

# General Studies

## Current Affair Test (April-2025)

**1. Solution: B**

Statements 1 and 2 are correct. The Strait of Gibraltar connects the Mediterranean Sea to the Atlantic Ocean and lies between Spain and Morocco. Statement 3 is incorrect because the Bosphorus Strait, not the Strait of Gibraltar, connects the Black Sea with the Mediterranean Sea.



**2. Solution: B**

Statement 1 is incorrect: India accounts for 25% of the global rare disease burden, with 9-10 crore people affected.

Statement 2 is correct: Thalassaemia and Muscular Dystrophy are both listed as rare diseases in the image. Statement 3 is incorrect because the average time to diagnose rare diseases in India is 4.8 years, much longer than two years.

**3. Solution: B**

Turkey shares borders with the Black Sea, Mediterranean Sea, and Aegean Sea, giving it access to multiple water bodies.



**4. Solution: D**

Thalassaemia is a genetic disorder that affects the oxygen-carrying capacity of red blood cells. Acquired Aplastic Anaemia is a condition where the bone marrow stops producing enough blood cells.

Paediatric Cardiomyopathy is a disease that affects the heart muscles in children

**5. Solution: B**

Statement 1 is incorrect because there is no rotation policy for appointing the CJI based on regional Supreme Court benches. The appointment is based primarily on seniority and the outgoing CJI's recommendation.

Statement 2 is correct, as factors like merit and integrity, along with seniority, are considered when making the recommendation. This was evident in past appointments where the consideration of these factors led to certain judges being recommended or passed over.

Statement 3 is incorrect because the selection of the CJI is not made by a committee of Supreme Court judges. Instead, the outgoing CJI recommends the senior-most judge to the President, following established conventions.

**6. Solution: C**

Quartz crystal oscillators are also essential components of atomic clocks, providing a base frequency that is later compared to the atomic transitions, so statement 1 is correct.

Atomic clocks rely on the vibration of caesium atoms (or other atoms like hydrogen or rubidium) for their precise timekeeping, making statement 2 correct.

Statement 3 is also correct, as atomic clocks compare the consistent frequency of atom vibrations with quartz oscillators to ensure precision in time measurement.

Statement 4 is incorrect because atomic clocks are more accurate than the clocks in GPS satellites. In fact, GPS satellites use atomic clocks to maintain the precision required for navigation.

Topic	Information
Atomic Clock	An atomic clock is a highly accurate timekeeping device that combines a quartz crystal oscillator with an atom, typically caesium or hydrogen, to measure time precisely. It uses the consistent frequency of atoms to maintain accurate time, making it more stable than conventional quartz clocks.

	It was Invented in 1955 by Louise Essen. It combines a quartz crystal oscillator with an atom for precise timekeeping.
Types of Atomic Clocks	Caesium and hydrogen maser atomic clocks
	Hydrogen maser clocks are more accurate and used in scientific research.
Working	Quartz crystal oscillators are commonly used in modern clocks, vibrating at a precise frequency when voltage is applied. However, they become slightly slow every hour and require frequent adjustments.
	Atomic clocks are like super accurate timekeepers. They use special atoms, usually caesium atoms, which vibrate at a very steady rate. By sending microwaves to these atoms, we can make them vibrate even more regularly. Then, we compare these vibrations with the vibrations of a quartz crystal in a regular clock. The most advanced atomic clocks lose just one second every 300 billion years.

### 7. Solution: C

The Global Stocktake under the Paris Agreement aims to assess the collective progress of all nations in meeting the climate goals, not just fossil fuel consumption or coal reduction. While these are essential aspects, the Stocktake covers a broader scope, including evaluating low-carbon technologies such as nuclear energy, which was included in COP28 for its role in addressing climate change and providing stable low-carbon electricity.

### 8. Solution: B

Statement 1 is correct as the GI tag helps protect products from unauthorized use by individuals or producers outside the specified geographical area, thus preserving the unique identity and reputation of the product.

Statement 2 is also correct because the GI tag enhances the marketability and export potential of products by linking them to a specific origin known for quality and distinctiveness.

Statement 3 is incorrect because a GI tag cannot be transferred or assigned to other producers outside the defined geographical region. GIs are tied to the location of production and the qualities associated with that region.

### 9. Solution: B

Statement 1 is incorrect because USSD works on 2G, 3G, 4G, and 5G networks, providing a versatile option that does not require the advanced data capabilities of 4G or 5G.

USSD is a technology that allows users to interact with service providers over a GSM network without needing an internet connection, making it accessible even on basic mobile phones. This makes Statement 2 correct.

Statement 3 is correct, as USSD messages are limited to 182 characters, which is enough for basic information exchange or quick commands.

Statement 4 is correct, since USSD is widely used for various mobile services such as mobile banking, checking account balances, recharging prepaid accounts, and enabling features like call forwarding.

### 10. Solution: B

In a hydrogen fuel cell, hydrogen molecules are split into protons and electrons at the anode (Statement a).

The electrons do not travel through the electrolyte; instead, they flow from the anode to the cathode through an external circuit, creating an electric current. The electrolyte selectively allows only the protons (positively charged particles) to pass through it to the cathode, ensuring that electrons take the external path to generate usable electricity.

At the cathode, protons, electrons, and oxygen from the air combine to form water (Statement c), producing water vapor and heat as byproducts (Statement d). This efficient process of generating electricity with minimal byproducts makes hydrogen fuel cells a promising clean energy source.

### 11. Solution: B

The Bharat Tech Triumph Program (TTP) is a national initiative under 'Create in India' aimed at promoting India's gaming industry, developers, and startups on global platforms like GDC 2025 and WAVES Summit.

#### About Bharat Tech Triumph Program (TTP):

- What is the Bharat Tech Triumph Program?
  - ♦ A national initiative to promote India's gaming industry, innovation, and interactive entertainment sector.
  - ♦ Provides global exposure to Indian game developers, startups, and tech companies.
- Ministry & Organizers:
  - ♦ Ministry of Information & Broadcasting (MIB) – Government body overseeing the initiative.
  - ♦ Interactive Entertainment and Innovation Council (IEIC) – Organizing partner.
- Aim of the Program:
  - ♦ Identify and promote Indian gaming talent on global platforms.
  - ♦ Support innovation in gaming, animation, and immersive technologies (Artificial Reality, Virtual Reality, Metaverse).
  - ♦ Encourage startups and studios to develop world-class games under the 'Create in India' initiative.

- Key Features of Bharat Tech Triumph Program:
  - ◆ Open to developers, studios, startups, and tech firms with a working prototype.
  - ◆ 3-stage selection process: Game submission, expert evaluation, and final showcase.
  - ◆ Winners get fully sponsored opportunities to present at GDC 2025 and WAVES.
  - ◆ Encourages cross-border collaborations, with 1,078 total registrations, including 12 international entries.

## 12. Solution: A

Statement 2 is correct as sulfur dioxide from volcanoes can cause acid rain and reflect sunlight, leading to temporary global cooling.

Statement 1 is incorrect because anthropogenic CO<sub>2</sub> emissions contribute far more to global warming than volcanic CO<sub>2</sub>.

Statement 3 is incorrect because water vapor is the most abundant volcanic gas.

## 13. Solution: C

Statements 1 and 2 are correct because the Pir Panjal Range includes Banihal and Pir Panjal Pass and acts as a climatic barrier affecting monsoon precipitation in Kashmir.

About Pir Panjal Range:

- Location: Part of the Lesser Himalayas, spanning India and Pakistan-administered Kashmir.
- States covered: Extends across Himachal Pradesh and Jammu & Kashmir in India.
- Key Geographic Features:
- Mountain Peaks:
  - ◆ Deo Tibba (6,001 m) and Indrasan (6,221 m) at its eastern end.
- Major Rivers:
  - ◆ Separates the Beas and Ravi rivers from the Chenab River.
  - ◆ Origin of tributaries feeding the Jhelum and Indus rivers.
- Strategic Connectivity:
  - ◆ The Mughal Road links Rajouri and Poonch with Kashmir Valley via the Pir Panjal Pass (3,490 m).
  - ◆ Jawahar Tunnel (2.5 km) under the Banihal Pass connects Banihal to Qazigund.
- Tourist and Historical Importance:
  - ◆ Home to Gulmarg, a famous hill resort in Kashmir.
  - ◆ Historically, Pir Panjal was Kashmir's ancient trade route with India.

## 14. Solution: B

Ex-Gratia Payment is voluntary and discretionary, unlike court-ordered compensations or legally mandated schemes.

Option a is incorrect as ex-gratia is not legally mandated.

Option c is incorrect because ex-gratia is one-time relief, not a fixed payment scheme.

Option d is incorrect as court-ordered compensations are legally binding, unlike ex-gratia.

What is Ex-Gratia?

- Ex-gratia refers to a payment made as a goodwill gesture, not a legal obligation.
- The government provides ex-gratia relief in cases like accidents, natural disasters, and tragedies.
- Legal Framework Governing Ex-Gratia:
  - ◆ No specific statutory law governs ex-gratia payments.
  - ◆ The concerned ministry or department determines the amount and mode of disbursement.
  - ◆ Railway ex-gratia payments follow the Railway Accidents and Untoward Incidents (Compensation) Rules, 1990.
- Procedure for Ex-Gratia Payments:
  - ◆ Verification of Identity: Aadhaar, legal heir certificate, and death certificate.
  - ◆ Approval by Authorities: Competent authority sanctions the amount.
  - ◆ Disbursement of Funds: Either cash (immediate relief) or bank transfer (final payment).
- Modes of Payment:
  - ◆ Cash: Immediate assistance for initial expenses (Railway guidelines permit up to Rs 50,000 in cash).
  - ◆ Bank Transfer: Aadhaar-linked Direct Benefit Transfer (DBT) for full compensation.
  - ◆ Cheque/NEFT: Preferred for large amounts, ensuring accountability and transparency.

Difference Between Ex-Gratia and Compensation:

Aspect	Ex-Gratia	Compensation
Nature	Voluntary, good-will-based	Legal obligation
Purpose	Immediate relief	Compensation for loss or damage
Legal Basis	No legal requirement	Defined under law
Approval	By government/officials	Decided by courts or statutes

## 15. Solution: D

NGOs receiving foreign contributions above 10 lakh annually come under Lokpal's jurisdiction.

Option a is incorrect because Lokpal covers Ministers, MPs, and Group A, B, C, and D officials.

Option b is incorrect as Lokpal can investigate the Prime Minister, but not in matters of national security, foreign relations, atomic energy, etc.

Option c is incorrect as Lokpal requires a complaint to initiate an inquiry.

- What is Lokpal?

- ◆ Lokpal is an anti-corruption ombudsman established to investigate allegations of corruption against public officials, including the Prime Minister, Ministers, Members of Parliament, and government employees.
- Establishment and Origin:
  - ◆ Origin: The concept of an ombudsman originated in Sweden in 1809. In India, the idea was first proposed in Parliament by former Law Minister Ashok Kumar Sen in the 1960s.
  - ◆ Term Coined: L.M. Singhvi introduced the terms “Lokpal” and “Lokayukta” in 1963.
  - ◆ Legislation: The Lokpal and Lokayuktas Act was passed in 2013 following the Anna Hazare-led India Against Corruption (IAC) movement.
- Structure of the Organisation:
  - ◆ Composition: A chairperson and up to eight members, with 50% being judicial members.
  - ◆ Selection Committee: Includes the Prime Minister, Lok Sabha Speaker, Leader of Opposition, Chief Justice of India, and an eminent jurist.
  - ◆ Jurisdiction: Covers the Prime Minister, Ministers, MPs, and government employees (Groups A, B, C, D). It also includes officials of boards, corporations, and NGOs receiving foreign contributions above ₹10 lakh annually.
- Powers and Functions:
  - ◆ Investigation: Can refer cases to investigative agencies like the CBI and supervise their work.
  - ◆ Preliminary Inquiry: Conducts inquiries within 60 days and decides on further action.
  - ◆ Search and Seizure: Has powers under the Civil Procedure Code for investigations.
  - ◆ Asset Attachment: Can attach assets of accused public servants.
  - ◆ Prosecution Sanction: Grants sanction for prosecution based on investigation reports.
- Exemptions:
  - ◆ Sitting judges of constitutional courts require prior consultation with the Chief Justice of India (CJI) before any criminal proceedings.
  - ◆ The CJI is consulted if allegations involve a Supreme Court judge.
- ◆ The Reserve Bank of India (RBI), as part of its monetary policy interventions, executes the swap auctions.
- How Does It Work?
  - ◆ First Leg (Buy Phase): Banks sell USD to RBI and receive Indian Rupees (INR).
  - ◆ Reverse Leg (Sell Phase): Banks buy back USD from RBI at a predetermined price at the end of the swap period.
- Key Features of the Swap:
  - ◆ Tenor: Can be short-term (6 months) or long-term (3 years or more).
  - ◆ Liquidity Management: Used to infuse or absorb rupee liquidity in the system.
  - ◆ Forex Reserve Utilization: RBI uses its forex reserves to regulate currency flows.
  - ◆ Impact on Exchange Rate: Helps stabilize rupee fluctuations against the dollar.
- Impact on the Indian Economy:
  - ◆ Improves Banking Liquidity: Injects Rs 86,000 crore into the banking system, addressing the current liquidity shortfall of Rs 1.7 lakh crore.
  - ◆ Enhances Monetary Policy Transmission: Ensures that interest rates in money markets align with RBI’s policy stance.
  - ◆ Strengthens the Rupee: Reduces depreciation pressure on INR due to forex market fluctuations.
  - ◆ Supports Economic Growth: Enables banks to lend more to businesses and industries, promoting investment and consumption.
  - ◆ Controls Inflation Risks: Provides liquidity without increasing inflationary pressures, as money is infused against future forex obligations.

### 17. Solution: C

Statements 1, 2, and 3 are correct as PMI acts as a leading indicator, influences monetary policy decisions, and correlates with GDP and markets.

Statement 4 is incorrect because PMI does not directly measure inflation; it tracks business activity and supply chain conditions, which may have an indirect inflationary effect.

About Purchasing Managers’ Index (PMI):

- What is PMI?
  - ◆ PMI (Purchasing Managers’ Index) is an economic indicator derived from monthly business surveys.
  - ◆ It measures activity at the purchasing/ input stage, unlike IIP (Index of Industrial Production), which tracks actual output.
- There are two types:
  - ◆ Manufacturing PMI – Tracks industrial and factory activity.
  - ◆ Services PMI – Assesses the growth in the services sector.
  - ◆ PMI above 50 indicates economic expansion, while below 50 signals contraction.

### 16. Solution: A

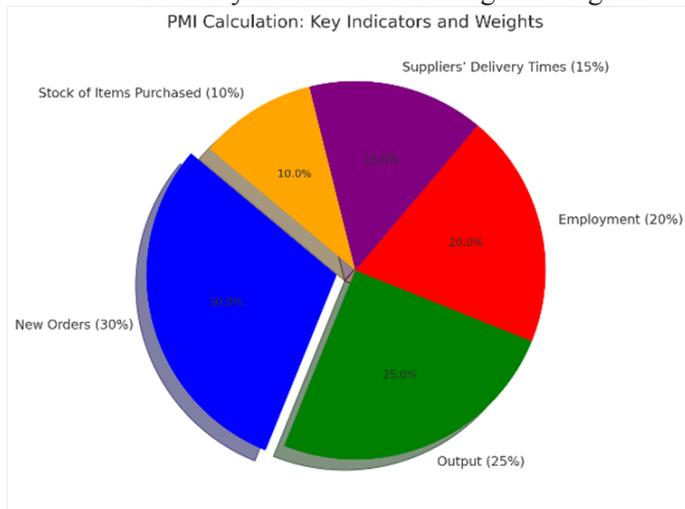
Statements 1 and 2 are correct as swaps affect liquidity, stabilize exchange rates, and can increase forex reserves.

Statement 3 is incorrect because while swap auctions can influence liquidity and exchange rates, they are not a direct inflation control tool.

About Rupee & Dollar Swap Auctions:

- It is a tool used by the RBI to manage liquidity in the economy and stabilize currency volatility.
- Banks sell US dollars to RBI in exchange for rupees in the first leg and agree to repurchase dollars at a future date.
- Who Conducts It?

- Who Releases PMI in India?
  - ◆ S&P Global (earlier released by IHS Markit) conducts PMI surveys in India.
  - ◆ ■ Based on a survey of 500 manufacturing companies for the Manufacturing PMI.
- PMI Calculation Methodology:
  - ◆ Derived from qualitative responses of purchasing managers.
  - ◆ Five key indicators with assigned weights:



### 18. Solution: B

Statements 1 and 2 are correct as Lokpal consists of a chairperson and up to 8 members, with at least 50% being judicial members.

Statement 3 is incorrect because the chairperson can be a retired Chief Justice of India, a Supreme Court judge, or an eminent person with expertise in anti-corruption matters.

### 19. Solution: C

The Pir Panjal Range separates the Kashmir Valley from the outer Himalayas and extends across Himachal Pradesh and Jammu & Kashmir.

Option a is incorrect because it does not form the water divide between the Ganges and Indus.

Option b is incorrect because it belongs to the Lesser Himalayas, not the Shivaliks.

Option d is incorrect as the Pir Panjal Range is part of the Western Himalayas, not the Eastern Himalayas.

### 20. Solution: A

- Sulfur dioxide from eruptions can cause temporary cooling.
- Volcanoes contribute to new land formation, such as the Hawaiian Islands.
- Some eruptions release halogens that can deplete the ozone layer.

Statement 3 is incorrect as volcanic activity can influence ocean circulation, particularly through the release of volcanic ash and underwater eruptions.

### 21. Solution: A

Statement 1 is correct because statutory bail becomes a right when the police fail to complete the investigation

within the stipulated time.

Statement 2 is incorrect. While 60 days is the standard time limit for statutory bail in most cases, this period can extend to 90 or 180 days depending on the severity of the crime.

Statement 3 is correct as statutory bail is provided for under the CrPC.

### 22. Solution: B

Statement 1: The United Nations was established in 1945 after World War II, with the primary goals of maintaining international peace and security, promoting disarmament, and engaging in peacekeeping activities. Statement 2 is correct. The General Assembly serves as the UN's main policymaking body, while the UNSC is specifically responsible for issues related to international peace and security.

### 23. Solution: B

The Doctrine of Severability is a legal principle that allows courts to invalidate specific portions of a law that are deemed unconstitutional while keeping the remaining constitutional parts intact.

This doctrine is based on the presumption that the legislature would have enacted the valid parts of the statute without the invalid ones.

It enables courts to strike down only the problematic sections of a law rather than nullifying the entire legislation, thus preserving the intent of the lawmakers to the extent possible while ensuring constitutional compliance.

This approach helps in maintaining legislative integrity and prevents the unnecessary invalidation of entire laws due to partial unconstitutionality.

### 24. Solution: C

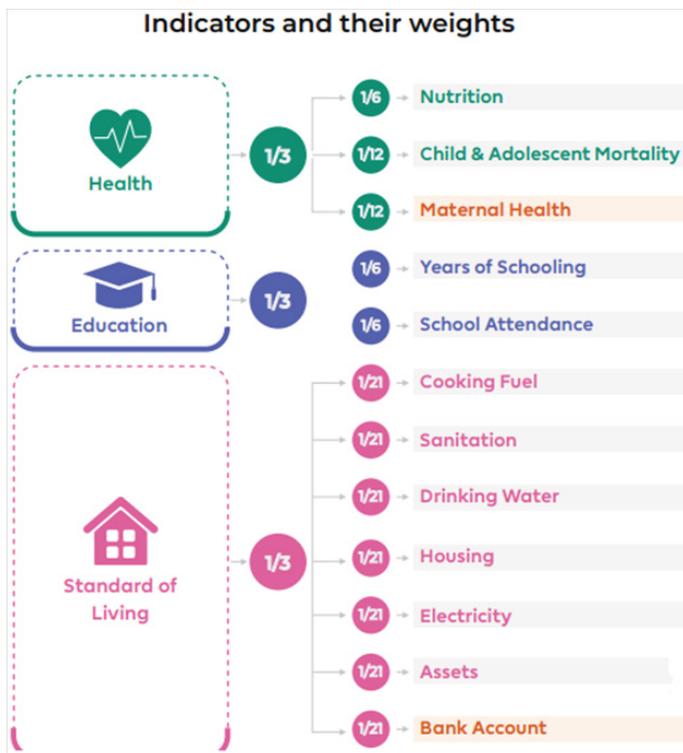
The Supreme Court can invalidate laws that violate Fundamental Rights, the Doctrine of Severability allows unconstitutional parts of a law to be invalidated while preserving the rest, and the Doctrine of Eclipse allows laws infringing on Fundamental Rights to be temporarily suspended.

### 25. Solution: B

The Delhi Excise Policy Case (2024) reaffirmed the right to a speedy trial as a fundamental right under Article 21, continuing the Supreme Court's role as the guardian of civil liberties.

### 26. Solution: C

The National MPI focuses on multidimensional aspects of poverty, such as health, education, and standard of living, but it does not include per capita income as one of its 12 indicators. Instead, it looks at indicators like child mortality, school attendance, and access to clean drinking water.



**27. Solution: B**

Statement 1 is correct: Dharma Guardian is a joint military exercise between the armies of India and Japan.

Statement 2 is correct: The Malabar exercise is a naval exercise involving India, Japan, and other Quad nations, such as the United States and Australia.

Statement 3 is incorrect: Veer Guardian is an air force exercise, not a naval exercise, conducted between India and Japan.

**28. Solution: D**

Committees' recommendations on lateral entry:

- The idea has been advocated by Surinder Nath Committee (2003), Hota Committee (2004) and Second ARC (2008).
- NITI Aayog, in its three-year Action Agenda (2017—2020), recommended the induction of personnel at middle and senior management levels in the central government.

**29. Solution: C**

Article 13 of the Indian Constitution declares that any law which contravenes the Fundamental Rights shall be void. This empowers the Supreme Court to invalidate such laws.

**30. Solution: A**

Statement 1 is correct. Anticipatory bail is granted in anticipation of an arrest, hence before the arrest takes place.

Statement 2 is incorrect. Anticipatory bail is not mentioned in the Indian Constitution; it is provided for under Section 438 of the CrPC.

Statement 3 is correct. Anticipatory bail can be granted by both Sessions Courts and High Courts.

**31. Solution: B**

Statement 1 is incorrect: Greenland is an autonomous territory of Denmark, but Denmark retains control over foreign affairs, defence, and security. Greenland

has self-governance in domestic matters, including resource management and local policies.

Statement 2 is correct: Greenland's strategic location between the Arctic and Atlantic Oceans makes it critical for global trade routes and military positioning. It hosts the Thule Air Base, a key U.S. military installation.

About Greenland:

- Location: World's largest island, situated between the Arctic and Atlantic Oceans.
- Capital: Nuuk.
  - ♦ Political Status: An autonomous territory within the Kingdom of Denmark.
- Population: Approximately 57,000 people.
- Geographic Features:
  - ♦ Ice Sheet: Covers around 80% of Greenland.
  - ♦ Mountains: Watkins Range, including GUNNBJORNN FJELD (tallest mountain in the Arctic).
  - ♦ Major Water Bodies: Scoresby Sound (world's largest fjord), Ilulissat Icefjord (UNESCO World Heritage Site).
- Economy:
  - ♦ Primary Sectors: Fishing (accounts for 90% of exports), tourism, and small-scale mining.
  - ♦ Potential Growth Areas: Rare earth minerals, uranium, and other strategic metals.
- Why is Greenland in the Spotlight?
  - ♦ Push for Independence: All major political parties support the idea of breaking away from Danish rule.
  - ♦ Greenland currently receives an annual subsidy of \$565 million from Denmark, about 20% of its GDP.
- Geopolitical Interests:
  - ♦ Trump's Renewed Interest: First proposed purchasing Greenland in 2019, leading to diplomatic tensions.
  - ♦ Recently, Trump revived his ambition, claiming Greenland should join the US for "prosperity and security."
- Resource Race in the Arctic: Greenland is rich in rare earth elements, uranium, and critical minerals needed for global industries.



### 32. Solution: C

- Option a is incorrect – NECTAR does not focus on industrial zones, but rather on technological applications in agriculture, infrastructure, and skill development.
- Option b is incorrect – NECTAR is not directly involved in space technology research for ISRO.
- Option c is correct – NECTAR's core mission is to bridge the gap between research institutions and grassroots innovations, ensuring technology adoption in agriculture, drone mapping, and infrastructure development.
- Option d is incorrect – NECTAR does not implement direct cash transfers but supports research-based technological interventions.
- What is NECTAR?
  - ♦ An autonomous body under the Department of Science and Technology (DST), Government of India.
  - ♦ Focuses on technological applications for the development of Northeast India.
  - ♦ Established In: 2014, under the Ministry of Science & Technology.
- Headquarters: Shillong, Meghalaya.
- Aim:
  - ♦ Promote technological advancements for socio-economic development in Northeast India.
  - ♦ Bridge the gap between research institutions and grassroots innovations.
  - ♦ Encourage sustainable agricultural practices like saffron and bamboo cultivation.
- Functions & Features:
  - ♦ Technology Application in Agriculture: Expanding saffron cultivation in Northeast India, similar to Lavender farming in J&K.
  - ♦ Drone Technology for Land Mapping: Supports the 'Swamitva' program for efficient land records management.
  - ♦ Bamboo & Honey Production: Boosts eco-friendly industries to generate sustainable livelihoods.
  - ♦ Infrastructure & Connectivity Enhancement: Works on scientific and technological interventions to improve rural accessibility.
  - ♦ Skill Development & Research: Establishing a Centre of Excellence in Shillong for advanced tech training and innovation.

### 33. Solution: D

- Statement 1 is incorrect – Plastic Ice VII does not form naturally on Earth; it requires extreme pressures found in planetary mantles.
- Statement 2 is incorrect – Unlike normal ice, Plastic Ice VII is denser than water and would sink rather than float.
- Statement 3 is incorrect – It is not stable at room temperature, even in a vacuum-sealed

environment; it requires high pressure to remain stable.

- What is Plastic Ice VII?
  - ♦ A unique phase of water where molecules remain in a rigid crystalline structure while retaining rotational motion.
  - ♦ Originally predicted in 2008, but experimentally confirmed in 2025.
- How does it form?
  - ♦ Extreme Conditions: Forms under 450-600K (177-327°C) temperature and 0.1-6 GPa pressure (60,000 times atmospheric pressure).
  - ♦ Lab Confirmation: Verified through Quasi-Elastic Neutron Scattering (QENS) at ILL, France.
- Key Characteristics:
- Applications & Significance:
  - ♦ Planetary Science: Explains water's behavior inside icy moons (Ganymede, Callisto, Titan) and exoplanets.
  - ♦ Extreme Environment Research: Helps in understanding high-pressure physics and material science.
  - ♦ Space Exploration: Improves knowledge of ice phases in extreme planetary conditions, aiding in future astrobiology studies.
  - ♦ Hydrogen Storage & Energy Research: May have potential technological applications in material sciences.

### 34. Solution: A

Statement 1 is incorrect – While the Yamuna flows through Delhi, other tributaries of the Ganga (e.g., Hindon) also pass through the region.

Statement 2 is correct – The Tons River is the largest tributary of the Yamuna, contributing more water than the Yamuna itself at their confluence.

About Yamuna River:

- Origin: The Yamuna originates from the Yamunotri Glacier in the Himalayas at an altitude of 4,421 meters.
- Historically, it was a tributary of the River Ghaggar (likely the Saraswati River of the Vedas) but later shifted eastward due to tectonic activity.
- Course & States: The Yamuna River basin extends across Uttarakhand, Himachal Pradesh, Haryana, Delhi, Uttar Pradesh, and Rajasthan.
- Total Length: 1,376 km (Longest River in India that does not directly drain into the sea).
- Major Tributaries:
  - ♦ Himalayan Region: Rishi Ganga, Hanuman Ganga, Tons, and Giri.
  - ♦ Plains: Hindon, Chambal, Sind, Betwa, and Ken.
  - ♦ Tons River contributes approximately 60% of the Yamuna's total water flow.
- Confluence: The Yamuna merges with the Ganga

at Prayagraj (Allahabad), forming the sacred Sangam.

- Key Cities Along the Yamuna:
  - ♦ Noida, Mathura, Agra, Firozabad, Etawah, Kalpi, Hamirpur, and Prayagraj (Allahabad).
  - ♦ In Delhi, the Yamuna enters at Palla Village and exits at Jaitpur, covering 52 km within the National Capital Territory.

### 35. Solution: A

- Statement 1 is correct – The Foreigners Act, 1946, gives broad powers to the government to regulate, detain, and deport foreigners.
- Statement 2 is incorrect – The Passport (Entry into India) Act, 1920, deals with visa and entry regulations, not citizenship acquisition.
- Statement 3 is correct – The Citizenship Act, 1955, provides five pathways for citizenship: by birth, descent, registration, naturalization, and incorporation of territory.

Provisions for Immigration in India

- The Citizenship Act, 1955: Governs acquisition, renunciation, and termination of Indian citizenship.
- The Foreigners Act, 1946: Regulates the entry and exit of foreigners in India.
- The Visa Regulations: Issued under the Passport Act, 1920, defining entry conditions.
- Refugee Policies: Though India is not a signatory to the 1951 Refugee Convention, it provides asylum on a case-by-case basis (e.g., Tibetans, Sri Lankan Tamils, Rohingyas).

### 36. Solution: B

- Statement 1 is correct – The use of drones for climate and soil monitoring is being explored under the initiative.
- Statement 2 is correct – The project integrates with PMKSY for irrigation efficiency, ensuring water conservation in saffron farming.
- Statement 3 is incorrect – Genetic engineering is not mandated; traditional saffron bulbs from Jammu & Kashmir are being used.

### 37. Solution: D

- Statement 1 is incorrect – India follows an open-border policy only with Nepal and Bhutan, not all neighbouring countries.
- Statement 2 is incorrect – Foreigners can apply for Indian citizenship through naturalization under the Citizenship Act, 1955 (after fulfilling residence requirements).
- Statement 3 is incorrect – India's Visa-on-Arrival policy is not available to all SAARC nations; it is granted to selected countries like Japan and South Korea under specific conditions.

### 38. Solution: A

Statement 1 is incorrect – India does not have a formal legal framework for refugee recognition under UNHCR.

Statement 2 is incorrect – The CAA, 2019, provides an accelerated pathway to citizenship, but not automatic citizenship.

Statement 3 is correct – Tibetan refugees in India are given “Registration Certificates” instead of Indian passports, making them legal residents, not citizens.

### 39. Solution: C

- Option a is incorrect – The Astra missile has a range of 100+ km, but it is not unlimited; it relies on radar and inertial navigation systems, not satellites.
- Option b is incorrect – Astra is strictly an air-to-air missile, and cannot engage ground targets.
- Option c is correct – Astra BVRAAM provides a stand-off capability, allowing the launching aircraft to engage targets from a safe distance beyond visual range.
- Option d is incorrect – Astra is not a nuclear-capable missile; it carries a high-explosive fragmentation warhead.

#### • What is Astra Missile?

- ♦ An advanced Beyond Visual Range Air-to-Air Missile (BVRAAM) designed for fighter aircraft.
- ♦ Enables aircraft to engage targets beyond 100 km without direct visual contact.
- Developed by:
  - ♦ Defence Research and Development Organisation (DRDO), India.
  - ♦ Manufactured by Bharat Dynamics Limited (BDL) under a 2,971 crore contract.
- Key Features:
  - ♦ Altitude: Can engage targets at 20 km altitude.
  - ♦ Range: Over 100 km, with high-speed precision targeting.
  - ♦ Guidance System: Equipped with inertial navigation, mid-course updates, and active radar homing for precise hits.
  - ♦ Speed: Capable of Mach 4.5 (4.5 times the speed of sound).
  - ♦ Integration: Already deployed on Su-30MKI, now being integrated with LCA Tejas & MiG-29.
  - ♦ Combat Advantage: Provides large stand-off range, reducing pilot risk from enemy air defense.

### 40. Solution: B

- Statement 1 is correct – NECTAR is an autonomous body under the DST, focusing on technology-based solutions.
- Statement 2 is correct – NECTAR has experimented with saffron cultivation in Northeast India, adapting the successful model from Jammu & Kashmir.
- Statement 3 is incorrect – While NECTAR supports

renewable energy applications, its primary focus is on technology integration in agriculture, land mapping, and infrastructure, not just renewable energy.

#### 41. Solution: C

- Statement 1 is incorrect – The Model Code of Conduct (MCC) is not legally binding. It is a set of ethical guidelines issued by the ECI, but violations are not punishable under electoral laws unless they overlap with existing laws (e.g., bribery, hate speech).
- Statement 2 is correct – The Supreme Court mandated that all candidates must disclose criminal antecedents in their nomination forms.
- Statement 3 is correct – The introduction of VVPAT was directed by the Supreme Court to increase transparency and allow voters to verify that their votes were cast correctly.
- Statement 4 is correct – Candidates must disclose their assets and liabilities, and failure to do so can lead to disqualification by the ECI under the Representation of the People Act, 1951.

#### 42. Solution: B

- Statement 1 is correct – HPS occurs when individuals inhale aerosolized virus particles from rodent droppings or urine.
- Statement 2 is incorrect – Hantaviruses are not restricted to tropical regions; they are found worldwide, including temperate zones like North America, Europe, and Asia.
- Statement 3 is correct – HFRS is a severe form of Hantavirus infection that primarily affects the kidneys, leading to renal failure and internal bleeding.

About Hantavirus:

- Caused By:
  - ◆ Hantaviruses belong to the Bunyaviridae family and are transmitted by infected rodents such as deer mice, rice rats, and cotton rats.
- How Does it Occur?
  - ◆ Humans contract the virus through contact with infected rodent urine, droppings, or saliva.
  - ◆ Aerosolization occurs when contaminated materials are disturbed, making inhalation the primary mode of transmission.
  - ◆ No human-to-human transmission has been confirmed except in Andes virus cases in South America.
- Symptoms:
  - ◆ Incubation Period: Symptoms appear 1-8 weeks after exposure.
  - ◆ Initial Flu-like Symptoms: Fever, muscle aches, fatigue, nausea, and dizziness.
  - ◆ Severe Respiratory Phase: Shortness of breath, coughing, chest tightness, and rapid fluid buildup in the lungs.
  - ◆ Complications: Can escalate to acute respiratory distress syndrome (ARDS), internal

bleeding, and kidney failure.

- Treatment & Prevention:
  - ◆ No Specific Cure: Supportive medical care is the only option.
  - ◆ Oxygen Therapy & Ventilation: Used for patients with severe respiratory distress.
  - ◆ Early Detection is Critical: Prompt medical intervention improves survival chances.
  - ◆ Rodent Control Measures: Sealing homes, avoiding direct rodent contact, and proper sanitation reduce risk.
  - ◆ High-Risk Groups: Farmers, campers, construction workers, and individuals in rodent-prone areas should exercise caution.

#### 43. Solution: D

- The Indrajit Gupta Committee (1998) was the first to formally advocate partial state funding of elections in India, arguing that it would reduce the influence of money in politics.
- The Dinesh Goswami Committee (1990) also discussed state funding, but it was not the primary focus of its recommendations.
- The Vohra Committee (1993) was concerned with the nexus between crime and politics, and the Second Administrative Reforms Commission (2007) focused on ethics and transparency rather than state funding.

#### 44. Solution: C

- Statement 1 is correct – The CAG audits all financial transactions of the Union, States, and PSUs.
- Statement 2 is incorrect – The CAG submits reports to the President or Governors, who then present them to Parliament or State Legislatures.
- Statement 3 is correct – The CAG can audit private companies if they receive significant government funds.
- Statement 4 is correct – The CAG functions as an agent of Parliament, ensuring financial accountability.
- What is the CAG?
  - ◆ The CAG is India's apex constitutional audit authority, known as the watchdog of the public purse.
  - ◆ It oversees the financial accountability of both Union and State governments and reports to Parliament.
- Constitutional Article: Articles 148 to 151 (Part V) of the Indian Constitution define the appointment, powers, duties, and audit reporting process of the CAG.
- Appointment Process:
  - ◆ The President of India appoints the CAG by warrant under his hand and seal (Article 148).
  - ◆ Current practice is executive-controlled; calls for reform suggest an independent panel including the Prime Minister, Leader of Opposition, and Chief Justice of India.

- Term of Office:
  - ◆ Six years or until the age of 65, whichever is earlier.
  - ◆ The CAG is ineligible for any future office under the Government of India or any State after demitting office.
- Service Conditions:
  - ◆ Salary is equal to that of a Supreme Court judge, determined by Parliament.
  - ◆ Administrative expenses are charged on the Consolidated Fund of India, ensuring financial independence.
  - ◆ Service conditions for staff are prescribed by the President in consultation with the CAG.
- Removal Process:
  - ◆ Can be removed only by the President, following the same grounds and process as a Supreme Court judge.
  - ◆ Removal requires a special majority resolution in both Houses of Parliament for proven misconduct or incapacity.
- Powers and Functions:
- Audit Authority:
  - ◆ Audits all expenditures from the Consolidated Fund of India and State funds.
  - ◆ Audits accounts of government corporations, PSUs, and government-funded bodies.
- Reporting Role:
  - ◆ Submits audit reports to the President or Governors, who lay them before Parliament or State Legislatures.
  - ◆ Reports are scrutinized by the Public Accounts Committee (PAC).
- Fiscal Oversight:
  - ◆ Certifies the net proceeds of taxes and duties.
  - ◆ Reviews government transactions related to debts, advances, and suspense accounts.
- Legal and Discretionary Audits:
  - ◆ Conducts compliance audits, performance audits, and financial audits.
  - ◆ Can conduct propriety audits to evaluate the wisdom, faithfulness, and economy in government spending.
- Role in Accountability:
  - ◆ Acts as an agent of Parliament, ensuring public funds are used legally and efficiently.
  - ◆ Does not control fund issuance (unlike Britain's CAG), functioning solely as Auditor-General.

#### 45. Solution: C

- The CAG's office began as the Accountant General to the Government of India after power transferred from the East India Company to the British Crown.
- The Montague-Chelmsford Reforms (1919) and the Government of India Act (1935) strengthened its autonomy, but it did not gain constitutional status until the framing of the Indian Constitution in 1949.

- The CAG Act of 1971 codified the powers of CAG but did not establish it.

#### 46. Solution: D

White hydrogen is a naturally occurring form of hydrogen found beneath the Earth's surface due to geological reactions between minerals and water. It is distinct from Green Hydrogen, which is produced through electrolysis, and Grey Hydrogen, which is derived from fossil fuels like methane. Nuclear fusion does not produce White Hydrogen, making options (a), (b), and (c) incorrect.

About White Hydrogen:

- What it is:
  - ◆ White hydrogen is naturally occurring pure hydrogen found underground, formed due to geological reactions. It emerges when minerals react with water deep beneath the Earth's crust.
- Key Features:
  - ◆ Zero-emission: It occurs naturally without requiring industrial production, avoiding CO<sub>2</sub> emissions.
  - ◆ Low cost: White hydrogen production costs around \$1 per kilogram, making it highly affordable.
  - ◆ Renewable source: White hydrogen constantly regenerates within the Earth, unlike exhaustible fossil fuels.
  - ◆ Combustion output: When used as fuel, white hydrogen produces only water vapor after combustion.
- Significance:
  - ◆ Clean energy alternative: Can reduce reliance on fossil fuels for heavy industries like aviation, shipping, and steel.
  - ◆ Energy security: Potential game-changer for energy independence in hydrogen-importing countries.
  - ◆ Cost-effectiveness: Could significantly lower global hydrogen prices compared to synthetic alternatives.
  - ◆ Sustainability: Supports climate action with its low carbon footprint and renewable nature.
- Limitations:
  - ◆ Exploration difficulty: Hard to locate deposits due to specific geological conditions.
  - ◆ Environmental risks: Potential hydrogen leakage could disrupt greenhouse gas reduction efforts.
  - ◆ Storage and transport challenges: Requires extremely low liquefaction temperatures (-253°C) and robust pipelines.
  - ◆ Regulatory barriers: Absence of clear guidelines for extraction and safe handling.

#### 47. Solution: B

- Option a is incorrect – While docking could facilitate future refueling, SpaDeX is not specifically designed for refueling experiments.
- Option b is correct – SpaDeX demonstrates

autonomous docking and undocking, a crucial step toward India's future space station and human spaceflight missions.

- Option c is incorrect – SpaDeX is not a space station prototype but a technology demonstration mission.
- Option d is incorrect – The mission does not focus on space debris removal.
- What is SpaDeX?
  - ♦ A technology demonstration mission by ISRO designed to test and validate spacecraft rendezvous, docking, and undocking operations in orbit.
  - ♦ Crucial for future space station assembly, lunar sample return missions, and deep-space exploration.
- Satellites Involved:
  - ♦ SDX-01 (Chaser) – The active satellite responsible for docking maneuvers.
  - ♦ SDX-02 (Target) – The passive satellite that facilitates docking.
- Launched In: December 30, 2024, aboard PSLV-C60 from Satish Dhawan Space Centre, Sriharikota.
- Aim:
  - ♦ To develop and demonstrate docking, undocking, and power transfer technologies in space.
  - ♦ Establish a foundation for future space station construction, human spaceflight, and interplanetary missions.
- Key Features:
  - ♦ First Indian Space Docking Demonstration: Achieved successful docking on January 16, 2025, and undocking on March 14, 2025.
  - ♦ Orbital Operations: Performed in a 460 km circular orbit with 45-degree inclination.
  - ♦ Autonomous Docking: Showcased the capability of two satellites to autonomously dock and undock.
  - ♦ Power Transfer Between Satellites: Demonstrated the transfer of electric power between docked spacecraft, critical for future modular spacecraft and in-space servicing.
  - ♦ Monitored via Global Ground Stations: Operations tracked from Bengaluru, Lucknow, and Mauritius.
- Significance of the Mission:
  - ♦ Paves the way for India's Space Station: Essential for assembling, maintaining, and operating an Indian Space Station.
  - ♦ Supports Human Spaceflight: Enables future Gaganyaan missions and lunar human exploration.
  - ♦ Advances In-Space Robotics & Logistics: Useful for autonomous docking, fuel transfer, and orbital repairs.

- ♦ Enhances India's Deep-Space Exploration: Assists in sample return missions from the Moon and Mars.

#### 48. Solution: A

- Statement 1 is incorrect – Flareless CMEs can still impact satellites and power grids if directed toward Earth.
- Statement 2 is correct – They are harder to detect, making forecasting difficult.
- Statement 3 is incorrect – Their formation is linked to solar magnetic field changes.
- What is a Flareless Coronal Mass Ejection?
  - ♦ A flareless CME is a massive ejection of plasma and magnetic field from the Sun's corona that occurs without an associated solar flare.
  - ♦ Unlike typical CMEs, it does not release intense electromagnetic radiation before the eruption.
  - ♦ It challenges existing models of solar activity, requiring new insights into magnetic instabilities.
- How Flareless CMEs Form?
  - ♦ Magnetic Reconnection: Occurs when magnetic field lines rearrange in the Sun's atmosphere, leading to energy release.
  - ♦ Gradual Magnetic Build-up: Magnetic stress accumulates over time, eventually releasing plasma without a sudden energy burst.
  - ♦ Flux Rope Eruption: A pre-existing twisted magnetic structure in the corona slowly becomes unstable and erupts outward.
  - ♦ No Preceding Flare: Unlike typical CMEs, no strong X-ray or UV burst precedes the plasma ejection.
  - ♦ Sunspot Influence: Often linked to regions with weak or decaying magnetic fields, where flare energy is insufficient.
- Key Features of Flareless CMEs:
  - ♦ Low Energy Signature: No significant X-ray or radio emissions, making early detection difficult.
  - ♦ Slower Ejection Speeds: Travels at lower velocities (~400–1,000 km/s) than flare-associated CMEs.
  - ♦ Magnetically Driven: Initiated by gradual destabilization of coronal magnetic fields rather than impulsive energy release.
  - ♦ Space Weather Impact: Can still trigger geomagnetic storms on Earth, affecting satellites and communication systems.
  - ♦ Rare Phenomenon: Less frequently observed compared to flare-associated CMEs, requiring continuous solar monitoring.

#### 49. Solution: A

Statement 1 is incorrect – There is no vaccine for Hantavirus, unlike polio or smallpox. Prevention relies on rodent control and hygiene measures.

Statement 2 is incorrect – Hantavirus does not spread between humans in most cases, making it non-contagious in typical outbreaks.

Statement 3 is correct – Individuals in agriculture, construction, and forestry work are at a higher risk due to frequent exposure to rodent habitats.

### 50. Solution: B

- Option a is incorrect – Pratibimb does not hack networks; it tracks and analyzes cybercrime.
- Option b is correct – The module uses geospatial mapping and analytics to pinpoint cybercrime hotspots.
- Option c is incorrect – Pratibimb is not an encryption service, but a cybercrime tracking tool.
- Option d is incorrect – It coordinates with multiple agencies through ‘Samanvaya’, ensuring collaborative cyber policing.

About Pratibimb Module:

- What is the Pratibimb Module?
  - ◆ Acrime-mapping tool that tracks cybercriminals and crime infrastructure across India.
  - ◆ Developed under the Indian Cyber Crime Coordination Centre (I4C) by the Union Home Ministry.
- How Does It Work?
  - ◆ Uses geospatial mapping to pinpoint cybercrime hotspots.
  - ◆ Helps jurisdictional officers with real-time intelligence on cybercriminals.
  - ◆ Provides techno-legal assistance to Law Enforcement Agencies (LEAs).
  - ◆ Facilitates data sharing and analytics via ‘Samanvaya’, a coordination platform for LEAs.
- Significance of the Pratibimb Module:
  - ◆ Enhanced Cyber Policing: Strengthens law enforcement capabilities in tackling cybercrime.
  - ◆ Faster Crime Resolution: Assists in swift arrests and cyber investigations.
  - ◆ Interstate Crime Tracking: Identifies linkages between cybercriminals across States/UTs.
  - ◆ Tech-Driven Governance: Enables data-driven policymaking to curb cyber threats.
  - ◆ Boosts National Security: Helps prevent digital frauds, financial scams, and data breaches.

### 51. Solution: C

- ◆ Wular Lake was formed due to tectonic activity and is among the largest freshwater lakes in South Asia, making statement 1 correct.
- ◆ It is primarily fed by the Jhelum River and additional water from mountain streams, including glacial melt from nearby ranges such as Pir Panjal, making statement 2 also correct.
- ◆ Statement 3 is correct as Wular Lake is a Ramsar site recognized for its significant biodiversity and wetland ecology.

### 52. Solution: D

- Tavasya, as a stealth frigate under Project 1135.6, is equipped for surface, sub-surface, and aerial

combat operations, playing a vital role in multi-dimensional naval warfare.

- It includes BrahMos missiles, advanced sonar, and torpedo systems, enhancing India’s strike and surveillance capacities in the Indo-Pacific.
- It is not an aircraft carrier (like INS Vikrant), nor is it part of the nuclear submarine fleet. It also does not serve primarily as a satellite-linked coastal surveillance vessel.

About Tavasya:

- What it is: A Krivak-class stealth frigate designed for multi-dimensional naval combat.
- Project under: Built under Project 1135.6 Additional Follow-on Ships.
- Built by: Goa Shipyard Limited (GSL), with technology transfer from Russia.
- Aim: To strengthen India’s maritime security and promote self-reliance in shipbuilding.

Key Features:

- Length: 8 meters; Width: 15.2 meters; Displacement: 3600 tons.
- Speed: Up to 28 knots.
- Advanced sensors, sonar, and BrahMos missile system.
- Indigenous torpedo launchers and auxiliary control systems.
- Capable of surface, sub-surface, and air combat operations.
- Named after Bhima’s mace, symbolizing strength and resilience.

### 53. Solution: D

- Statement 1 is correct — the post-2020 MSME classification removed the distinction between manufacturing and service enterprises, bringing them under the same threshold criteria.
- Statement 2 is incorrect — an enterprise is classified under a \*\*higher category if it crosses either the investment or the turnover threshold, not both. This is done to avoid bottlenecks in scaling.
- Statements 3 and 4 are correct — the revision is intended to ease formalization, improve access to credit and markets, and the Udyam portal uses PAN and Aadhaar for digital registration and authentication.

The Government of India has notified revised criteria for MSME classification, increasing investment and turnover limits.

- The Finance Minister had announced new classification criteria for MSMEs, with investment and turnover limits for the classifications proposed to be increased to 5 times and 2 times, respectively.

Rs. in Crore	Investment		Turnover	
	Current	Revised	Current	Revised
Micro Enterprises	1	2.5	5	10
Small Enterprises	10	25	50	100
Medium Enterprises	50	125	250	500

About Revision of MSME Definition:

What it is:

1. A policy update amending the thresholds for classifying Micro, Small, and Medium Enterprises based on investment and turnover.
  - Announced In: Announced during the Union Budget speech by the Finance Minister.
  - Amended By: The Ministry of MSME under Section 7 of the Micro, Small, and Medium Enterprises Development (MSMED) Act, 2006.
  - New Revision Effective From: Effective from April 1, 2025.

Purpose of Revision:

1. To align MSME classification with current business realities and growth trends.
2. To facilitate scaling-up, better credit access, and market expansion.
3. To promote resilience, employment, and self-reliance in the MSME sector.

Features of New MSME Definition:

1. Micro Enterprises:
  - Investment limit raised from ₹1 crore to ₹2.5 crore.
  - Turnover limit increased from ₹5 crore to ₹10 crore.
2. Small Enterprises:
  - ♦ Investment threshold increased from ₹10 crore to ₹25 crore.
  - ♦ Turnover ceiling raised from ₹50 crore to ₹100 crore.
3. Medium Enterprises:
  - ♦ Investment limit revised from ₹50 crore to ₹125 crore.
  - ♦ Turnover limit doubled from ₹250 crore to ₹500 crore.

#### 54. Solution: B

- Statements 1 and 2 are correct. Form 17C Part I records key polling day data such as votes cast, EVM serial numbers, tendered votes, and any discrepancies. It must be signed by the Presiding Officer and polling agents for validity, ensuring transparency and consensus on the recorded numbers.
- Statement 3 is incorrect — Form 17C is governed under the Conduct of Election Rules, 1961, framed under the Representation of the People Act, 1951, not 1950.

About Form 17C:

What it is:

1. Form 17C is a mandatory election document that records booth-wise voter turnout and election results.

Its parts:

1. Part 1: Account of Votes Recorded — includes booth-wise data on the number of electors,

votes cast, Electronic Voting Machine (EVM) identification, tendered ballots, and discrepancies.

2. Part 2: Result of Counting — provides candidate-wise vote counts obtained by pressing the result button on the EVM.

Law governed under:

1. Governed by the Conduct of Election Rules, 1961, framed under the Representation of the People Act, 1951.

Procedures laid down:

1. Part 1 is filled by the Presiding Officer after polling, signed by polling agents, and sealed in a 'Strong Room.'
2. Part 2 is filled by the Returning Officer on counting day, verified, signed by counting agents, and officially declared.

Functions and powers of Form 17C:

1. Ensures transparency and accountability of votes recorded and counted.
2. Enables cross-verification of voter turnout and vote counts.
3. Helps address discrepancies and strengthens trust in the electoral process.
4. Legally binding for polling and counting officials, with signatures mandatory for validation.

#### 55. Solution: C

Statement 1 is correct — the DGTR, under the Ministry of Commerce and Industry, is the nodal agency that conducts investigations and recommends ADD to the Ministry of Finance.

Statement 2 is correct — ADD is imposed when an imported product is sold at a price lower than its normal value (typically the domestic market price of the exporting country) and such imports cause injury to domestic producers.

About Anti-Dumping Duties:

What it is

1. Anti-dumping duty is a protectionist tariff imposed on imports priced below their normal value in the exporting country.
2. It aims to protect domestic industries from injury caused by unfairly priced imports.

Authority to impose in India

1. The Directorate General of Trade Remedies (DGTR) under the Ministry of Commerce and Industry recommends anti-dumping duties.
2. The Ministry of Finance notifies and levies these duties based on DGTR's investigation and recommendation.

When it is imposed:

1. Imposed after evidence of material injury to domestic industry from cheap imports sold at below market price.
2. Duties are typically levied for a period of up to five years and periodically reviewed.

Does it violate WTO rules?

1. No, it is permitted under Article 6 of the General Agreement on Tariffs and Trade (GATT), 1994.
2. The WTO Anti-Dumping Agreement allows members to impose duties to ensure fair trade practices.

#### 56. Solution: A

- Both statements are correct. The revised MSME classification is intended to support growing enterprises so they can stay within the MSME bracket longer, thereby accessing benefits like priority sector lending, interest subvention, and market linkage schemes.
- Statement II correctly explains the policy intent — the earlier definitions often pushed fast-growing units out of the MSME umbrella, depriving them of support during their critical growth phase.

#### 57. Solution: B

Statement 1 is incorrect — while the DGTR (Ministry of Commerce) recommends the duties, they are imposed by the Ministry of Finance, not the Ministry of External Affairs.

Anti-dumping duties are typically valid for up to 5 years, after which a sunset review may continue or terminate the duty.

ADD is not a violation of WTO norms when used appropriately; it is a WTO-sanctioned trade remedy to ensure fair pricing and prevent market distortion.

#### 58. Solution: B

- Statement 1 is incorrect — The Constitution of India does not explicitly provide for secret sittings. Instead, it allows Parliament to make its own rules of procedure under Article 118, under which the Rules of Procedure and Conduct of Business for both Houses have been framed.
- Statement 2 is correct — Under Rule 248 of the Lok Sabha Rules, the Leader of the House may request a secret sitting, and the Speaker may approve it.
- Statement 3 is also correct — the proceedings of a secret sitting are not automatically published; they are only published if the House later resolves to make them public.

About Secret Sitting of Lok Sabha:

What it is

1. A secret sitting is a closed-door parliamentary session where discussions are held confidentially, without public or media access.

Constitutional Provision:

1. The Constitution of India does not directly mention secret sittings, but it empowers Parliament to frame its own rules under Article 118.
- Chapter 25 of the Rules of Procedure and Conduct of Business in Lok Sabha, specifically Rule 248 mentions Secret Sitting.

History:

1. Though permitted by law, India has never conducted a secret sitting.
2. In 1962, during the Chinese aggression, the proposal for secret sitting was suggested but declined by PM Jawaharlal Nehru.

Who can declare a secret sitting:

1. The Leader of the House can request it.
  2. The Speaker of the Lok Sabha has the authority to approve and schedule the secret sitting.
  3. Secret sitting is allowed in Rajya Sabha as well.
- It is provided under Rule 266 of the Rules of Procedure and Conduct of Business in the Council of States (Rajya Sabha), where the Chairman can permit a secret sitting on a request made by the Leader of the House.

Features of Secret Sitting:

1. No visitors or outsiders are allowed in the chamber, lobby, or galleries.
2. Proceedings are recorded and published only with the Speaker's approval.
3. Any unauthorized disclosure is considered a gross breach of privilege.

Limits:

1. Participants cannot keep notes or publish any part of the discussion.
- Revealing secret sitting proceedings is considered a gross breach of privilege of the House, leading to disciplinary action.
  - Only with the Speaker's consent and a passed motion can such information be officially disclosed.

#### 59. Solution: A

- Statement I is correct — the George VI Ice Shelf lies within the area governed by the Antarctic Treaty System (ATS), which covers all land and ice shelves south of 60°S latitude.
- Statement II is incorrect — under ATS, no new territorial claims are recognized, and existing claims are held in abeyance. The continent is demilitarized and dedicated to peaceful scientific exploration, not exclusive control.

Scientists discovered thriving ecosystems with potential new species beneath the Antarctic ice shelf after the A-84 iceberg broke away from the George VI Ice Shelf.

About George VI Ice Shelf:

Located in:

1. Situated in Antarctica, occupying George VI Sound, which separates Alexander Island from Palmer Land.

Nation controlling it:

1. Governed under the Antarctic Treaty System, with research presence and exploration led by the United Kingdom and United States.

- Neighbouring Sea: Lies adjacent to the Bellingshausen Sea in the Southern Ocean.

#### Geographical Features:

1. Stretches from Ronne Entrance in the southwest to Niznik Island in the north, covering around 30 nautical miles.
2. Ice thickness exceeds 150 metres, with underlying waters reaching depths of 1,300 metres.
3. Characterized by extensive floating ice shelves, subglacial ecosystems, and complex underwater geography.

#### Recent Discoveries Beneath George VI Ice Shelf:

1. New Species Found: Discovery of giant sea spiders, octopi, corals, and a giant phantom jellyfish at depths of up to 1,300 meters.
2. Unexplored Ecosystems: Accessed after the break-away of the A-84 iceberg, revealing life in previously inaccessible regions.
3. Nutrient Transport Mystery: Possible unknown nutrient transport mechanisms sustaining life under 150-meter-thick ice.

#### Significance of Discoveries:

1. Scientific Breakthrough: Challenges existing assumptions about life in extreme, nutrient-deprived environments.
2. Climate Insights: Offers clues on how ecosystems may respond to melting ice shelves and climate change.
3. Marine Conservation: Underlines the need to protect fragile Antarctic marine ecosystems.

### 60. Solution: A

- Statement 1 is incorrect — TB Champions are not health professionals but trained TB survivors who engage in peer-led community awareness, breaking stigma and encouraging early detection.
- Statement 2 is correct — these survivors serve as relatable advocates, motivating patients through shared experiences, a critical approach in behavior change communication.
- Statement 3 is also correct — Meghalaya's implementation of this model in remote and tribal areas underscores its utility in last-mile healthcare outreach.

#### What is a TB Champion?

- A TB Champion is a tuberculosis survivor trained and engaged by the government to promote TB awareness, early detection, and treatment adherence within the community.
- The Meghalaya government has successfully implemented the TB Champion model to combat TB, especially in remote and tribal areas.

#### Key Features:

- **Community Engagement:** Survivors act as relatable advocates for testing and treatment.
- **Stigma Reduction:** They help dispel myths and fears surrounding TB.
- **Last-Mile Outreach:** Reach far-flung, inaccessible regions to ensure no patient is left behind.
- **Motivational Role:** Encourage continuous treatment and promote government support schemes.
- **Support 100-day Campaigns:** Align efforts with national initiatives for TB elimination.

### 61. Solution: B

- Statement 1 is incorrect because PMFBY does cover pre-sowing and post-harvest losses. Post-

harvest losses are covered for crops that have been harvested but are left in the field to dry for up to 14 days after harvest.

- Localized calamities like hailstorms, landslides, floods, and cloudbursts are covered under PMFBY (Statement 2 is correct).
- Mid-season adversity losses are also covered if crop yield is reduced by more than 50% due to drought, floods, prolonged dry spells, or unseasonal rainfall (Statement 3 is correct).

#### What is PMFBY?

- PMFBY is India's flagship crop insurance scheme, launched in Kharif 2016, to provide financial security to farmers against crop loss due to natural calamities.
- It aims to stabilize farm income, ensure credit flow, and promote sustainable agriculture. Nodal Ministry

- Ministry of Agriculture & Farmers' Welfare, Government of India.

#### Key Features of PMFBY

- **Affordable Premium Rates:** Farmers pay 2% for Kharif crops, 1.5% for Rabi crops, and 5% for commercial/horticulture crops.
  - ♦ The remaining premium is subsidized by the Central and State Governments.
- **Voluntary Participation:** Since 2020, PMFBY is optional for farmers and States/UTs.
- **Technology Integration:** Remote sensing, drones, and AI-based yield estimation enhance transparency.
  - ♦ Digitized claim settlement via Direct Benefit Transfer (DBT).
- **Grievance Redressal Mechanism**
  - ♦ District (DGRC) and State (SGRC) Grievance Committees handle disputes.
  - ♦ Krishi Rakshak Portal (KRPH) & toll-free number (14447) for real-time complaint resolution.
- **Implementation at State Level:** States select insurance companies through a transparent bidding process.
  - ♦ Joint assessment teams determine crop loss estimates.

### 62. Solution: C

- Option a is incorrect – Starlink operates in low-Earth orbit (LEO), not geostationary orbit (GEO). GEO satellites remain fixed relative to Earth but suffer from high latency (~600 ms).
- Option b is incorrect – Starlink still requires ground stations to relay data to the broader internet. While it reduces dependency on terrestrial infrastructure, it is not fully independent.
- Option c is correct – Starlink's LEO satellites (550 km altitude) provide lower latency (25-50 ms) compared to GEO satellites (~600 ms), making it suitable for real-time applications.

- Option d is incorrect – Starlink does not use fiber-optic communication in space but relies on radio frequency (RF) signals and phased-array antennas for data transmission.
- What is Starlink
  - ♦ A satellite-based internet service operated by SpaceX, founded by Elon Musk.
  - ♦ Designed to provide high-speed, low-latency broadband globally, especially in remote areas.
- Developed by: SpaceX
  - ♦ Launched in 2019, aims to deploy 42,000 satellites in low-Earth orbit (LEO).
- How Does Starlink Work?
  - ♦ Uses a constellation of LEO satellites to provide internet access.
  - ♦ A Starlink disconnects to the nearest satellite, which transmits data to and from ground stations connected to the internet.
  - ♦ Unlike fiber or cellular networks, Starlink does not depend on terrestrial infrastructure.
- Key Features:
  - ♦ Low Latency (25-50 ms): Suitable for gaming, video calls, and HD streaming.
  - ♦ Speeds up to 220 Mbps: Varies by region, with average speeds of 50-100 Mbps.
  - ♦ Global Coverage: Effective in areas with poor broadband infrastructure.
  - ♦ Portability: Works for homes, businesses, vehicles, ships, and aircraft.
  - ♦ Easy Installation: Self-installable dish and router for quick setup.

### 63. Solution: A

- YES-TECH (Yield Estimation System using Technology) – Uses AI-based yield estimation to predict crop output.
- WINDS (Weather Information Network Data System) – Focuses on automatic weather stations (AWS) for real-time weather monitoring.
- Krishi Rakshak Portal – Provides an online grievance redressal mechanism for farmers to track complaints.
- BHUVAN – Developed by ISRO, it utilizes GIS-based satellite monitoring to assess crop losses.

### 64. Solution: C

Statement 1 is correct – APEDA provides financial assistance to exporters under various schemes, such as the Agriculture Export Promotion Fund and the Market Development Assistance (MDA) Scheme, to improve international competitiveness.

Statement 3 is correct – APEDA promotes the Geographical Indication (GI) tagging of agricultural products such as Alphonso mangoes, Basmati rice, and Darjeeling tea to enhance their global market recognition and branding.

What is APEDA?

- APEDA (Agricultural and Processed Food

Products Export Development Authority) is a statutory body established under the APEDA Act, 1985.

- It functions under the Ministry of Commerce & Industry, Government of India.
- Headquarters: New Delhi, India.

Structure of APEDA

- Chairman: Appointed by the Government of India.
- Advisory Board: Comprises exporters, farmers, industry experts, and government representatives.
- Regional Offices: Located in Mumbai, Kolkata, Bangalore, Hyderabad, Guwahati to support exporters.

Functions of APEDA

- Export Promotion & Development: Facilitates agricultural and processed food exports.
  - ♦ Supports market research, branding, and export certification.
- Quality Standards & Certification: Regulates quality control and packaging of export products.
  - ♦ Implements Good Agricultural Practices (GAP) and Organic Farming Standards.
- Financial Assistance to Exporters: Provides subsidies and incentives for exporters and food processors.
  - ♦ Supports cold chain infrastructure development.
- Market Expansion & Global Trade: Organizes international trade fairs and buyer-seller meets.
  - ♦ Strengthens bilateral trade relations for agricultural exports.

### 65. Solution: B

- Statement 1 is correct – The mentorship program provides training to young authors from renowned writers and literary experts.
- Statement 2 is incorrect – The scheme is implemented by the National Book Trust (NBT), India, not Prasar Bharati.
- Statement 3 is correct – The scheme includes translation of selected works into multiple Indian languages, helping promote them internationally.

About PM's Scheme for Mentoring Young Authors (PM-YUVA 3.0):

- Established in: First launched in 2021; now in its third edition (2025).
- Ministry involved: Ministry of Education, under the Department of Higher Education.
- Aim:
  - ♦ To mentor young authors and develop a new generation of writers.
  - ♦ To promote reading, writing, and book culture in India.
  - ♦ To showcase Indian heritage, culture, and knowledge systems globally.
- Key Features:
  - ♦ Age Limit: Open to authors below 30 years.

- ◆ Mentorship Program: Selected writers will get training from renowned authors.
- Focus Areas:
  - ◆ Indian Diaspora in Nation Building
  - ◆ Indian Knowledge System
  - ◆ Makers of Modern India (1950-2025)
- Execution:
  - ◆ Implemented by the National Book Trust (NBT), India.
  - ◆ Books will be published and translated into multiple Indian languages.
  - ◆ Authors will engage in literary festivals and cultural exchanges.
  - ◆ Alignment with NEP 2020: Supports creative leadership development among youth.
- Coverage:
  - ◆ Open to participants across India, covering 22 Indian languages + English.
  - ◆ Encourages regional language literature to promote linguistic diversity.

### 66. Solution: B

- Option a is incorrect – The mission focuses on pond rejuvenation, not hydroelectric projects.
- Option b is correct – The initiative aims to develop and revive 75 water bodies in each district to improve water security and sustainability.
- Option c is incorrect – While urban water conservation is beneficial, the mission primarily focuses on rural areas.
- Option d is incorrect – The mission does not involve river-linking projects; it focuses on localized water conservation.
- What is Mission Amrit Sarovar?
  - ◆ A nationwide water conservation program to construct and rejuvenate ponds across India.
  - ◆ Aims to ensure water sustainability at the local level.
- Launched in: April 24, 2022, as part of Azadi Ka Amrit Mahotsav celebrations.
- Ministry involved: Led by the Ministry of Rural Development, with collaboration from eight other ministries.
- Implemented by: Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N), providing geospatial data for site identification.
- Key Features:
  - ◆ Target: Construct or rejuvenate 75 ponds per district.
  - ◆ Community Participation (Jan Bhagidaari): Involves local communities in water conservation.
  - ◆ Climate Resilience: Aims to strengthen groundwater levels and restore ecological balance.
- Railways' Role:
  - ◆ Identify and excavate new water bodies near railway sites.

- ◆ Utilize excavated material for railway embankment construction.
- ◆ Coordinate with State governments for implementation.

### 67. Solution: A

Statement 2 is incorrect.

Protohistory is the period between prehistory and history and refers to the people who didn't develop writing but were mentioned in the written records of a contemporary group.

Although the Harappans were literate people, their written materials could not be deciphered by historians. For the Vedic period, we don't have written records but orally transmitted literature (the Vedas).

### 68. Solution: B

Statement 3 is incorrect.

About Habitat Rights:

Habitat rights are granted under the Forest Rights Act and provide communities with rights over their customary territories, cultural practices, livelihood means, biodiversity knowledge, and protection of their natural and cultural heritage.

Habitat rights help safeguard traditional livelihoods and ecological knowledge, and they empower PVTG communities to access government schemes and initiatives to develop their habitats.

The Mankidia community in Odisha has been granted habitat rights, making them the sixth Particularly Vulnerable Tribal Group (PVTG) to receive this recognition under the Forest Rights Act, 2006.

### 69. Solution: D

Remote Sensing: It is the science of obtaining information about objects or areas from a distance, typically from aircraft or satellites. It collects data by detecting the reflected energy from the Earth. Hyperspectral imaging, sonar, and seismograms are common applications of remote sensing.

### 70. Solution: C

Option 4 is incorrect.

The disqualification of an MP convicted for an offence can happen in two instances.

First, if the offence for which he is convicted is listed in Section 8(1) of the Representation of the People Act of 1951. This includes certain specific offences such as promoting enmity between two groups, bribery and undue influence or personation at an election. Defamation does not fall under this list.

Second, if the lawmaker is convicted for any other offence but is sentenced for a period of two years or more. Section 8(3) of the RPA mandates that an MP can be disqualified if convicted and sentenced to not less than two years of imprisonment.

### 71. Solution: D

Genetic Engineering Appraisal Committee (GEAC) — the body that is responsible for approving proposals relating to genetically engineered organisms.

*Bacillus thuringiensis* cotton (or Bt cotton) is the only GM crop that has been approved for cultivation in India so far.

Mustard flowers contain both female (pistil) and male (stamen) reproductive organs, which makes the plant largely self-pollinating. The GM mustard developed by the DU scientists contains two alien genes — the first, 'barnase', gene interferes with pollen production and renders the plant male-sterile, and the resulting plant is crossed with fertile mustard flowers containing the second, 'barstar', gene which blocks the action of the barnase gene. The resulting plants are meant to be high-yield variants of mustard.

### 72. Solution: B

Statement 3 is incorrect.

*Listeria* or *Listeria monocytogenes* is a type of bacteria found in soil, vegetation, water, sewage and even the faeces of animals and humans. *Listeria*-contaminated food can lead to an infection called listeriosis.

Most people who ingest listeria-infected food do not fall sick or develop symptoms. The bacteria can be present in the infected person's system for up to two months until the symptoms present themselves, making it difficult to establish the connection between what was consumed and the infection.

Symptoms include vomiting, nausea, cramps, severe headache, constipation and fever.

People with compromised immune systems, pregnant persons and their offspring and the elderly (aged 65 and above) are vulnerable.

### 73. Solution: A

Statement 3 is incorrect.

India's states have the power to tax mining activities, and collecting "royalties" from mining leaseholders is entirely separate from, and does not interfere with, the power to impose taxes, a nine-judge Constitution Bench ruled.

Following the judgment, states can generate additional revenues in the form of taxes on mining activities and on the land used to conduct these activities.

Royalties refer to the fees paid to the owner of a product in exchange for the right to use that product. For example, if a movie studio wants to use an existing piece of music by a specific artist in their new film, they will have to pay a royalty fee that goes to the artist.

Section 9 of the Mines and Minerals (Development and Regulation) Act, 1957 (MMDRA) requires those who obtain leases to conduct mining activities to "pay royalty in respect of any mineral removed" to the individual or corporation who leased the land to them.

### 74. Solution: B

Statement 1 is incorrect.

Initiatives for Critical Minerals exploration:

Initiative	Details
Amendment to Mines and Minerals (Development and Regulation) Act	Amendment to MMR-DA in 2023 delisted six minerals, including Lithium and Niobium, from the list of atomic minerals, thereby allowing private sector participation
	Provided for the auction of mining leases and composite licenses of 24 critical and strategic minerals by the central government
Khanij Bidesh India Ltd	It is a government joint venture that aims to secure critical minerals globally, with a focus on Australia and South America.

Mineral	Description	Common Uses
Lithium	An alkali metal used in rechargeable batteries for mobiles, laptops, electric vehicles, and medical devices like pacemakers.	Rechargeable batteries, energy storage.
Rare Earth Elements	A group of 17-odd minerals including scandium, yttrium, cerium, and more.	Catalysts, magnets, alloys, glass, electronics, petroleum extraction, electric motors, wind turbines.

Niobium	A silvery metal with a corrosion-resistant oxide layer on its surface. The main source of Niobium is the mineral columbite, which is found in countries such as Canada, Brazil, Australia, and Nigeria.	Alloys (stainless steel), jet engines, construction materials, superconducting magnets (particle accelerators, MRI scanners).
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**75. Solution: C**

Statement 4 is incorrect.

Article 102 deals with the disqualification of MPs from either house of the Parliament.

Part (1) of the article lists the reasons why an MP can be disqualified. These include,

- (a) if he holds any office of profit under the Government of India or the Government of any State, other than an office declared by Parliament by law not to disqualify its holder;
- (b) if he is of unsound mind and stands so declared by a competent court;
- (c) if he is an undischarged insolvent;
- (d) if he is not a citizen of India, or has voluntarily acquired the citizenship of a foreign State, or is under any acknowledgment of allegiance or adherence to a foreign State;
- (e) if he is so disqualified by or under any law made by Parliament.

**76. Solution: c)**

The Supreme Court's ruling in this case established a crucial procedural safeguard for arrested individuals. By mandating the written disclosure of arrest grounds at the time of arrest, it ensures transparency in the arrest process and allows the accused to understand the basis of their detention immediately. This requirement serves multiple purposes: it protects against arbitrary arrests, enables the accused to prepare their defense

promptly, and upholds the fundamental right to personal liberty. The immediacy of this disclosure is particularly significant in the context of laws like PMLA, where bail provisions are stringent, making the validity of the arrest itself a critical factor in potential legal challenges.

**77. Solution: A**

- Statement 1 is correct – Mycelium Bricks are fire-resistant, but they can degrade under prolonged high temperatures.
- Statement 2 is correct – Mycelium naturally binds to organic matter, reducing the need for synthetic adhesives.
- Statement 3 is incorrect – Mycelium Bricks are not waterproof; they are naturally porous and require treatment to be used in wet conditions.
- Statement 4 is correct – Biodegradability can be controlled using heat treatment, resins, or coatings to increase longevity.
- What are Mycelium Bricks?
  - ♦ Bioengineered construction material made from fungal mycelia, sawdust, and husk.
  - ♦ Mycelium forms a fibrous network that solidifies into lightweight, durable bricks.
- Developed by:
  - ♦ Research in sustainable construction has driven their development.
  - ♦ Innovators like Roha Biotech (IIT Madras Incubated) and global research institutions are refining production techniques.
- Key Features:
  - ♦ Lightweight & Strong: High strength-to-weight ratio but weaker than concrete.
  - ♦ Thermal Insulation: Effective heat insulator, reducing energy consumption.
  - ♦ Fire-Resistant: Naturally resistant to flames but requires treatment for long-term durability.
  - ♦ Biodegradable: Decomposes naturally, reducing waste.
  - ♦ Eco-Friendly Production: Low carbon footprint as it does not require high-temperature kilns.

**78. Solution: C**

- Option a is incorrect – While cash transactions are a concern in terror financing, the NMFT Conference is focused on broader financial tracking mechanisms.
- Option b is incorrect – NMFT does not ban cryptocurrencies, but it discusses their potential misuse in financing terrorism.
- Option c is correct – NMFT provides a platform for intelligence-sharing, legal cooperation, and policy formulation to curb terror financing globally.
- Option d is incorrect – There is no single regulatory body under NMFT; rather, it works with FATF, UN agencies, and national governments.

About No Money for Terror (NMFT) Conference:

- What is NMFT?

- ◆ A global ministerial-level initiative aimed at combating terrorist financing.
- ◆ Platform for intelligence sharing, legal cooperation, and policy formulation against terror funding.
- Established in: 2018, first held in Paris.
  - ◆ Under control of: Financial Action Task Force (FATF) & UN Counter-Terrorism Bodies.
- Aim:
  - ◆ Disrupt financial networks of terrorist organizations.
  - ◆ Strengthen global financial monitoring and regulatory frameworks.
  - ◆ Facilitate international cooperation in countering terror financing.
- Functions & Features:
  - ◆ Intelligence Sharing: Enhances real-time data exchange on financial transactions linked to terrorism.
  - ◆ Legal Reforms & Regulations: Encourages nations to update counter-terrorism laws and financial tracking systems.
  - ◆ Monitoring Digital Transactions: Addresses cryptocurrency risks, online crowdfunding, and emerging terror financing methods.
  - ◆ Strengthening Banking & Financial Oversight: Works with banks, fintech companies, and financial intelligence units to detect suspicious transactions.
  - ◆ Capacity Building: Provides training, technical expertise, and resources to nations for effective counter-terrorism operations.

### 79. Solution: C

- Statement 1 is correct – NCDC provides funding and capacity-building support to Farmer Producer Organizations (FPOs) under its cooperative financing schemes.
- Statement 2 is correct – NCDC has launched digital initiatives to help cooperatives market their products online through e-commerce platforms.
- Statement 3 is correct – The Mission Sahakar 2022 aimed at doubling the cooperative sector's contribution to India's GDP, aligning with the government's push for cooperative-led rural economic growth.

About National Cooperative Development Corporation (NCDC)

What is NCDC?

The National Cooperative Development Corporation (NCDC) is a statutory organization dedicated to promoting, financing, and supporting cooperative institutions in India.

- Established in: Founded in 1963 under the National Cooperative Development Corporation Act, 1962.
- Nodal Ministry: Functions under the Ministry of Cooperation, Government of India.
- Headquarters: New Delhi, India.

Functions of NCDC:

- Financial Assistance: Provides funds for cooperative development in agriculture, rural industries, and allied sectors.
- Capacity Building: Organizes training programs to enhance cooperative management skills.
- Policy Implementation: Supports government schemes for rural economic empowerment through cooperatives.
- Project Development: Assists in infrastructure creation, storage facilities, and marketing support for cooperatives.
- Loan & Subsidy Disbursement: Provides concessional loans and financial grants to cooperative societies.

### 80. Solution: D

- Statement 1 is correct: The Bill introduces special visa categories to attract high-skilled professionals, researchers, and investors, aligning with India's economic growth and global talent needs.
- Statement 2 is correct: It increases penalties on carriers (airlines, shipping companies) for transporting unauthorized foreign nationals without proper documentation, ensuring better compliance with immigration laws.
- Statement 3 is correct: The Bill gives the Indian government the power to deny visas based on diplomatic relations with other countries, allowing it to block entries from nations that pose security or foreign policy risks.

About Immigration and Foreigners Bill, 2025:

What is the Immigration Bill?

- The bill aims to consolidate and modernize existing immigration laws in India.
- It seeks to replace four existing laws:
  - ◆ The Passport (Entry into India) Act, 1920
  - ◆ The Registration of Foreigners Act, 1939
  - ◆ The Foreigners Act, 1946
  - ◆ The Immigration (Carriers' Liability) Act, 2000

Nodal Ministry

- Ministry of Home Affairs (MHA), Government of India

Key Features of the Bill

- Regulation of Foreign Nationals: Mandates passport and visa requirements for entry and stay in India.
  - ◆ Establishes a clear legal framework for deportation, detention, and registration.
- Centralized Database & Monitoring: Introduces digital tracking of foreigners, ensuring real-time immigration data.
  - ◆ Makes hospitals, universities, and institutions responsible for reporting foreign nationals.
- Streamlining Existing Laws: Eliminates redundant and outdated provisions from pre-Constitution laws.

- ◆ Brings immigration regulations under a single comprehensive law.
- No Appeal Mechanism for Immigration Officers' Decisions: Grants immigration officers absolute authority in deciding entry and stay.
  - ◆ Critics argue this violates natural justice and constitutional rights.

### 81. Solution: A

Statement 2 is incorrect.

Protohistory is the period between prehistory and history and refers to the people who didn't develop writing but were mentioned in the written records of a contemporary group.

Although the Harappans were literate people, their written materials could not be deciphered by historians. For the Vedic period, we don't have written records but orally transmitted literature (the Vedas).

### 82. Solution: B

Statement 3 is incorrect.

About Habitat Rights:

- Habitat rights are granted under the Forest Rights Act and provide communities with rights over their customary territories, cultural practices, livelihood means, biodiversity knowledge, and protection of their natural and cultural heritage.
- Habitat rights help safeguard traditional livelihoods and ecological knowledge, and they empower PVTG communities to access government schemes and initiatives to develop their habitats.
- The Mankidia community in Odisha has been granted habitat rights, making them the sixth Particularly Vulnerable Tribal Group (PVTG) to receive this recognition under the Forest Rights Act, 2006.

### 83. Solution: D

Remote Sensing: It is the science of obtaining information about objects or areas from a distance, typically from aircraft or satellites. It collects data by detecting the reflected energy from the Earth. Hyperspectral imaging, sonar, and seismograms are common application of remote sensing.

### 84. Solution: C

Option 4 is incorrect.

The disqualification of an MP convicted for an offence can happen in two instances.

First, if the offence for which he is convicted is listed in Section 8(1) of the Representation of the People Act of 1951. This includes certain specific offences such as promoting enmity between two groups, bribery and undue influence or personation at an election. Defamation does not fall under this list.

Second, if the lawmaker is convicted for any other offence but is sentenced for a period of two years or more. Section 8(3) of the RPA mandates that an MP

can be disqualified if convicted and sentenced to not less than two years of imprisonment.

### 85. Solution: D

Genetic Engineering Appraisal Committee (GEAC) — the body that is responsible for approving proposals relating to genetically engineered organisms.

Bacillus thuringiensis cotton (or Bt cotton) is the only GM crop that has been approved for cultivation in India so far.

Mustard flowers contain both female (pistil) and male (stamen) reproductive organs, which makes the plant largely self-pollinating. The GM mustard developed by the DU scientists contains two alien genes — the first, 'barnase', gene interferes with pollen production and renders the plant male-sterile, and the resulting plant is crossed with fertile mustard flowers containing the second, 'barstar', gene which blocks the action of the barnase gene. The resulting plants are meant to be high-yield variants of mustard.

### 86. Solution: B

Statement 3 is incorrect.

Listeria or Listeria monocytogenes is a type of bacteria found in soil, vegetation, water, sewage and even the faeces of animals and humans. Listeria-contaminated food can lead to an infection called listeriosis.

Most people who ingest listeria-infected food do not fall sick or develop symptoms. The bacteria can be present in the infected person's system for up to two months until the symptoms present themselves, making it difficult to establish the connection between what was consumed and the infection.

Symptoms include vomiting, nausea, cramps, severe headache, constipation and fever.

People with compromised immune systems, pregnant persons and their offspring and the elderly (aged 65 and above) are vulnerable.

### 87. Solution: A

Statement 3 is incorrect.

India's states have the power to tax mining activities, and collecting "royalties" from mining leaseholders is entirely separate from, and does not interfere with, the power to impose taxes, a nine-judge Constitution Bench ruled.

Following the judgment, states can generate additional revenues in the form of taxes on mining activities and on the land used to conduct these activities.

Royalties refer to the fees paid to the owner of a product in exchange for the right to use that product. For example, if a movie studio wants to use an existing piece of music by a specific artist in their new film, they will have to pay a royalty fee that goes to the artist.

Section 9 of the Mines and Minerals (Development and Regulation) Act, 1957 (MMDRA) requires those

who obtain leases to conduct mining activities to “pay royalty in respect of any mineral removed” to the individual or corporation who leased the land to them.

**88. Solution: B**

Statement 1 is incorrect.

Initiatives for Critical Minerals exploration:

Initiative	Details
Amendment to Mines and Minerals (Development and Regulation) Act	Amendment to MMRDA in 2023 delisted six minerals, including Lithium and Niobium, from the list of atomic minerals, thereby allowing private sector participation
	Provided for the auction of mining leases and composite licenses of 24 critical and strategic minerals by the central government
Khanij Bidesh India Ltd	It is a government joint venture that aims to secure critical minerals globally, with a focus on Australia and South America.

Mineral	Description	Common Uses
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Rare Earth Elements	A group of 17-odd minerals including scandium, yttrium, cerium, and more.	Catalysts, magnets, alloys, glass, electronics, petroleum extraction, electric motors, wind turbines.
Niobium	A silvery metal with a corrosion-resistant oxide layer on its surface. The main source of Niobium is the mineral columbite, which is found in countries such as Canada, Brazil, Australia, and Nigeria.	Alloys (stainless steel), jet engines, construction materials, superconducting magnets (particle accelerators, MRI scanners).

**89. Solution: C**

Statement 4 is incorrect.

Article 102 deals with the disqualification of MPs from either house of the Parliament.

Part (1) of the article lists the reasons why an MP can be disqualified. These include,

(a) if he holds any office of profit under the Government of India or the Government of any State, other than an office declared by Parliament by law not to disqualify its holder;

(b) if he is of unsound mind and stands so declared by a competent court;

(c) if he is an undischarged insolvent;

(d) if he is not a citizen of India, or has voluntarily acquired the citizenship of a foreign State, or is under any acknowledgment of allegiance or adherence to a foreign State;

(e) if he is so disqualified by or under any law made by Parliament.

**90. Solution: C**

The Supreme Court’s ruling in this case established a crucial procedural safeguard for arrested individuals. By mandating the written disclosure of arrest grounds at the time of arrest, it ensures transparency in the arrest process and allows the accused to understand the basis of their detention immediately. This requirement serves multiple purposes: it protects against arbitrary arrests, enables the accused to prepare their defense promptly, and upholds the fundamental right to personal liberty. The immediacy of this disclosure is particularly significant in the context of laws like PMLA, where bail provisions are stringent, making the validity of the arrest itself a critical factor in potential legal challenges.

**91. Solution: C**

Statement 1 is incorrect as the integration of Hyderabad required Operation Polo, a military action to resolve the Nizam’s refusal to join India.

Statement 2 is also incorrect; Patel was not the primary negotiator for Kashmir’s accession. Prime Minister Nehru, given the complex political sensitivities, led Kashmir’s integration, though Patel’s successful integration of other states set a guiding example. Patel’s pragmatic approach helped unify India while reducing potential conflict.

**92. Solution: B**

The main objective of the Digital India Common Service Center (DICSC) project is to bridge the digital divide in rural areas by providing digital and e-governance services at the grassroots level. By establishing model centers in gram panchayats, the initiative ensures that rural citizens have access to essential services like Aadhaar, banking, tele-law, telemedicine, and more, promoting digital inclusion and literacy. Unlike urban-focused projects or agriculture-specific initiatives, this project focuses on improving digital infrastructure and service accessibility for rural communities.

**93. Solution: D**

Statement 1 is false as Patel strongly opposed the Nawab's decision to accede to Pakistan, given Junagadh's geographical position within India. Patel responded decisively, leading to its reintegration with India rather than conceding to Pakistan.

Statement 2 is incorrect because Patel initiated a public referendum in Junagadh, which indeed resulted in a majority vote for joining India, not remaining independent.

Statement 3 is incorrect as Patel's approach included the threat of force due to the Nawab's resistance, showcasing his readiness to use decisive measures when diplomacy failed. This example reflects Patel's pragmatism and commitment to maintaining India's territorial integrity, which played a crucial role in consolidating the newly independent nation.

**94. Solution: B**

Statement 3 is incorrect.

Peripheral urbanisation refers to the expansion of cities into adjacent rural regions, creating peri-urban zones that integrate both urban and rural elements.

This form of urbanisation often results from a need for more land for housing, industry, and infrastructure due to population growth in central areas.

Peri-urban areas are characterised by mixed land use, where agriculture and industry coexist.

Urban infrastructure like roads, utilities, and public facilities extends into these areas, contradicting statement 3.

Peripheral urbanisation can lead to economic growth for nearby rural populations, as they gain access to urban markets and employment opportunities.

**95. Solution: C**

- Natural urbanisation is a form of urban growth derived from the natural increase in population rather than migration. The defining factor here is the high birth rates within urban environments.
- Cities with robust medical services and social infrastructure experience this growth more as improved healthcare reduces infant mortality rates and increases overall life expectancy.
- Additionally, this growth excludes migration effects, as it's based solely on the birth-death rate balance within urban populations.
- Developing nations often see high rates of natural urbanisation due to relatively high birth rates in urban areas compared to developed countries.

**96. Solution: C**

AMRUT, or the Atal Mission for Rejuvenation and Urban Transformation, is primarily focused on providing basic urban services, such as clean water, sewerage, and efficient public transportation, confirming statement 1.

Statement 3 is also correct, as AMRUT emphasizes sustainable urban infrastructure and inclusivity by upgrading services in existing cities and urban areas.

However, statement 2 is incorrect because AMRUT does not focus on creating new cities but on improving services in existing urban areas.

**97. Solution: B**

Statement 1 is incorrect because ICMR does not primarily fund private healthcare companies; rather, it supports medical research that aligns with national health priorities, regardless of the sector.

Statement 2 is correct as one of ICMR's key functions is to translate medical research findings into public health applications, contributing to better health policies and interventions.

Statement 3 is also correct, as ICMR conducts research targeting national health challenges, aiming to address the health needs of society.

**98. Solution: C**

The LignoSat mission, developed by Kyoto University and Sumitomo Forestry, is designed to test the durability and resilience of Japanese honoki wood in space conditions for six months.

Option a) is incorrect as the mission does not involve synthetic materials; it focuses on natural wood.

Option b) is incorrect as Japanese cedar wood is not the wood being tested; honoki (magnolia) wood is used.

Option d) is incorrect because LignoSat is not an Earth observation mission.

**99. Solution: B**

Statement 1 is correct, as the 30-by-30 target aims to conserve 30% of both land and marine areas by 2030, reflecting a balanced focus on terrestrial and marine biodiversity.

Statement 3 is also correct, as COP-16 stressed the importance of integrating biodiversity targets like the 30-by-30 goal into national policies and aligning them with climate change actions.

Statement 2 is incorrect because the target is not exclusively focused on marine areas; it covers both land and marine ecosystems.

Statement 4 is incorrect as the target is intended to be globally inclusive, with all countries, both developed and developing, contributing to its achievement.

**100. Solution: C**

The Kolong River is a distributary, not a tributary, of the Brahmaputra River, meaning it branches out from the Brahmaputra rather than feeding into it, making statement 2 incorrect.

Statement 1 is also incorrect as the Kolong River does not originate in the hills of Meghalaya but rather flows through Morigaon district in Assam.