

24th May 2024



THE HINDU



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THE FINANCIAL EXPRESS live

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GS I

1. Why Stone Age could well be called 'Wood Age': Evidence from study

Source: IE, Page 16

Prelims: Paleaolithic, Mesolithic and Neolithic Age Mains: Indian culture will cover the salient aspects of Art Forms

The article discusses a study on prehistoric wooden artifacts from Schöningen, Germany, highlighting their advanced technological nature.

Findings from the Study

- Prehistoric Wooden Artifacts: Study from Schöningen, Germany shows advanced tools, not just "sharpened sticks".
- Techniques Used: Splitting, scraping, and abrasion were identified.
- Oldest Artifacts: Dated to around 400,000 years ago, predating modern Homo sapiens.
- Broad Spectrum: 187 wooden artifacts demonstrate a variety of woodworking techniques.

Prehistory Periodization

- Stone Age Classification: Stone Age, Bronze Age, Iron Age by Christian Jürgensen Thomsen.
- Stone Age Divisions:
 - Palaeolithic (Old Stone Age): Rudimentary stone tools, hunter-gatherer lifestyle.
 - Mesolithic (Middle Stone Age): Transitional phase.
 - Neolithic (New Stone Age): Settled agriculture, animal domestication.

Preservation Bias in Archaeology

- Wood vs. Stone: Stone tools are more commonly found than wood due to preservation issues.
- Scarcity of Wooden Evidence: Less than 10 sites with wood from the Lower Palaeolithic, earliest wooden dwellings dated to 700,000 BP.

Significance of Schöningen Finds

- Preservation Conditions: Damp, oxygenless soil preserves organic matter.
- Diverse Tools: Minimum of 20 hunting weapons, 35 domestic activity tools.
- Historical Impact: Discovery of 400,000-year-old spears changed views on early human behaviour, suggesting systematic hunting and planning.
- Technological Complexity: 3-D microscopy and micro-CT scanners revealed tool-making sophistication, including tool repair and recycling.

Key Findings and Implications

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• Systematic Hunting: Evidence from spears suggests early hominids planned and used technology.

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• Revised Theories: Findings challenge existing theories on early human behaviour and culture.





GS III

2. Rising debt strains household savings

Source: The Hindu, Page 10

Prelims: Fisher Dynamics, Facts and Data

Mains: Indian Economy and issues relating to planning, mobilisation of resources

News: The household net financial savings to GDP ratio fell significantly in 2022-23, primarily due to a higher borrowing to GDP ratio.

Key Findings & Reasons

- 1. Fall in Household Savings: The household net financial savings to GDP ratio fell significantly during 2022-23, attributed to a higher borrowing to GDP ratio.
- 2. Misinterpretation of Savings Shift: The Chief Economic Advisor (CEA) interpreted the trend as a shift from financial savings to physical savings. However, this explanation is inconsistent with observed data.
- 3. Actual Trend: The net financial savings to GDP ratio dropped by 2.5 percentage points, while the physical savings to GDP ratio only increased by 0.3 percentage points, and household borrowing to GDP ratio rose by 2 percentage points.
- 4. Interest Payment Burden: The decline in net financial savings and rise in borrowing are linked to increased interest payment commitments amid higher interest rates and a higher debt-income ratio.

Signs of Structural Shift

- 1. Debt-Income Ratio Increase: The debt-income ratio has risen sharply due to higher net borrowing and increased interest rates, coupled with slower nominal income growth.
- 2. Fisher Dynamics: Following Irving Fisher's dynamics, the rising debt-income ratio is primarily due to the disparity between interest rates and nominal income growth.
- 3. Post-COVID Economic Trends: The period after COVID-19 has seen nominal income growth often lagging behind the weighted average lending rate, contributing to higher household leverage and interest burdens.
- 4. Structural Feature: A key structural feature of the current period is the persistent lower nominal income growth compared to lending rates, exacerbating the debt burden.

Challenges Ahead

- 1. Closing the Interest-Income Growth Gap: The primary challenge is to reduce the gap between interest rates and income growth to prevent further increases in the debt-income ratio.
- 2. Preventing Consumption Decline: High interest payments and debt commitments could lead to reduced household consumption, as evidenced by the decline in the consumption to GDP ratio in 2023-24.
- 3. Supporting Income Growth: There is a need for macroeconomic policies that specifically aim to stimulate and support household income growth to address these structural challenges.
- 4. Avoiding Aggregate Demand Reduction: Ensuring that household debt and interest burdens do not lead to a significant reduction in aggregate demand is crucial for maintaining economic stability.







3. NHAI's assets monetisation can fetch up to ₹60,000 cr

Source: The Hindu, Page 12

Prelims: Toll-Operate-Transfer (TOT) Model, Infrastructure Investment Trusts (InvIT) Mains: Investment models.

News: In April 2024, the National Highways Authority of India (NHAI) had released an indicative list of 33 road assets it plans to monetise in FY25, through a mix of toll-operate-transfer (TOT) and sale to the NHAI's Infrastructure Investment Trust (InvIT).

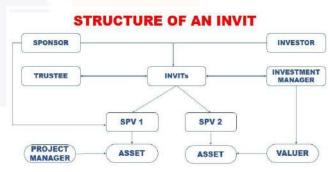
About Toll-Operate-Transfer (TOT) Model

- Financing Infrastructure Development: The TOT model is a way for the government to raise funds for infrastructure projects, particularly highways.
- Public-Private Partnership (PPP): It involves private companies partnering with the government. The government builds the highway using public funds.
- Concession Rights: The private company then takes over the operation and maintenance of the highway for a predetermined period (typically 30 years). During this time, they have the right to collect tolls from users.
- Upfront Payment: The private company pays the government a lump sum amount upfront in exchange for the concession rights. This upfront payment helps the government recoup some of the construction costs and invest in other projects.
- Private Sector Expertise: The TOT model is expected to bring private sector efficiency to managing and maintaining highways. Private companies are incentivized to improve efficiency as they collect the tolls.
- Transfer of Ownership: At the end of the concession period, the ownership and operation of the highway transfer back to the government.

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About Infrastructure Investment Trusts (InvIT)

- InvITs are instruments that work like mutual funds. They are designed to pool small sums of money from a number of investors to invest in assets that give cash flow over a period of time. Part of this cash flow would be distributed as dividends back to investors.
- InvITs are regulated by the Securities and Exchange Board of India (SEBI) (Infrastructure Investment Trusts) Regulations, 2014.



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4. Rope in NDRF, ITBP to manage Char Dham crowd, Centre tells Uttarakhand

Source: The Hindu, Page 4 Prelims: NDRF, ITBP Mains: Various Security forces and agencies and their mandate.

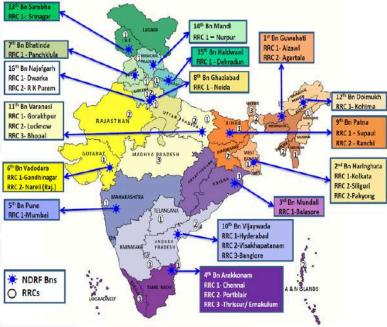
News: Home Ministry asked the State to take the help of the National Disaster Response Force (NDRF) and the Indo-Tibetan Border Police (ITBP) for crowd management during Char Dham Pilgrimage.

About National Disaster Response Force (NDRF)

- The National Disaster Management Authority (NDMA) was constituted to lay down the policies, plans, and guidelines for disaster management under Disaster Management Act 2005.
- At present, the National Disaster Response Force consists of 16 battalions from the BSF, CISF, CRPF, ITBP, SSB and Assam Rifles.
- Each battalion has 18 self-contained specialist search and rescue teams of 45 personnel each including engineers, technicians, electricians, dog squads and medical/paramedics. The total strength of each battalion is 1,149.
- All the 16 battalions have been equipped and trained to respond to natural as well as man-made disasters.
- Battalions are also trained and equipped for response during chemical, biological, radiological and nuclear (CBRN) emergencies.

About Indo-Tibetan Border Police (ITBP)

- The Indo-Tibetan Border Police (ITBP) Force was raised on 24 October, 1962. At present, the ITBP guards 3,488 km long India-China borders ranging from the Karakoram Pass in Ladakh to Jachep La in Arunachal Pradesh.
- Apart from this, the Force also has important roles in many internal security duties and operations against the Left Wing Extremism in the state of Chhattisgarh.
- ITBP also conducts relief and rescue operations as 'First Responders' for natural calamities in the Himalayan region.
- The ITBP is headed by the Director General. ITBP is organised into Five Frontier Headquarter headed by Inspectors General.



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Editorials, Opinions and Ideas

5. Should doctors be kept out of the Consumer Protection Act?

Source: The Hindu, Page 9

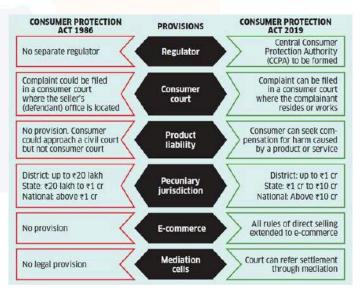
Recently, The Supreme Court ruled that advocates cannot be held liable under the Consumer Protection Act, 1986, for deficiency in service. The Court also indicated that its 1995 decision that held medical professionals accountable under the Act may need to be revisited.

Arguments For the Topic

- Consumer Protection for Patients: The Consumer Protection Act provides a necessary legal recourse for patients who have been victims of medical malpractice, ensuring they can seek compensation and justice.
- Speedy Redressal: Consumer forums offer a quicker resolution compared to the lengthy processes in civil courts, making it more accessible for affected patients.
- Accountability: Holding medical professionals accountable under the Consumer Protection Act ensures a higher standard of care and responsibility in the medical profession.
- Patient Rights: The Act protects patients' rights and ensures that medical services, which involve a cost, are held to a standard of accountability similar to other consumer services.
- Expert Opinions: The process involves expert medical opinions to ensure fair judgement in complex medical cases.

Arguments Against for the Topic

- Frivolous Litigation: The inclusion of medical services under the Consumer Protection Act can lead to an increase in frivolous lawsuits, causing undue stress and financial burden on medical professionals.
- Increased Costs: To protect themselves from potential litigation, doctors may order unnecessary tests and procedures, increasing the overall cost of medical care.
- Delays in Justice: The consumer redressal system can still be slow, with cases taking up to 10-12 years, which undermines the objective of speedy justice.
- Specialized Knowledge: Consumer courts may lack the specialized medical knowledge required to adjudicate complex medical cases, often needing to rely on external expert opinions.



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• Professional Misuse: There is a risk of misuse by patients who do not wish to pay for medical services, leading to harassment of medical professionals.

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Possible Solutions

- Independent Medical Ombudsman: Establish an independent authority specifically for handling medical complaints, similar to the ombudsman systems in insurance, banking, and electricity sectors.
- Strengthening Regulatory Authorities: Empower medical regulatory bodies to oversee and adjudicate cases of malpractice with adequate authority and efficiency.
- Mandatory Mediation: Incorporate mandatory mediation for medical negligence cases under the Consumer Protection Act to resolve disputes amicably before proceeding to litigation.
- Medical Indemnity Insurance: Promote and mandate medical indemnity insurance for all practicing doctors to provide financial protection against lawsuits and litigation.
- Clear Communication and Consent: Emphasize the importance of clear communication with patients regarding treatment risks and outcomes, and ensure proper documentation and consent to safeguard doctors against potential lawsuits.









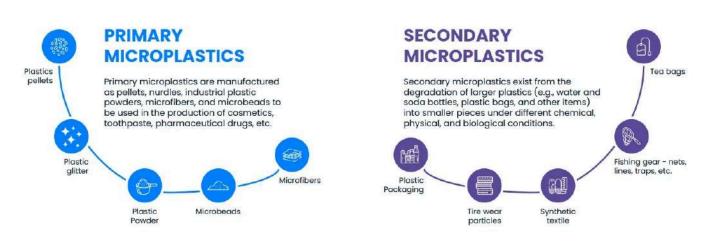
InBrief

6. Microplastics found in fish in Ashtamudi Lake

Source: The Hindu, Page 3

A new study has shed light on the extent of microplastic pollution in Ashtamudi Lake, a Ramsar wetland. About Microplastics

- Microplastics, which are tiny fragments of plastic with a length of less than 5 mm (0.2 inches), are produced as a result of plastic pollution and are found in the environment.
- Cosmetics, synthetic garments, plastic bottles, and bags, as well as cosmetics, contain microplastics.



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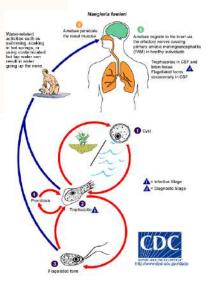
7. Brain-Eating Amoeba

Source: IE, Page 16

A five year old girl succumbed to Primary Amoebic Meningoencephalitis (PAM) in Kozhikode, Kerala onMonday.

About Primary Amoebic Meningoencephalitis (PAM)

- Naegleria fowleri is a single-celled organism which causes primary amoebic meningoencephalitis (PAM).
- It is a free-living amoeba found in warm freshwater bodies lakes and rivers, and in rare cases, poorly maintained swimming pools and recreational settings – across the world. They survive for short periods in warm environments, upto 46 degrees Celsius.



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- Infection from N fowleri occurs mostly when contaminated water is inhaled through the nose, and enters the olfactory nerve tissue. The amoeba then travels to the brain, where it causes the brain tissue to swell up, eventually destroying it.
- No effective treatment has been devised yet for the PAM. Currently, antifungal drug ampho- tericin B is the most heavily used med- ication. It binds to the N Fowleri cell(s), and eventually kills it. However, even with this treatment, PAM has a fatality rate of 95-97%.
- Antibiotic, antifungal and antimicrobial drugs such as azithromycin, fluconazole, rifampin, miltefosine, and dexamethasone are also used to treat the disease.

8. Sebi plans easing valuation norms for AIF

Source: IE, page 17

Sebi has proposed providing relaxation on the framework pertaining to valuation of investment portfolio of alternative investment fund (AIF).

About Alternative Investment Fund (AIF)

- It refers to any privately pooled investment fund, (whether from Indian or foreign sources), in the form of a trust or a company or a body corporate or a Limited Liability Partnership (LLP).
- They include angel funds, commodities, real estate, venture capital, private equity, etc.
- In India, AIFs are defined in Regulation 2(1)
 (b) of Securities and Exchange Board of India (Alternative Investment Funds) Regulations, 2012.

Categories of AIFs

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- **Category I AIFs:** Invest in startups, early ventures, social enterprises, SMEs, and government-favoured sectors. (e.g., Venture capital funds, angel funds, SME funds)
- ulations, ps, early Es, and Venture Venture

Social Venture Fund

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- **Category II AIFs**: All AIFs not classified as Category I or III. (e.g., Real estate funds, debt funds, private equity funds)
 - \circ $\;$ Limited leverage allowed, only for day-to-day operations.
- **Category III AIFs:** Employ complex trading strategies and leverage. (e.g., Hedge funds, PIPE funds)
 - Invest in listed or unlisted derivatives.



Fund of Funds

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9. Severe' cyclone headed for Bengal by May 26: IMD

Source: IE, Page 14

Recently, The India Meteorological Department (IMD) said that a cyclone is likely to develop in the Bay of Bengal which is headed towards West Bengal and Bangladesh.

In Detail

- It will be the first cyclone to form in 2024 in the North Indian Ocean basin.
- It will be identified as cyclone Remal, proposed by Oman.

Category	Sustained Winds (3-min average)
Super Cyclonic Storm	≥120 <u>kt</u> ≥221 km/h
Extremely Severe Cyclonic Storm	90–119 kt 166–220 km/h
Very Severe Cyclonic Storm	64–89 kt 118–165 km/h
Severe Cyclonic Storm	48–63 kt 89–117 km/h
Cyclonic Storm	34–47 kt 63–88 km/h
Deep Depression	28–33 kt 51–62 km/h
Depression	17–27 kt 31–50 km/h

10. Engineering exports fell in April on metal exports' slide

Source: The Hindu, Page 12

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According to the Engineering Exports Promotion Council (EEPC), A sharp drop in exports of metals like iron and steel due to tepid global demand, and more competitive pricing from Chinese steel producers, dragged India's engineering exports down 3.2% in April.

About Engineering Exports Promotion Council (EEPC)

- EEPC India is the premier trade and investment promotion organisation in India. It is sponsored by the Ministry of Commerce & Industry, Government of India and caters to the Indian engineering sector.
- Set up in 1955, EEPC India now has a membership base of around 8000 predominantly drawing 60% from MSME segment.
- EEPC India facilitates sourcing from India and encourages MSMEs to raise their standard at par with international best practices.

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Daily Quiz

1. Consider the following statements regarding the Palaeolithic, Mesolithic, and Neolithic periods

- 1. The Palaeolithic period is characterized by the use of rudimentary chipped stone tools and hunting-gathering lifestyle.
- 2. The Mesolithic period saw the development of microlithic tools and a gradual shift towards settled agricultural communities.
- 3. The Neolithic period is marked by the advent of polished stone tools and the beginning of farming and domestication of animals.
- 4. The Neolithic period preceded the Mesolithic period in the chronological sequence of prehistory.

Which of the above statements is/are correct?

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

2. Recently seen in the news, 'Fisher Dynamics' is correctly described by which of the following statements?

- A. It is a new theory in fisheries science explaining the migration patterns of marine species.
- B. It is a new satellite technology developed to monitor oceanic ecosystems and fish populations.
- C. It is a theory describing interaction between interest rates and nominal income growth.
- D. It is a seating company known for its innovative solutions in the agriculture sector.

3. Infrastructure Investment Trusts (InvITs) are instruments used for financing infrastructure projects in India. Which of the following statements about InvITs is incorrect?

- A. InvITs are similar to mutual funds, pooling funds from investors to invest in a portfolio of infrastructure assets.
- B. InvITs are required to distribute a minimum percentage of their net income to investors as dividends.
- C. InvITs are generally structured as closed-ended investment vehicles, with limited options for investors to redeem their units before the maturity of the InvIT.
- InvITs are exempt from paying corporate income tax on their income, making them attractive for investors seeking tax-sheltered returns.

4. Which of the following statements is correct regarding the National Disaster Response Force (NDRF) in India?

- A. The NDRF operates under the Ministry of Defence.
- B. The NDRF was established under the Disaster Management Act, 2005.
- C. The primary responsibility of NDRF is to develop policies on disaster management.
- D. The NDRF is exclusively composed of volunteers from various civilian organisations

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5. The Consumer Protection Act, 2019 has introduced several new provisions to empower consumers. Which of the following is NOT a right granted to consumers under the Act?

- A. Right to be informed about the product or service in detail before purchase.
- B. Right to be heard and seek redressal against unfair or deceptive trade practices.
- C. Right to choose from a variety of products and services at competitive prices.
- D. Right to seek compensation for any defect or deficiency in the goods or services purchased.

6. With reference to microplastics, consider the following statements:

- **1.** Primary microplastics are small plastic particles intentionally manufactured for specific industrial applications.
- 2. Secondary microplastics are formed from the breakdown of larger plastic debris into smaller fragments.
- 3. Primary microplastics include plastic pellets used in industries & microbeads used in personal care products.
- 4. Secondary microplastics do not contribute significantly to marine pollution.

How many of the above statements is/are correct?

- A. Only 1
- B. Only 2
- C. Only 3
- D. All are correct

7. Sometimes mentioned in the news, 'Naegleria fowleri' is a -

- A. Amoeba
- B. Nematoda
- C. Sea Anabaena

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D. Starfish

8. Recently, Sebi has proposed providing relaxation on the framework pertaining to valuation of investment portfolio of alternative investment fund (AIF). In this regard, consider the following statements:

- 1. AIF cannot be formed as a Limited Liability Partnership (LLP).
- 2. AIF is regulated by Securities and Exchange Board of India (SEBI).

Which of the above given statements is/are correct?

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

9. Recently, a cyclone 'Remal' is forming in the Bay of Bengal. It is named by which of the following countries?

- A. India
- B. Bangladesh
- C. Myanmar
- D. Oman

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10. Which of the following statements regarding the Engineering Exports Promotion Council (EEPC) is correct?

- A. EEPC is an advisory body established by the Ministry of Science and Technology to promote research and development in engineering sectors.
- B. EEPC primarily focuses on promoting India's engineering goods, projects, and services exports.
- C. EEPC is a statutory body that regulates the engineering exports sector under the Engineering Goods Regulation Act.
- D. EEPC operates under the Ministry of Finance and focuses on providing financial assistance to engineering exporters.



Solutions

Answer 1: B Solution:

- Palaeolithic Period: This period is indeed characterized by the use of rudimentary chipped stone tools and a hunting-gathering lifestyle, making statement 1 correct.
- Mesolithic Period: This period is known for the development of microlithic tools and a gradual shift towards settled agricultural communities, making statement 2 correct.
- Neolithic Period: The Neolithic period is marked by the advent of polished stone tools and the beginning of farming and domestication of animals, making statement 3 correct.
- Chronological Sequence: The Neolithic period did not precede the Mesolithic period; instead, it followed it. Thus, statement 4 is incorrect.

Hence, Option B is correct.

Answer 2: C

Solution:

• Irving Fisher's dynamics refers to his economic theory that describes how interest rates, inflation, and real interest rates interact over time, particularly emphasizing the relationship between nominal interest rates and expected inflation.

Hence, Option C is correct.

Answer 3: D

Solution:

• While InvITs enjoy certain tax benefits, they are not entirely exempt from corporate income tax. Distributions made to investors might be taxable in their hands, depending on the nature of the income (interest, dividend, etc.).

Hence, Option D is correct.

Answer 4: B

Solution:

- Statement A is incorrect: The NDRF operates under the Ministry of Home Affairs, not the Ministry of Defence.
- Statement B is correct: The NDRF was established under the Disaster Management Act, 2005.
- Statement C is incorrect: The primary responsibility of the NDRF is to provide specialized response during disasters and emergencies, not to develop policies on disaster management. Policy development is the mandate of the National Disaster Management Authority (NDMA).
- Statement D is incorrect: The NDRF is composed of battalions from the Central Armed Police Forces (CAPFs), such as BSF, CRPF, CISF, ITBP, and SSB, rather than volunteers from civilian organizations.

Hence, Option B is correct.

Answer 5: C

Solution:

• While consumer welfare is a primary objective, the Act cannot guarantee a variety of products and services at competitive prices in every situation. Market forces and competition play a significant role in price determination.

Hence, Option C is correct.

Answer 6: C





Solution:

• This statement 4 is incorrect. Secondary microplastics significantly contribute to marine pollution due to the widespread degradation of larger plastic items in the environment.

Hence, Option C is correct.

Answer 7: A

Solution:

• Naegleria fowleri is a free-living amoeba found in warm freshwater bodies - lakes and rivers, which causes primary amoebic meningoencephalitis (PAM).

Hence, Option A is correct.

Answer 8: B

Solution:

• Statement 1 is incorrect: AIFs refers to any privately pooled investment fund, (whether from Indian or foreign sources), in the form of a trust or a company or a body corporate or a Limited Liability Partnership (LLP). • Statement 2 is correct: AIFs are defined in Regulation 2(1) (b) of Securities and Exchange Board of India (Alternative Investment Funds) Regulations, 2012. Hence, Option B is correct.

Answer 9: D

Solution:

- Remal will be the first cyclone to form in 2024 in the North Indian Ocean basin.
- The name is proposed by Oman.
- Hence, Option D is correct.

Answer 10: B

Solution:

- EEPC's primary role is to promote the export of engineering goods, projects, and services from India.
- It is an advisory body under the Ministry of Commerce and Industry.
- EEPC is not a statutory body and there is no Engineering Goods Regulation Act.

Hence, Option B is correct.





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