correct.** PMJDY accounts offer an **accidental insurance cover** of ₹2 lakh for accounts opened on or after August 28, 2018, through the issuance of a RuPay debit card.
- For accounts opened before January 26, 2015, a **life insurance cover** of ₹30,000 was provided as an incentive to promote early enrolment.

Statement 2: Mobile banking services under PMJDY are available to all account holders using USSD technology, even if they do not possess a smartphone.

- **Correct.** PMJDY facilitates **mobile banking** using **USSD (Unstructured Supplementary Service Data)** technology, which works on basic mobile phones without requiring internet connectivity or smartphones.

Statement 3: The overdraft facility under PMJDY is automatically granted after the issuance of the RuPay debit card.

- **Incorrect.** The **overdraft facility** under PMJDY is not automatically granted. It is subject to eligibility criteria, such as the account being **operational for at least 6 months** and the bank's approval. The RuPay debit card alone does not guarantee overdraft eligibility.

90. (a)

Why in the news?

India participated in the 86th session of the Executive Committee of Codex Alimentarius Commission.

Statement 1: It is a subsidiary body of the World Health Organization (WHO) and the Food and Agriculture Organization (FAO).

- **Correct.** The **Codex Alimentarius Commission (CAC)** was established in 1963 as a joint subsidiary body of the WHO and the FAO.
- It develops international food standards, guidelines, and codes of practice to ensure food safety and fair trade practices.

Statement 2: Its primary function is to establish international standards for food safety and quality.

- **Correct.** The main objective of the Codex Alimentarius Commission is to establish **science-based food standards** that protect consumer health and promote fair practices in the food trade.
- It addresses issues like contaminants, labeling, additives, and pesticide residues in food.

Statement 3: The standards are legally binding on member countries.

- **Incorrect.** Codex standards are **voluntary** and not legally binding.
- However, they are often used as reference points in international trade disputes under the **World Trade Organization (WTO)** agreements.

91. (a)

Why in the news?

The Supreme Court of India has ordered States

and High Courts to provide detailed reports on the setup and operation of Gram Nyayalayas.

Row 1: Tribunals

- **Act/Article:** Article 323-A & 323-B of the Constitution.
- **Core Function:** Quasi-judicial bodies.
- **Correct Match: Yes.**
 - Tribunals are established under **Articles 323-A and 323-B** to reduce the burden on regular courts and to deal with specific cases such as administrative and tax disputes.

Row 2: Gram Nyayalaya

- **Act/Article:** Gram Nyayalayas Act, 2008.
- **Core Function:** Quasi-judicial body.
- **Correct Match: No.**
 - Gram Nyayalayas are **statutory bodies** created under the Gram Nyayalayas Act, 2008. They function as **formal courts with judicial powers** at the grassroots level, not as quasi-judicial bodies.

Row 3: Lok Adalat

- **Act/Article:** Family Courts Act, 1984.
- **Core Function:** Formal court with judicial powers.
- **Correct Match: No.**
 - Lok Adalats are **established under the Legal Services Authorities Act, 1987**, not the Family Courts Act, 1984. Also, they do not function as formal courts and resolve disputes amicably.

92. (b)

Why in the news?

The Election Commission of India, revised the recognised National and State party status for some political parties.

Statement 1:

- **Correct.** The **right to form political parties** is derived from **Article 19(1) (c)** of the Constitution, which guarantees the right to form associations and unions, including political parties.

Statement 2:

- **Correct.** For a party to be recognized as a **state party**, it must:
 - Secure **6% of the valid votes** in a state's Legislative Assembly or Lok Sabha elections.
 - Win at least **one Lok Sabha seat** or **two assembly seats** in the state.
 - To be recognized as a **national party**, it must:
 - Be recognized as a **state party in four or more states.**

Statement 3:

- **Correct.** **Privileges of recognized parties** include:
 - Free supply of **electoral rolls.**
 - Allocation of **common party symbols.**
 - Access to state-owned media for campaigning.

Statement 4:

- **Incorrect.** The **Representation of the People Act, 1951 (RPA)** does not explicitly provide for the **de-registration** of political parties.
- While the **Election Commission of India (ECI)** has the power to register political parties, de-registration is not explicitly provided under the RPA.

93. (b)

Why in the news?

Recently, a parcel of land in Uttar Pradesh, formerly owned by the family of an ex-Pakistani President, is set to be auctioned under the Enemy Property Act, 1968.

Statement 1:

- **Incorrect.** The **Enemy Property Act, 1968**, governs properties left in India by nationals of **Pakistan and China**, as they are still considered enemy countries.
 - **Bangladesh** is not included as an enemy country.

Statement 2:

- **Incorrect.** Enemy properties do not come under the **direct control of the President**

of India. Instead, they are managed by the Custodian of Enemy Property for India (CEPI).

Statement 3:

- **Correct.** The Central Government has the authority to designate any person, entity, or group as an “enemy” under the provisions of the Act.
 - This is explicitly stated in the **Enemy Property Act, 1968**, as amended.

Statement 4:

- **Incorrect.** While enemy properties **cannot be sold or claimed**, they **cannot be transferred** freely except under specific legal provisions..

94. (a)

Why in the news?

Recently, DRDO successfully conducted flight tests of the Phase-2 Ballistic Missile Defence (BMD) System.

Pair 1: Nagastra-1 – Loitering munition

- **Correct.** Nagastra-1 is a loitering munition capable of hovering and precisely targeting enemy assets.

Pair 2: GAURAV – Air-to-Surface Long Range Glide Bomb

- **Correct.** GAURAV is an air-to-surface precision glide bomb designed for long-range targeting.

Pair 3: Akash-NG – Air-to-Air missile

- **Incorrect.** Akash-NG (Next Generation) is a **Surface-to-Air missile**, not an Air-to-Air missile.

Pair 4: RudraM-II – Surface-to-Air missile

- **Incorrect.** RudraM-II is an **Air-to-Surface missile**, part of India’s air-launched missile systems.

Pair 5: Shaurya – Hypersonic surface-to-surface missile

- **Correct.** Shaurya is a hypersonic surface-to-surface missile with nuclear capability, part of India’s strategic arsenal.

95. (a)

Why in the news?

Large Language Models (LLMs) have recently garnered significant attention due to several notable developments like Advancements in AI Reasoning, Emergence of Cost-Effective AI Models, Integration into Specialized Fields

Statement 1: LLMs, such as GPT, are trained on massive datasets of text using unsupervised learning techniques.

- **Correct.** Large Language Models (LLMs) like GPT are trained using unsupervised learning methods on extensive datasets, enabling them to predict and generate coherent text.

Statement 2: LLMs are inherently free of biases as they rely solely on factual and verified data.

- **Incorrect.** LLMs can reflect biases present in their training data, which often includes unverified or biased information from diverse sources. Hence, they are not inherently free of biases.

Statement 3: LLMs can be fine-tuned for domain-specific applications, such as legal advice, healthcare.

- **Correct.** LLMs can indeed be fine-tuned using supervised learning for specific domains to improve accuracy and relevance in those fields.

Statement 4: The scalability of LLMs ensures that they can generate outputs without requiring additional computational resources as model size increases.

- **Incorrect.** As the size of LLMs increases, they demand significantly more computational resources, including memory, processing power, and energy, to generate outputs.

96. (d)

Why in the news?

Key concepts often seen in the news.

Statement-I: The rise in greenhouse

gas emissions is a significant reason for ocean acidification, deoxygenation, and challenges faced by calcifying organisms.

- **Correct.** Greenhouse gases like CO₂ are absorbed by oceans. This results in:
 - **Ocean acidification** due to CO₂ reacting with seawater to form carbonic acid.
 - **Deoxygenation** because of increased temperatures and altered ocean circulation, reducing the oxygen dissolved in the water.
 - **Challenges to calcifying organisms** like corals and shellfish due to reduced carbonate ions for skeleton formation.

Statement-II: Ocean acidification occurs because oceans absorb a large portion of anthropogenic CO₂, which reacts with seawater to form carbonic acid, increasing pH levels.

- **Incorrect.** While ocean acidification occurs because oceans absorb CO₂, it leads to the formation of carbonic acid, which **lowers the pH**, not increases it. The key issue is the decrease in pH, not an increase.
 - Therefore, the “**increasing pH levels**” in Statement-II is factually wrong.

Statement-III: Deoxygenation in oceans is primarily caused by nutrient runoff from agriculture, while warming waters have minimal impact on oxygen levels.

- **Incorrect.** Deoxygenation is driven by several factors, and **warming waters significantly impact oxygen levels.** Warming reduces the solubility of oxygen, contributing to ocean deoxygenation, alongside nutrient runoff from agriculture.
 - **Nutrient runoff** (leading to eutrophication) does contribute, but **warming waters** have a substantial role in deoxygenation, contrary to Statement-III.

97. (a)

Why in the news?

The Ministry for Environment, Forest and Climate Change released the 18th Indian

State of Forest Report, 2023 (ISFR 2023). Forest Survey of India(FSI)_releases the report on a biennial basis since 1987.

Statement 1: There has been an increase in the total forest and tree cover since the 2021 assessment.

- **Correct.** According to the ISFR 2023, the total forest and tree cover in India has indeed increased since the 2021 assessment. This increase reflects the ongoing afforestation efforts and natural regeneration in various parts of India.
- **Total Forest and Tree Cover:** 8,27,356.95 km² (25.17% of India’s geographical area).
- These figures represent marginal increases from 21.71%(**Forest Cover**) and 2.91%(**Tree Cover**) as reported in SFR, 2021

Statement 2: The total mangrove cover in India has increased since the 2021 assessment.

- **Incorrect.** While mangrove areas have been closely monitored and are vital for coastal protection, the ISFR 2023 did not show a significant increase in the total mangrove cover. Therefore, this statement is not correct.
- **Total Mangrove Cover:** 4,991.68 km² (0.15% of India’s geographical area).
- **Changes in Mangrove Cover:** Net Decrease: -7.43 km² since 2021.

Statement 3: The extent of bamboo-bearing area in India has increased since the 2021 assessment.

- **Correct.** The ISFR 2023 confirms an increase in the bamboo-bearing areas across the country.
- **Total:** 1,54,670 km², with an increase of 5,227 km² since 2021.

Statement 4: Forest cover in North-East India has increased since the 2021 assessment.

- **Incorrect.** Although the North-East region is crucial for India’s forest cover, there has been no significant overall increase in

forest cover in this region as per the 2023 report.

- Total forest and tree cover is **1,74,394.70 km²** (67% of the region’s geographical area), but a decrease of **327.30 km²** was observed.

98. (d)

Why in the news?

The 14th Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS COP14) adopted the Single Species Action Plan for conservation of the Hawksbill Turtle in South-East Asia and the Western Pacific Ocean Region.

Convention on the Conservation of Migratory Species of Wild Animals

- The SSAP for the Hawksbill Turtle is part of efforts under the **CMS** to protect migratory species. The CMS provides a framework for the conservation of migratory species, including the Hawksbill Turtle, across its migratory range.

99. (a)

Why in the news?

IIT-Madras launched a zero-waste bioplastics initiative.

Statement 1: Bioplastics are derived from renewable sources such as corn starch, sugarcane, potato starch, and cassava starch.

- **Correct.** Bioplastics are made from renewable resources like corn, sugarcane, potato starch, and cassava starch, as these materials provide the biomass used for plastic production.

Statement 2: Bioplastics are generally more expensive due to limited production scale and higher raw material costs.

- **Correct.** Bioplastics often have higher production costs due to the cost of raw materials, limited production capacity, and the more complex manufacturing processes compared to conventional plastics.

Statement 3: Bioplastics have a high carbon footprint similar to regular plastics.

- **Incorrect.** Bioplastics typically have a lower carbon footprint compared to conventional plastics, especially when made from renewable sources. The production process and raw materials contribute to a reduced environmental impact.

Statement 4: Not all bioplastics degrade naturally; some require specific conditions like industrial composting to decompose.

- **Correct.** Not all bioplastics are biodegradable in natural conditions. Some types require specific conditions, such as industrial composting, to break down effectively, whereas others are designed to degrade under certain environmental conditions.

100.(a)

Why in the news?

*The recent Wayanad landslides in Kerala have sparked a debate on whether **subnational entities** can claim compensation through the **Loss and Damage Fund (LDF)** under **UNFCCC**.*

Statement 1: It was initiated under the Warsaw International Mechanism for Loss and Damage at COP19 in 2013.

- **Correct.** The Loss and Damage Fund was indeed initiated as part of the Warsaw International Mechanism for Loss and Damage (WIM) during COP19 in 2013, aimed at addressing the impacts of climate change, particularly in vulnerable countries.

Statement 2: It was officially launched at COP28 in Dubai, United Arab Emirates, 2023.

- **Correct.** The Loss and Damage Fund was officially launched at COP28 in Dubai in 2023, marking a significant step in global efforts to address the financial needs of

vulnerable countries affected by climate change.

Statement 3: The primary objective is to provide financial support for addressing climate mitigation, including adaptation measures in developing countries.

- **Incorrect.** While the Loss and Damage Fund aims to provide financial support, its focus is **primarily** on addressing the impacts of climate change such as loss and damage (including compensation and repair), rather than directly funding climate mitigation and adaptation measures, which are separate activities covered by other mechanisms.

