

Weekly EXPECTED **CURRENT** **AFFAIRS**

for

IAS EXAMINATION



From

10th Aug *to* **15th Aug 2026**

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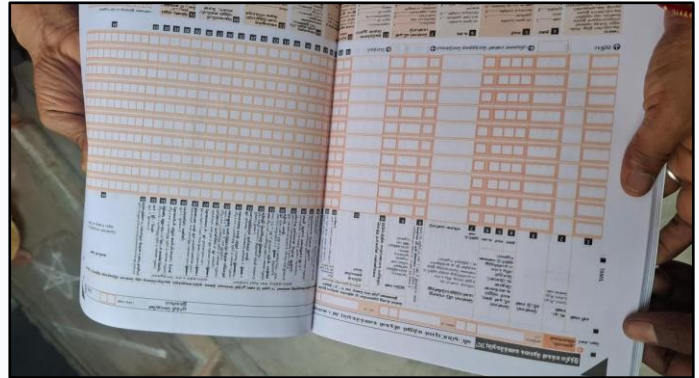
Prelims Test Series

POLITY & GOVERNANCE

1.1. LADAKH TO LEAD INDIA'S FIRST CASTE CENSUS

Context

- Ladakh will become the first place in independent India to enumerate caste as part of a regular Census in the Census 2027.
- Ladakh and other snow-bound areas will conduct population enumeration earlier, in **September 2026**, due to climatic constraints.



What is Census?

- A **Census** is the official, periodic enumeration of a country's population, collecting demographic, social and economic information for planning and policymaking.
- The **Census of India** is the **official population enumeration of India**, conducted by the **Office of the Registrar General and Census Commissioner, India**, under the **Ministry of Home Affairs**.
- **Key Points**
 - **First Census in India: 1872** — conducted during the colonial period, but it was not conducted simultaneously throughout India.
 - **First synchronous Census: 1881** — conducted simultaneously across India.
 - **Frequency:** Traditionally conducted **every 10 years**.
 - **Last completed Census: 2011.**
 - **Next Census:** The **2021 Census was postponed**; the Government has announced that the next population census will be conducted as **Census 2027**.
 - **Legal basis: Census Act, 1948.**
 - **Authority:** Registrar General & Census Commissioner, India.

Why will Ladakh conduct Census earlier?

- Severe winter conditions make enumeration difficult during the normal census period.
- Therefore, Ladakh and specified snow-bound areas of **Jammu & Kashmir, Himachal Pradesh and Uttarakhand** follow a **non-synchronous schedule**.
- This will also be the **first Census of Ladakh as a Union Territory**.

Caste-Based Census

- **Meaning:** A caste-based census involves collecting information on the **caste composition of the population** during a population census. Such data can help assess the **socio-economic conditions, inequalities and representation** of different caste groups and support evidence-based policymaking and affirmative action.

- **Background:** In **2011**, the Government conducted the **Socio-Economic and Caste Census (SECC)**. However, the caste-related data were **not officially published**, partly due to concerns over data quality and inconsistencies arising from variations in how people reported their caste identities.
- **Census 2027:** The upcoming **Census 2027** is significant because it is expected to include **caste enumeration as part of the regular Census**, making it the first regular Census after Independence to collect caste-wise population data.
- **Constitutional Framework:** The Constitution provides a framework for addressing the socio-economic backwardness of disadvantaged groups, particularly through **Articles 16(4) and 340**. However, the absence of comprehensive caste-wise population data has often posed challenges for evidence-based assessment of backwardness and representation.
- **Bihar Caste Survey:** In **2023**, **Bihar conducted a caste-based survey**, providing state-level data on the caste composition and socio-economic conditions of its population.

Legal & Constitutional Anchors

- **Census Act, 1948** – statutory basis.
- **Census Rules, 1990** – operational framework.
- Conducted by **Registrar General & Census Commissioner of India**, under the **Ministry of Home Affairs**.
- **Constitution:** Census is a **Union subject** under **Entry 69, Union List, Seventh Schedule**.

Q. With reference to Census 2027, consider the following statements:

1. It will be India's first fully digital Census.
2. Caste enumeration will be undertaken during Population Enumeration.
3. Ladakh will have a separate reference date from most of India.
4. Census is a subject under the concurrent List.

Which of the statements given above are correct?

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

Answer: (b) 1, 2, and 3 only

- **Statement 1** – Correct: Census 2027 will be India's first fully digital Census.
- **Statement 2** – Correct: Caste enumeration will be conducted during the Population Enumeration phase.
- **Statement 3** – Correct: Ladakh will have a separate reference date of 1 October 2026, unlike 1 March 2027 for most of India.
- **Statement 4** – Incorrect: Census is a Union subject under Entry 69, Union List of the Seventh Schedule.

1.2. PRESIDENT'S COLOUR CONFERRED ON PUDUCHERRY POLICE

Context

- Union Home Minister **Amit Shah** presented the **President's Colour** to **Puducherry Police**, the highest honour for a police force, for its **dedication to internal security and public service**. It highlights the importance of **policing, national security and constitutional governance in Union Territories**.



Key Facts of the Puducherry Presentation

- With this conferment, **Puducherry Police** becomes the **18th State/Union Territory police force** in the country to receive the honour, joining earlier recipients such as the **Indian Navy** and the **Indian Coast Guard**; the force, numbering fewer than **5,000 personnel**, secures a Union Territory whose jurisdiction spans non-contiguous enclaves in **Tamil Nadu, Andhra Pradesh (Yanam) and Kerala (Mahe)**.
- Approval Date:** Conferment approved by **President Droupadi Murmu** on **8 May 2026**.
- Venue:** **Puducherry Armed Police Ground, Gorimedu**.
- Recipient:** Colour handed over to the **Ensign Officer, Puducherry Police**, in the presence of **DGP Shalini Singh**.
- Dignitaries Present:** Lt Governor **K. Kailashnathan**, Chief Minister **N. Rangasamy**, and Home Minister **A. Namassivayam**.

Related Announcements During the Visit

- New Criminal Laws:** Described as resting on three pillars -- **technology, timeline and trust**.
- Har Ghar Tiranga Yatra:** Flagged off at **Murugaa Theatre Signal**; this year's edition focuses on **150 years of Vande Mataram**.

Significance

- Puducherry** becomes the **18th State/Union Territory** police force to receive the President's Colour.
- Reinforces cooperative federalism in the recognition of internal security institutions.
- Underscores India's shift toward a technology-driven, time-bound criminal justice framework.

About the President's Colour

- Origin:** First conferred on the **Indian Navy** on **27 May 1951** by President **Rajendra Prasad**.
- Eligibility:** A minimum of **25 years** of exemplary, meritorious service in peace and war.
- Also Known as:** The **Nishaan**; recipient-unit officers wear a special emblem on the left uniform sleeve.
- Approving Authority:** Conferred by the **President of India** as Supreme Commander, on recommendation of the **Ministry of Home Affairs**.

Q. Consider the following statements:

- I. The **President's Colour** was first conferred on the **Indian Navy** in **1951**.
- II. A minimum of **15 years** of meritorious service is required for a police force to be eligible for the **President's Colour**.
- III. **Puducherry Police** became the **18th State/Union Territory** police force to receive the **President's Colour**.

Which of the statements given above is/are correct?

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

Answer: c. I and III only

Explanation

Statement I is Correct: The first **President's Colour** was conferred upon the **Indian Navy** in **1951** by President **Rajendra Prasad**.

Statement II is Incorrect: The eligibility criterion is a minimum of **25 years** of meritorious service, not 15 years.

Statement III is Correct: With this conferment, **Puducherry Police** became the **18th State/Union Territory** police force in India to receive the **President's Colour**.

1.3. CANCER AS A NOTIFIABLE DISEASE IN INDIA

Context

- The **Supreme Court** has asked **19 States/Union Territories** that have not yet notified cancer to take steps towards declaring it a “**notifiable disease**”, following a PIL seeking uniform and mandatory reporting of cancer cases across India. The issue arises from the absence of a **nationwide mandatory cancer-reporting mechanism**.



What is a Notifiable Disease?

- A **notifiable disease** is a disease whose occurrence must be **reported to designated public-health authorities by law**.
- Notification enables the government to **collect systematic data, monitor disease trends, identify high-burden areas and formulate targeted interventions**.
- Important:** *Notifiable does not necessarily mean communicable*. Cancer is a **non-communicable disease (NCD)**, but mandatory reporting can still be used for surveillance and planning.

Why is Cancer Notification Important?

- Early detection:** Helps identify disease patterns and high-risk populations.
- Disease surveillance:** Provides more comprehensive data on incidence, mortality and geographical distribution.
- Resource allocation:** Helps governments plan cancer hospitals, diagnostic facilities, specialists and medicines.

- **Targeted prevention:** Allows identification of regional risk factors such as **tobacco use, pollution and occupational exposures**.
- **Policy formulation:** Enables evidence-based cancer-control strategies.

Current Status in India

- **Cancer is NOT a nationally notifiable disease** in India.
- However, several States/UTs have independently made cancer notifiable.
- **Telangana became the latest state in April 2026**, joining the existing group and bringing the total to **17 States/UTs**.
- Therefore, the absence of a **uniform national mechanism** creates gaps in cancer reporting.
- **Why is this a problem?**
 - India's cancer surveillance relies significantly on the **National Cancer Registry Programme (NCRP)**, but registry coverage is limited and does not provide a complete real-time picture of the country's cancer burden.

About National Cancer Registry Programme (NCRP)

- **Established:** 1981
- **Implemented by:** ICMR – National Centre for Disease Informatics and Research (ICMR-NCDIR).
- **Purpose:** Collection and analysis of data on **cancer incidence, mortality and patterns**.
- Uses **Population-Based Cancer Registries (PBCRs)** and **Hospital-Based Cancer Registries (HBCRs)**.
- A major limitation is that registry-based coverage does not encompass the entire Indian population.

Q. With reference to cancer being declared a “notifiable disease” in India, consider the following statements:

1. A notifiable disease necessarily has to be a communicable disease.
2. Notification of cancer can help in systematic disease surveillance and resource allocation.
3. The National Cancer Registry Programme is implemented by the ICMR.

Which of the statements given above is/are correct?

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

Answer: B. 2 and 3 only

- **Statement 1 is Incorrect:** A notifiable disease need not necessarily be communicable; cancer is a **non-communicable disease** but can be made notifiable for surveillance.
- **Statement 2 is Correct:** Mandatory reporting can improve cancer surveillance, data quality and health-resource planning.
- **Statement 3 is Correct:** The **National Cancer Registry Programme (NCRP)** is implemented under the **ICMR-National Centre for Disease Informatics and Research (ICMR-NCDIR)**.

2.1. E20 PETROL: CHLORIDE CONTAMINATION CONTROVERSY

Context

- Recently, India's state-owned Oil Marketing Companies (OMCs)—Indian Oil, BPCL and HPCL—rejected allegations of excessive **chloride contamination and moisture in E20 petrol**. Nationwide testing reportedly found chloride levels within permissible limits and no evidence of widespread water contamination.



What is E20 Petrol?

- E20 = Petrol containing up to 20% ethanol blended with gasoline**, generally expressed by volume.
- It is part of India's **Ethanol Blended Petrol (EBP) Programme**.
- Ethanol**: Biofuel alcohol produced mainly from agricultural feedstocks such as sugarcane and grains.
- BIS standard **IS 17021:2018** specifies E20 fuel as an admixture of **20% anhydrous ethanol + 80% ethanol-free motor gasoline**.

Why is Ethanol Blended with Petrol?

- Reduce crude-oil imports** and improve energy security.
- Promote domestic renewable fuel production**.
- Provide an additional market for **sugarcane, maize and other feedstocks**.
- Reduce dependence on fossil fuels and potentially lower **lifecycle greenhouse-gas emissions**.
- Support farmers and the **bioeconomy**.

What did the Latest Testing Find?

1. According to the OMCs' nationwide assessment:

- 100+ petrol samples** were tested for chloride.
- Samples from refineries reportedly showed chloride levels of **≤1 ppm**.
- Ethanol samples from around **80 distilleries** were tested.
- E20 samples from **80+ depots/terminals** were also examined.
- OMCs reported chloride levels in these E20 samples at **below 3 ppm**.
- They also stated that checks did **not find water ingress in underground storage tanks** across the fuel-station network.

2. Current controversy

- The issue gained attention after the **Society of Indian Automobile Manufacturers (SIAM)** had raised concerns about chloride/moisture and possible damage to vehicle components, but subsequently **withdrew its earlier warning**, stating that the data required further verification.

Why moisture is an Issue?

- The issue is **not that ethanol itself is a contaminant**; the concern is about **excess** chloride/moisture beyond prescribed fuel-quality limits.
- **Ethanol is hygroscopic**, it has a strong tendency to absorb water.
- Excess water can potentially cause: Water ingress leading to ethanol-water interaction then phase separation & fuel-system/engine problems.

About Chloride

- Chloride/inorganic chloride can be an **undesirable contaminant in fuel**.
- At elevated concentrations, it can contribute to **corrosion and deterioration of fuel-system components**.
- Hence, fuel-quality standards prescribe limits for parameters such as **inorganic chloride, water content, acidity and electrical conductivity**.

Q. With reference to E20 petrol, consider the following statements:

1. E20 petrol contains 20% ethanol blended with 80% gasoline by volume.
2. Ethanol is hygroscopic and can absorb moisture from its surroundings.
3. The Ethanol Blended Petrol (EBP) Programme is implemented by the Ministry of Petroleum and Natural Gas.

Which of the statements given above is/are correct?

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

Answer: D. 1, 2 and 3

Statement 1 is Correct: E20 petrol contains **20% ethanol and 80% gasoline by volume**. The "20" in E20 specifically represents the ethanol percentage.

Statement 2 is Correct: Ethanol is **hygroscopic**, meaning it has a tendency to **absorb water/moisture from the surroundings**. Excess moisture can affect fuel quality and may contribute to phase separation and corrosion-related concerns.

Statement 3 is Correct: The **Ethanol Blended Petrol (EBP) Programme** is implemented under the **Ministry of Petroleum and Natural Gas (MoPNG)** to promote ethanol blending in petrol and reduce dependence on fossil fuels.

2.2. INDIA'S FOREX RESERVES RISE BY \$10.5 BILLION

Context

- India's **foreign exchange reserves increased by \$10.52 billion to \$692.87 billion**, according to the latest weekly data released by the RBI.
- The rise was mainly driven by an increase in **Foreign Currency Assets (FCA)**.



What are Foreign Exchange Reserves?

- Forex reserves are **external assets held or controlled by the RBI** to meet international payment requirements and manage external-sector stability.
- They act as a financial cushion against **global economic shocks and exchange-rate volatility**.

Components of India's Forex Reserves

India's foreign exchange reserves consist of four major components:

1. Foreign Currency Assets (FCA)

- The largest component of India's forex reserves.
- Includes assets held in major foreign currencies such as the **US dollar, euro, pound sterling and yen**.
- FCA increased by **\$8.75 billion to \$546.68 billion** during the reported week.

2. Gold Reserves

- Gold held by the RBI forms part of India's official reserves.
- Provides diversification and acts as a store of value during global financial uncertainty.

3. Special Drawing Rights (SDRs)

- International reserve assets created by the **International Monetary Fund (IMF)**.
- SDR is **not a currency**, but represents a potential claim on freely usable currencies of IMF member countries.

4. Reserve Tranche Position (RTP)

- India's **reserve position with the IMF**.
- It can be accessed by India when required, subject to applicable IMF arrangements.

Why are Forex Reserves Important?

- **External Stability:** Provide a buffer against external financial shocks.
- **Import Cover:** Help meet international payment and import requirements.
- **Currency Stability:** RBI can use forex reserves to manage excessive volatility in the rupee.
- **Investor Confidence:** Strong reserves improve confidence in India's external-sector position.
- **Crisis Management:** Provide protection against sudden capital outflows and global financial stress.

Q. With reference to India's Foreign Exchange Reserves, consider the following statements:

1. Foreign Currency Assets constitute the largest component of India's forex reserves.
2. Special Drawing Rights are created by the International Monetary Fund.
3. India's forex reserves consist only of foreign currency assets and gold.

Which of the statements given above is/are correct?

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

Answer: (a)

Explanation

- **Statement 1: Correct.** FCA is the largest component of India's forex reserves.
- **Statement 2: Correct.** SDRs are international reserve assets created by the IMF.
- **Statement 3: Incorrect.** Forex reserves also include **SDRs and Reserve Tranche Position** with the IMF.

2.3. INDIA'S FIRST CORPORATE-RUN TRAIN: TEJAS EXPRESS

Context

- Recently, the Lucknow–New Delhi Tejas Express has been renamed 'Sprite Tejas Express' after IRCTC awarded its advertising and branding rights to Sprite, a unit of Coca-Cola India Private Limited.



Key Important Facts

1. The Tejas Express

- **Status:** It is India's first corporate train to operate on the Indian Railways network.
- **Introduction:** Operations commenced on October 4, 2019.
- **Operates Between:** Lucknow Junction (LJN), Uttar Pradesh to New Delhi (NDLS).
- **Operator:** The train is fully operated and maintained by IRCTC, a Central Public Sector Enterprise under the Ministry of Railways, rather than directly by Indian Railways.
- **Train Category:** It is a semi-high-speed train featuring modern onboard passenger amenities.
- **Speed Capability:** The coaches are designed to run at speeds up to 200 kmph. However, current track-related infrastructure limits its maximum operational speed to 160 kmph.

2. Manufacturing Hub

- The modern coaches of the Tejas Express are manufactured at the Rail Coach Factory (RCF) in Kapurthala, Punjab.

3. Significance of the Move

- **Non-Fare Revenue:** The co-branding and vinyl wrapping deal represents a significant push by IRCTC and Indian Railways to monetize railway assets and boost non-ticket revenue streams.
- **Privatization in Railways:** The operation of Tejas by IRCTC was a pilot project for the Ministry of Railways' broader initiative to introduce private operators in passenger train services to improve efficiency and world-class services.

Q. With reference to the Tejas Express, consider the following statements:

1. The Lucknow–New Delhi Tejas Express was the first passenger train operated by IRCTC.
2. IRCTC is a private company independent of the Ministry of Railways.

3. Tejas Express is associated with premium passenger amenities such as catering, housekeeping and infotainment services.
4. The Lucknow–New Delhi Tejas Express commenced its inaugural commercial service in 2019.
- Which of the statements given above are correct?

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

Answer: (a) 1, 3 and 4 only

Explanation

- **Statement 1: Correct.** The Lucknow–New Delhi Tejas was the first passenger train operated by IRCTC under the corporate-train model.
- **Statement 2: Incorrect.** IRCTC is a **Government of India public-sector undertaking under the Ministry of Railways**, not an independent private company.
- **Statement 3: Correct.** The service introduced premium facilities including food and beverage services, housekeeping, security and infotainment.
- **Statement 4: Correct.** The first IRCTC Tejas Express began operations on **4 October 2019** on the Lucknow–New Delhi route.

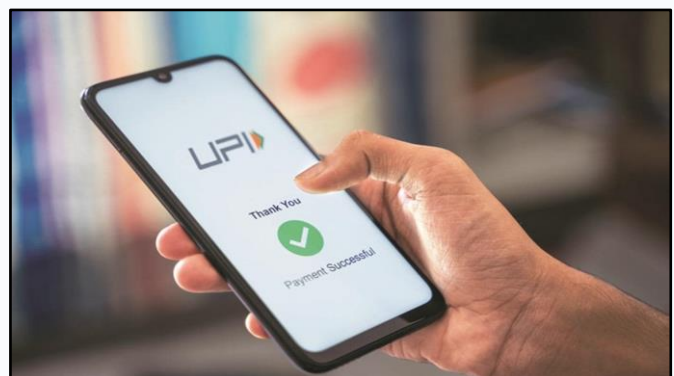
2.4. GOVT. EXPLORES MDR MODEL TO MAKE UPI SELF-SUSTAINING

Context

- **A Parliamentary Standing Committee on Finance has suggested making UPI financially self-sustaining**, including options such as MDR on selected transactions or a tiered incentive model.

What is UPI?

- **UPI (Unified Payments Interface)**, developed by **NPCI**, enables real-time bank-to-bank digital payments through UPI IDs, mobile numbers and QR codes.
- It supports both P2P (Person-to-Person) and P2M (Person-to-Merchant) transactions.



What is Merchant Discount Rate (MDR)?

- **MDR** is a fee charged to a merchant for accepting digital payments.
- It is generally shared among participants involved in processing the transaction, including the **payment service provider, acquiring bank, issuing bank and payment network**, depending on the payment instrument.

Zero-MDR Regime for UPI

- Since **January 2020**, MDR has not been permitted on notified **UPI and RuPay debit-card transactions**.

- The zero-MDR policy helped promote **low-cost digital payments and financial inclusion**, particularly among small merchants.
- However, payment infrastructure involves costs related to **technology, cybersecurity, fraud prevention, network capacity and customer support**.

Why is UPI Sustainability an Issue?

- **Rising Operational Costs:** Digital payment infrastructure requires continuous investment in technology and cybersecurity.
- **Zero-MDR Model:** Merchants do not pay MDR on eligible UPI transactions, limiting direct revenue for the ecosystem.
- **Fiscal Burden:** Government incentives are required to partly compensate ecosystem participants.
- **Scale of Transactions:** The rapid expansion of UPI increases the need for robust infrastructure and fraud-prevention mechanisms.

Q. With reference to the Merchant Discount Rate (MDR) and UPI, consider the following statements:

1. MDR is a fee associated with accepting digital payments by merchants.
2. UPI was developed by the National Payments Corporation of India (NPCI).
3. Since January 2020, MDR has not been permitted on notified UPI transactions.
4. The government provides incentives for eligible low-value BHIM-UPI Person-to-Merchant transactions.

Which of the statements given above are correct?

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

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

Explanation

- **Statement 1: Correct.** MDR is a fee associated with processing digital payments accepted by merchants.
- **Statement 2: Correct.** UPI was developed by **NPCI**, the umbrella organisation for retail payment systems in India.
- **Statement 3: Correct.** The government directed that MDR should not be collected on notified UPI and RuPay debit-card transactions from January 2020.
- **Statement 4: Correct.** The government operates incentive schemes for eligible low-value BHIM-UPI P2M transactions to support the zero-MDR ecosystem.

ENVIRONMENT & GEOGRAPHY

3.1. NEERI-ZAR WATER PURIFIERS DEPLOYED IN FLOOD-HIT ASSAM

Context

- **CSIR-NEERI** has deployed **100 NEERI-ZAR water purification units** in flood-hit districts of Assam.
- The technology was developed in **2006** during the Barmer floods in Rajasthan and is designed for **emergency drinking-water supply**.



What is NEERI-ZAR?

- **NEERI-ZAR** is a **gravity-based, portable water purification system** developed by **CSIR-National Environmental Engineering Research Institute (NEERI)**.
- It requires **no electricity** and can be transported and installed easily.
- It is particularly suited for **disaster-hit and remote areas** where conventional water-treatment infrastructure may be unavailable.

Key Features of NEERI-ZAR

- **Gravity-operated:** Works without pumps or external power.
- **No electricity requirement:** Suitable for areas with disrupted power supply.
- **Removes:** Turbidity, organic matter and bacterial contamination.
- **Low maintenance:** Simple to operate and transport.
- **Emergency use:** Designed for rapid deployment during floods and other disasters.
- **Typical capacity:** About **20 litres/hour per unit**.

How Does It Help During Disasters?

- Floods can contaminate drinking-water sources with **suspended matter, pathogens and other contaminants**.
- **NEERI-ZAR → Treatment of contaminated water → Safer drinking water**
- It can therefore provide a **decentralised water-treatment solution** when pipelines, electricity and conventional treatment facilities are disrupted.

Q. With reference to NEERI-ZAR, consider the following statements:

1. It is a gravity-based water purification technology.
2. It requires electricity for its operation.
3. It can remove turbidity and bacterial contamination.
4. It was developed by CSIR-NEERI.

Which of the statements given above are correct?

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

Answer: (a)

Explanation:

- **Statement 1 – Correct:** NEERI-ZAR is gravity-operated.
- **Statement 2 – Incorrect:** It requires **no electricity**.
- **Statement 3 – Correct:** It removes **turbidity and bacterial contamination**.
- **Statement 4 – Correct:** It was developed by **CSIR-NEERI**.

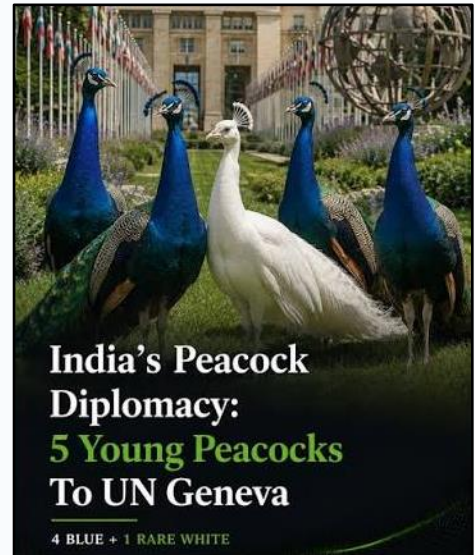
3.2. INDIA'S PEACOCK DIPLOMACY: FIVE PEACOCKS DONATED TO UN GENEVA

Context

- India has donated **five peacocks, including a rare white-feathered male, to the United Nations Office at Geneva (UNOG)**. The donation revives a decades-old tradition and highlights the peacock's significance as both a **national symbol of India and a representation of the country's rich biodiversity**.

About Indian Peacock

- **Scientific name:** *Pavo cristatus*
- **Family:** Phasianidae
- **National status:** National Bird of India
- **Declared National Bird:** 1963
- **IUCN Red List:** Least Concern
- **Legal protection in India:** Protected under the **Wild Life (Protection) Act, 1972**
- **Diet:** Omnivorous, feeding on seeds, grains, fruits, insects and small animals.
- **Habitat:** Open forests, scrublands, agricultural landscapes and areas close to human habitation.



Why was the Peacock chosen as India's National Bird?

- The choice reflects its **wide distribution, distinctive appearance and deep association with Indian culture and traditions**. The peacock has long featured in Indian art, architecture, mythology and religious traditions.

The Peacock's Distinctive Features

- The male peacock is particularly known for its long ornamental train, which displays numerous **eye-like spots or ocelli**.
- The train is primarily associated with **courtship and sexual selection**. The striking plumage makes the peacock one of the most recognisable birds associated with India.

Conservation Significance

- Although the Indian Peacock is classified as **Least Concern by the IUCN**, it enjoys significant protection under India's domestic wildlife legislation.

International Significance of the Donation

- The donation to **UNOG in Geneva** gives the initiative a broader diplomatic and environmental dimension.

- It brings together three themes: **National Symbol** → **Biodiversity** → **International Environmental Diplomacy**
- The peacock therefore serves not merely as a cultural emblem but also as a symbol of India's commitment to **biodiversity conservation and environmental stewardship**.

Q. With reference to the Indian Peacock, consider the following statements:

1. The Indian Peacock is scientifically known as *Pavo cristatus*.
2. The Indian Peacock is classified as **Least Concern** in the IUCN Red List.
3. The white Peacock is recognised as a separate species from the Indian Peacock.
4. The Indian Peacock was declared the National Bird of India in 1963.

Which of the statements given above are correct?

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

Answer: A. 1, 2 and 4 only

- **Statement 1 is Correct:** Indian Peacock → *Pavo cristatus*.
- **Statement 2 is Correct:** It is listed as **Least Concern (LC)** by the IUCN.
- **Statement 3 is Incorrect:** The white Peacock is **not a separate species**; its white plumage is associated with genetic variation.
- **Statement 4 is Correct:** The Indian Peacock was declared India's **National Bird in 1963**.

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Prelims Test Series

4.1. "EVEREST", INDIA'S FIRST PRIVATE 800 KN ROCKET ENGINE

Context

- Bengaluru-based **Astrobase Space Technologies** unveiled **EVEREST**, India's first privately built **800 kilonewton** Full-Flow Staged Combustion (FFSC) LOX-Methane rocket engine.
- Astrobase** is the **fourth commercial company globally** to successfully develop a high-thrust FFSC engine, joining a select group of nations and firms capable of this propulsion technology.



About the EVEREST Engine

- Engine Class:** 800 kN (kilonewton)-class engine, equivalent to lifting approximately **80 tonnes** of thrust in vacuum conditions.
- Cycle:** India's first fully integrated **Full-Flow Staged Combustion (FFSC)** engine -- among the most advanced rocket engine architectures, enabling chamber pressures exceeding **300 bar**.
- Propellant:** Runs on **Liquid Oxygen and Liquid Methane (methalox)**, which burns cleaner than kerosene and suits reusable launch vehicles.
- Global Rarity:** Only **SpaceX's Raptor** has flown an FFSC engine to date; globally, just seven FFSC engines have ever run on a test stand.

Significance for India's Private Space Sector

- Indigenous Control:** Critical propulsion design authority, systems engineering, manufacturing knowledge, software and mission configuration remain under **Indian control**.
- Complete Industrial Chain:** Astrobase is building the full chain from engine manufacturing and high-flow testing to stage integration, vehicle qualification and launch operations.
- Complements ISRO:** Distinct from **ISRO's** ongoing semi-cryogenic engine programme, which uses a different propulsion cycle and fuel combination for the **LVM3** launch vehicle.

Roadmap and Test Milestones

- Prior Milestones:** Sub-scale hot-fire test in **September 2025**; high-speed turbopump trials in **January 2026**.
- Test Facility:** A **21.5-acre** propulsion test facility in **Anantapur, Andhra Pradesh**, capable of handling thrust levels up to **200 tonnes**.
- Next Step:** A full-scale engine hot-fire test, followed by a planned cluster of seven **EVEREST** engines under a reusable medium-lift rocket targeting a maiden orbital launch by **2029**.

Q. With reference to the EVEREST rocket engine, consider the following statements:

- EVEREST is India's first privately built Full-Flow Staged Combustion (FFSC) rocket engine.
- The engine uses a combination of Liquid Oxygen and Liquid Hydrogen as propellant.
- SpaceX's Raptor is the only Full-Flow Staged Combustion engine to have flown in space to date.

Which of the statements given above is/are correct?

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

Answer: c. I and III only

Explanation

Statement I is Correct: EVEREST is India's first fully integrated, privately built FFSC rocket engine, developed by Astrobase Space Technologies.

Statement II is Incorrect: EVEREST runs on Liquid Oxygen and Liquid Methane (methalox), not Liquid Hydrogen.

Statement III is Correct: SpaceX's Raptor remains the only FFSC engine to have flown in space to date; EVEREST is yet to complete its full-scale hot-fire qualification.

4.2. AI-POWERED SURVEILLANCE AT NON-INTERLOCKED LEVEL CROSSINGS

Context

- Indian Railways is deploying **AI-powered, solar-powered CCTV surveillance systems** at **non-interlocked level crossing (LC) gates** to strengthen real-time monitoring and prevent accidents.



What is a Level Crossing?

A **level crossing** is a place where a railway track intersects a road or pathway **at the same level**, rather than through an overbridge or underpass.

Types

- Manned Level Crossing:** Operated and monitored by railway staff/gateman.
- Unmanned Level Crossing:** No railway staff is stationed at the crossing.
- Interlocked Level Crossing:** The gate is integrated with the railway signalling system, creating a safety interlock.
- Non-interlocked Level Crossing:** The gate is **not directly integrated with the signalling system**.

Why are Non-Interlocked Crossings a Safety Concern?

- At a non-interlocked crossing:
- Train cleared to proceed → Gateman closes & locks gate → Gateman confirms closure → Station Master relies on confirmation**
- The major weakness is the absence of a **direct technological mechanism for the Station Master to verify the physical closure of the gate**.

About AI-Powered Surveillance System

The proposed system aims to bridge this monitoring gap through:

- Advanced CCTV cameras** at non-interlocked level crossings.

- **Live video feed** to:
 - Station Master of the nearest railway station
 - Railway engineering control room
- **Solar-powered operation**, enabling deployment even where conventional power infrastructure is limited.
- **Automated alerts** when:
 - Gate remains open.
 - Gate is not closed within the prescribed time.
- **Real-time monitoring** to supplement the gateman's confirmation.

Interlocking

- **Interlocking** is a railway safety arrangement designed to ensure that **signals, points and other signalling equipment operate in a logically coordinated manner**, preventing conflicting movements.
- At an **interlocked level crossing**, the signalling system is linked with the gate operation.

Basic principle:

- Gate not safely closed → Train movement should not receive the corresponding safe signal.

Q. With reference to railway level crossings, consider the following statements:

1. A manned level crossing is necessarily an interlocked level crossing.
2. Interlocking integrates level-crossing operation with railway signalling.
3. AI-enabled CCTV can provide real-time monitoring of non-interlocked crossings.
4. Kavach and level-crossing CCTV have identical primary functions.

Which of the statements given above are correct?

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

Answer: (b) 2 and 3 only

Explanation

Statement 1 – Incorrect: A crossing can be **manned but non-interlocked**.

Statement 2 – Correct: Interlocking links **gate operation with railway signalling**.

Statement 3 – Correct: AI-enabled CCTV enables **real-time monitoring and alerts**.

Statement 4 – Incorrect: **Kavach** provides automatic train protection, while CCTV monitors **level-crossing gates**.

4.3. RELEASE OF "SRAVAANI" THE AI SPEECH RECOGNITION MODEL FOR 65 INDIAN LANGUAGES

Context

- Researchers at **IISc Bengaluru**, with **ARTPARK** and **Google**, have developed '**SraVaani**', an AI speech-recognition model trained on **65 Indian languages and dialects**. It aims to improve access to AI and digital services for **under-represented Indian languages**, supporting India's linguistic diversity.

About SraVaani

- **Developers:** Indian Institute of Science (IISc) **SPIRE Lab**, in collaboration with **ARTPARK** and **Google**.
- **Objective:** Extends automatic speech recognition to several regional and non-scheduled Indian languages that remain underserved by existing speech technology.
- **Licensing:** Freely and publicly available on **Hugging Face** under a **Massachusetts Institute of Technology (MIT) licence**.
- **Total Coverage:** Trained on **65 Indian languages and dialects**.
- **Breakdown:** Covers **20 scheduled languages** and **45 regional languages and dialects**.
- **Sample Languages:** Supports languages such as **Garo, Angika, Chakma, Kokborok, Tulu, Bundeli** and **Bajjika**.
- **Population Reach:** Potentially opens speech AI access to around **25 crore people** as per the **2011 Census**, whose languages are not properly handled by current systems.



Performance Benchmark

- **Word Error Rate:** Recorded a **9.5% word error rate** on **Garo**.
- **Comparative Performance:** Compares with a **69.4% error rate** for the next-best system evaluated on the same language.

Q. With reference to SraVaani, an Indian multilingual speech technology initiative, consider the following statements:

1. **SraVaani** was developed by **IISc's Speech and Language Technology (SPIRE) Lab** in collaboration with **ARTPARK** and **Google**.
2. **SraVaani** is trained on **65 Indian languages and dialects**, covering **20 Scheduled Languages** and **45 regional languages and dialects**.
3. **SraVaani** is released under a **proprietary licence restricted to research use only**.

Which of the statements given above is/are correct?

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

Answer: (a) 1 and 2 only

Explanation

- **Statement 1 is Correct:** SraVaani was developed by **IISc's SPIRE Lab**, in collaboration with **ARTPARK and Google**, to advance speech technology for India's diverse linguistic landscape.
- **Statement 2 is Correct:** SraVaani covers **65 Indian languages and dialects**, comprising **20 Scheduled Languages and 45 regional languages and dialects**.
- **Statement 3 is Incorrect:** SraVaani is **openly available on Hugging Face under the MIT licence**. Therefore, it is **not a proprietary, research-use-only model**.

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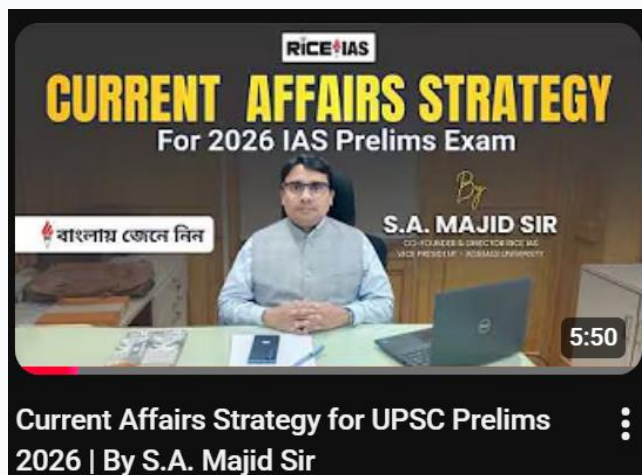
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