

DAILY MCQs COMPILATION

with

EXPLANATIONS

JUNE 2023

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HISTORY, ART & CULTURE

1. Consider the following statements, with reference to the Purana Qila:
1. The present fort was rebuilt under the reign of the Mughal Emperor Akbar.
 2. It is believed by many to be the site of Indraprastha, as mentioned in the Mahabharata.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
2. Consider the following statements about Vadnagar:
1. The city has been included in the UNESCO World Heritage sites list recently.
 2. The city was the major centre of Buddhism in ancient times.
 3. It is often compared to the historic living city of Varanasi.
- How many of the above statements is/are correct?
- (a) Only one (b) Only two
(c) All three (d) None
3. How many of the following games are the Indigenous games of India?
1. Mallakhamb
 2. Silambam
 3. Tug of War
 4. Sikkim Archery
- Choose the correct answer using the codes given below:
- (a) Only two (b) Only three
(c) All four (d) None
4. Consider the following statements:
1. William Butler Yeats was an Irish poet, dramatist, writer and politician.
 2. The English translation of the Indian Upanishads was done by William Butler.
 3. Shuja-ud-daula translated the Bhagavad Gita and 52 Upanishads from Sanskrit to Persian.
- How many of the statements given above are correct?
- (a) Only one (b) Only two
(c) All three (d) None
5. Kharchi Puja is a festival celebrated in which of the following states?
- (a) Assam (b) Tripura
(c) Meghalaya (d) Mizoram
6. With reference to the Geographical Indication (GI) tag, consider the following statements:
1. It is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.

2. In order to function as a GI, a sign must not always identify a product as originating in a given place.
3. Sambhal Horn Craft of Rajasthan has received the GI tag recently.

How many statements given above is/are correct?

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

EXPLANATIONS

1. (b)

Purana Qila

- Purana Qila' (Old Fort) is one of the oldest forts in Delhi.
- Excavations point to traces from the 3rd century BC, the pre-Mauryan period. **It is believed by many to be the site of Indraprastha, as mentioned in the Mahabharat. Hence statement 2 is correct.**
- The present fort was re-built under the reign of the **second Mughal Emperor Humayun and Sur Emperor Sher Shah Suri. Hence Statement 1 is not correct.**
 - The fort was the inner citadel of the city of Din Panah during Humayun's rule who renovated it in 1533 and completed five years later.
 - The founder of the Suri Dynasty, Sher Shah Suri, defeated Humayun in 1540, naming the fort Shergarh; he added several more structures in the complex during his five-year reign.

2. (b)

Statement 1 is not correct: Vadnagar is a town and municipality under Mehsana district of Gujarat state. Vadnagar city has made its name in the **Tentative list of the UNESCO World heritage** sites.

Statement 2 is correct: Chinese traveller **Hieun Tsang** is said to have visited Vadnagar around **641 AD**, referring to it as **o-nan-to-pu-lo (Anandpur)**.

- Vadnagar was an important centre of **Sammitiya Buddhists**, a sect which Chinese traveller Hieun Tsang also supported. He recorded that 'there are more than 1000 monks of this school in 10 monasteries'.

Statement 3 is correct: It is often compared to the historic **living cities** of Mathura, Ujjain and Varanasi as cities inhabited since the early historic period and in the modern day.

- Internationally, Historic town of Vadnagar can be compared to the Historical City of **Masouleh** in Iran, Quanzhou in China, and the Historic Town of **Beypazari in Turkiye**.

3. (c)

Ministry of Youth Affairs and Sports runs a Central Sector Scheme, namely, the 'Khelo India – National Programme for Development of Sports' Scheme (Khelo India Scheme), of which one of the Components, namely, '**Promotion of rural and indigenous/tribal games**', is specifically dedicated to the development and promotion of rural and indigenous/tribal games in the country.

- Indigenous games of **Mallakhamb, Kalaripayattu, Gatka, Thang-Ta, Yogasana and Silambam** have been identified for promotion under this Component.
- Further, the Ministry has also made documentaries of various indigenous games in order to showcase and promote/revive them, namely, Gatka, Roll Ball, **Tug of War**, Kalaripayattu, Thang-Ta, Kho-Kho, Mallakhamb, Shooting Ball, Sqay, Kabaddi, Gilli Danda, **Sikkim Archery**, Dhoop Khel and Cowrie Khel, Paika Akhada and Chhau and Akhada Kushti, Hekko, Mizoram Games, Silabam, Lagori and Langadi.

4. (b)

Statement 1 is correct: William Butler Yeats (1865-1939) was an Irish poet, dramatist, writer and politician. Yeats was also heavily inspired by the teachings of Mohini Mohan Chatterjee, who came to Dublin in 1885 as a representative of the Theosophical Society. Yeats's interest in philosophy increased after he met poet and Hindu monk Shri Purohit Swami in 1931.

Statement 2 is correct: The Ten Principal Upanishads is a version of the Upanishads translated by Irish poet W. B. Yeats and the Indian-born mendicant-teacher Shri Purohit Swami.

Statement 3 is not correct: Dara, who lived from 1615 to 1659, translated the Bhagavad Gita and 52 Upanishads from Sanskrit to Persian. Dara Shikoh, the eldest son of Mughal emperor Shah Jahan and Mumtaz Mahal, had a keen interest in the religions of the world. In 1775, Dara's translation was discovered by a French resident at the court of Shuja-ud-daula, Nawab of Awadh, who sent the copy to Anquetil Duperron, a popular French traveller.

5. (b)

The word 'Kharchi' is derived from two Tripuri words—'khar' or kharta meaning sin and 'chi' or si meaning cleaning.

- Kharchi Puja is a **festival in Tripura**, that concentrates on the worship of **Chaturdasa Devata, the ancestral deity of the Tripuri people**.
- It is devoted to the deity of the **royal dynasty, Tripura Sundari**, also known as Kharchi or Kharcha Baba.
- This festival takes place 15 days after **Ambu bachi** or **Ambu pechi**. Ambu pechi symbolises the **menstruation of the Mother Goddess or Earth Mother** as per Tripuri folklore.
 - There is a popular belief that the Earth becomes impure during the menstruation period of the Goddess. Hence, Kharchi Puja is observed to ritualistically clean the Earth after her menstruation is over and wash away the sins of the people in the land.

6. (a)

Statement 1 is correct: A geographical indication (GI) is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.

Statement 2 and 3 are not correct: In order to function as a GI, a sign **must identify a product as originating in a given place**.

- Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.
- Seven products from Uttar Pradesh have got the **Geographical Indication(GI) tag**. Amroha Dholak, Baghpat Home Furnishings, Barabanki Handloom Product, Kalpi Handmade Paper, Mahoba Gaura Patthar Hastashlip, Mainpuri Tarkashi, **Sambhal Horn Craft**.



ECONOMY

1. Consider the following statements:

1. India is the largest producer and exporter of Tobacco.
2. In India, the tobacco crop is largely grown in the Northeast region.
3. The WHO has selected Andhra Pradesh for the World No Tobacco Day (WNTD) Award-2023.

How many of the statements given above are correct?

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

2. Consider the following statements, with reference to the Lightweight Payments System:

1. It is expected to operate on minimalistic hardware and software.
2. The system is expected to process transactions that are critical to ensure the stability of the economy.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

3. Consider the following statements:

1. National Electricity Plan (NEP) is a five-year plan that assesses India's current electricity needs and projected growth.
2. Central Electricity Authority (CEA) has been mandated to prepare a NEP in accordance with the National Electricity Policy.
3. CEA releases such a plan once every seven years.

Which of the statements given above are correct?

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

4. Dr. Anil Kakodkar Committee was mentioned in the news, it is related to which of the following?

- (a) Dealing Spurious Drugs
- (b) Road Accidents in India
- (c) Safety of the Indian Railways
- (d) Modernisation of Police Forces

5. With reference to Pulse Production in India, consider the following statements:

1. India's import of pulses has been increased between 2017-18 and 2022-23 due to erratic rainfall across the Indian subcontinent.
2. Gram is the most dominant pulse having a share of around 40 percent in the total production of Pulses.
3. The Ministry of Consumer Affairs fixes the minimum support price (MSP) of pulses in India.
4. The United Nations declared 2016 as "International Year of Pulses" (IYP).

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only Three
- (d) All of the above

6. Which of the following statements is **not correct** regarding the Commission of Railway Safety (CRS)?

- (a) The body deals with matters which are of an inspectorial, investigatory & advisory nature.
- (b) The Commission can conduct statutory inquiry into serious train accidents and make suggestions.
- (c) It is under the administrative control of the Railway Board.
- (d) It is headquartered at Lucknow, Uttar Pradesh

7. Consider the following statements, with reference to the First Loss Default Guarantee (FLDG) arrangements:

- 1. It is a lending arrangement where the lending service provider compensates the bank in case a borrower defaults.
- 2. As per the new framework, the default cover could be provided for up to 10% of the loan portfolio.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

8. With reference to the Cooperative Banks, consider the following statements:

- 1. They are regulated under the Banking Regulations Act, 1949, and the Banking Laws (Co-operative Societies) Act, 1955.
- 2. Primary Agricultural Credit Societies comes under the urban cooperative credit institutions.
- 3. Urban cooperative banks lend money only for non-agricultural purposes.

How many statements given above is/are correct?

- (a) One only
- (b) Two only
- (c) All three
- (d) None

9. With reference to the Minimum Support Prices (MSP), consider the following statements:

- 1. The Ministry of Agriculture announces the MSP at the start of each sowing season.
- 2. MSP for Toria and de-husked coconut is also fixed on the basis of MSPs of rapeseed & mustard and copra respectively.
- 3. The implications of MSP on consumers of that product is among one of the criteria for calculating MSP.

Which of the statements given above are correct?

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

10. With reference to the Unified Payments Interface (UPI), consider the following statements:

- 1. It was developed by the Reserve Bank of India in 2016.
- 2. It uses Virtual Payment Addresses (VPA) to track a person's account.
- 3. UPI-PayNow is the fast payment system between India and Nepal.

How many statements given above is/are correct?

- (a) One only (b) Two only
(c) All three (d) None

11. Consider the following statements:

1. Disinflation refers to the rate of change in the rate of inflation.
2. Contractionary monetary policy could lead to the disinflationary effect over the economy.

Which of the above given statements is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

12. "Migration and Development Brief" recently seen in the news, is related to which of the following ?

- (a) United Nations Population Fund (UNFPA)
(b) International Monetary Fund (IMF)
(c) International Labour Organisation
(d) World Bank

13. Which among the following statement(s) is/are true with respect to the Indian economy?

1. An increase in the Cash Reserve Ratio by the Reserve Bank of India increases the money multiplication in the market.
2. Haircut reflects the borrower's perception of the risk of falls in the value of assets.

Select the correct option using the code given below:

- (a) 1 only (b) 2 only
(c) Both 1 and 2 only (d) Neither 1 nor 2

14. Consider the following statements, with reference to the high net-worth individuals (HNWIs):

1. These are investors who have an investible surplus of more than Rs 5 crore.
 2. In 2022, India saw the highest outflow of the high net-worth individuals (HNWIs) globally.
- Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

15. With reference to the Competition Commission of India (CCI), consider the following statements:

1. It is a quasi-judicial body.
2. It comes under the Ministry of Corporate Affairs.
3. It was established to enforce the competition law under the Competition Act, 2002.

Which of the above given statements are correct?

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

16. Consider the following statements:

1. One District, One Product was proposed in the Union Budget 2023-24.
2. The Unity Malls are based on the principle of promotion and sale of the state's own One District, One Product.

How many of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

17. With reference to the World Economic Forum, consider the following statements:
1. It is the International Organization for Public-Private Cooperation.
 2. It was established in 1971 as a not-for-profit foundation and is headquartered in Geneva, Switzerland.
 3. The Global Economic Prospects report is released by the organization annually.
- How many statements given above are/are **not** correct?
- (a) Only one (b) Only two
(c) All three (d) None
18. Consider the following statements:
1. It is a period when prices are rising, though it is happening at a slower rate each passing month.
 2. It is the trend when the inflation rate decelerates.
- The statements given above describe which of the following phenomena?
- (a) Greedflation (b) Deflation
(c) Disinflation (d) Reflation

EXPLANATIONS

1. (d)

Statement 1 is not correct: India stands behind China and Brazil, as one of the largest producers and exporters of Tobacco.

Statement 2 is not correct: The Indian tobacco crop is largely grown in the states of Andhra Pradesh and Gujarat and in neighbouring states, including Karnataka and Maharashtra.

Statement 3 is not correct: Meghalaya, which is deemed the 'cancer capital of India', has been conferred with prestigious World No Tobacco Day (WNTD) Award-2023 by the World Health Organization. In 2022, the WHO selected Jharkhand for the World No Tobacco Day (WNTD) Award.

2. (c)

Both Statement 1 and 2 are correct

About the Lightweight Payments System

- It can be **operated from anywhere by a bare minimum staff** in exigencies such as **natural calamities or war**.
- The infrastructure for this system will be **independent of the technologies** that underlie the existing systems of payments such as UPI, NEFT, and RTGS.
- The central bank has not offered a timeline for the launch of this payments system yet.
- The system is expected to process transactions that are critical to ensure the **stability of the economy**, including government and market related transactions.

3. (a)

Statement 1 and 2 are correct: The National Electricity plan document includes the review of the last five years (2017-22), a detailed plan for the next five years (2022-27) and the prospective plan for the next five years (2027-32).

- NEP prepared by the CEA is a five-year plan that assesses India's current electricity needs, projected growth, power sources, and challenges.

- As per section 3(4) of the Electricity Act, 2003, Central Electricity Authority has been mandated to prepare a NEP in accordance with the National Electricity Policy and notify **such a plan once in five years**. Hence, **Statement 3 is not correct**.

4. (c)

The Ministry of Railways had appointed a **High Level Safety Review Committee** under the chairmanship of **Dr. Anil Kakodkar to review the safety of the Indian Railways** and recommend improvements. The Committee recently presented its report.

- Key Observation & recommendations:
 - The financial state of Indian Railways is 'at the brink of collapse' unless some concrete measures are taken. This has led to a neglect of infrastructure maintenance.
 - In the present situation, the three vital functions (rule making, operations and the regulation) are all vested in the Railway Board. There is a need for an independent mechanism for safety regulation.
 - The Research Design and Standards Organization (RDSO), the apex technical wing of the Railways, is highly constrained. This has hampered the ability of the system to internalize emerging technologies.
 - The Committee recommends the adoption of an Advanced Signalling System (akin to the European Train Control System) for the entire trunk route length of 19,000 km within 5 years. This is estimated to cost Rs 20,000 crore.

5. (b)

- **Statement 1 is not correct:** India's import of pulses dropped by 60 percent between 2017-18 and 2022-23 as their production increased 9 percent. According to the Agriculture Ministry, India's pulses output has increased from 19.26 mt in 2013-14 to 27.50 mt in 2022-23. The reduction in pulses imports have come essentially on the back of higher domestic production.
- **Statement 2 is correct:** India is the largest producer (25% of global production), consumer (27% of world consumption) and importer (14%) of pulses in the world. Pulses account for around 20 percent of the area under food grains and contribute around 7-10 per cent of the total foodgrains production in the country. **Gram is the most dominant pulse having a share of around 40 percent in the total production followed by Tur/Arhar at 15 to 20 per cent.**
- **Statement 3 is not correct:** The **Agricultural Costs and Prices Commission, established under the Union Ministry of Agriculture**, fixes the minimum support price (MSP) of all agricultural products, including pulses. The MSP is set on the basis of cost of production, position of supply, demand and prices in markets, position of prices relative to other commodities, proper use of natural resources like land and water, economy of the country, and 50 percent profit on cost of production.
- **Statement 4 is correct:** The **United Nations declared 2016 as "International Year of Pulses" (IYP)** to heighten public awareness of the nutritional benefits of pulses as part of sustainable food production aimed at food security and nutrition.

6. (c)

In News: Investigation into the recent tragic train accident in Odisha is being conducted by the Commissioner of Railway Safety (CRS).

Commissioner of Railway Safety (CRS)

- **About:** The Commission of Railway Safety (CRS) is a government body that acts as the railway safety authority in the country. Rail safety commissioners are part of CRS.

- **Purpose:** CRS deals with matters related to safety of rail travel and operations, among some other statutory functions – inspectorial, investigatory, and advisory – as laid down in the Railways Act, 1989.
- **Administrative Control:** Ministry of Civil Aviation (MoCA).
 - The CRS does not report to the Ministry of Railways of the Railway Board.
- **Headquarter (HQ):** Lucknow, Uttar Pradesh

7. (a)

Statement 1 is correct: The FLDG model is a lending arrangement between **banks/NBFCs and a fintech or a lending service provider (LSP)**, where the latter compensates the former in case a borrower defaults.

- The LSP provides certain **credit enhancement features** such as first loss guarantee up to a pre-decided percentage of loans generated by it.
- The model was struck by the RBI's digital lending guidelines issued in August last year and was put under examination by the regulator since then.

Statement 2 is not correct: The LSP-providing DLG must be incorporated as a company under the **Companies Act, 2013**.

- As per the new framework, the default cover could be provided for up to **5% of the loan portfolio** and shall be invoked within a **maximum overdue period of 120 days**.

8. (a)

Statement 1 is correct: In India, co-operative banks are registered under the **States Cooperative Societies Act**. They also come under the regulatory ambit of the **Reserve Bank of India (RBI)** under two laws, namely, the **Banking Regulations Act, 1949**, and the **Banking Laws (Co-operative Societies) Act, 1955**.

- It is an institution established on a cooperative basis to deal with the ordinary banking business. Like other banks, cooperative banks are founded **by collecting funds through shares, accepting deposits, and granting loans**.

Statement 2 and 3 are not correct: Broadly, co-operative banks in India are divided into two categories - **urban and rural**.

- Rural cooperative credit institutions could either be **short-term or long-term** in nature. Further, short-term cooperative credit institutions are further sub-divided into State Co-operative Banks, District Central Co-operative Banks, **Primary Agricultural Credit Societies**.
- Meanwhile, the long-term institutions are either State Cooperative Agriculture and Rural Development Banks (SCARDBs) or Primary Cooperative Agriculture and Rural Development Banks (PCARDBs).
- Urban Cooperative Banks refers to primary cooperative banks located in **urban and semi-urban areas**. These banks, till 1996, were allowed to **lend money only for non-agricultural purposes**.
 - These banks were traditionally centered around communities, localities and workplace groups. They essentially lent to small borrowers and businesses. **Today, their scope of operations has widened considerably**.

9. (b)

Statement 1 is not correct: Minimum Support Price (MSP) is a form of market intervention by the Government of India to insure agricultural producers against any sharp fall in farm prices.

- **The Cabinet Committee of Economic Affairs** announces the MSP **at the start of each sowing season**, taking into account the recommendations of the Commission for Agricultural Costs and Prices (CACP)

Statement 2 and 3 are correct: The Centre announces the MSP (which is not legally guaranteed) for **22 mandated crops** and **Fair & Remunerative Price for sugarcane**.

- In addition, **MSP for Toria and de-husked coconut** is also fixed on the basis of MSPs of rapeseed & mustard and copra respectively.
- **Calculation of MSP:** While recommending MSPs, the CACP looks at the following factors:
 - demand and supply of a commodity;
 - cost of production;
 - market price trends (both domestic and international);
 - inter-crop price parity;
 - the terms of trade between agriculture and non-agriculture (that is, the ratio of prices of farm inputs and farm outputs);
 - a minimum of 50 per cent as the margin over the cost of production;
 - **the likely implications of an MSP on consumers of that product.**

10. (a)

Statement 1 is not correct: UPI is a digital payment system through which a user can both send and receive money through a Virtual Payment Address (VPA). The money will be directly debited from the customer's bank account.

- It was developed by **National Payments Corporation of India (NPCI)** in **2016**.
- **Statement 2 is correct: Virtual Payment Address (VPA): VPA is a unique identifier that helps UPI to track a person's account.** VPA can be used to make and request payments through a UPI-enabled app. There is no need to fill bank account details repeatedly for making multiple payments.
- **Statement 3 is not correct:** Several countries across the globe are adopting UPI for Person-to-Person (P2P), Person-to-Merchant (P2M) and cross-border payments.
- RBI has also taken steps for cross border linkage of fast payment systems of **India and Singapore i.e. UPI-PayNow**.

11. (c)

Statement 1 is correct: Disinflation is a temporary slowing of the pace of price inflation and is used to describe instances when the inflation rate has reduced marginally over the short term. Unlike inflation and deflation, which refer to the direction of prices, disinflation refers to the rate of change in the rate of inflation.

Statement 2 is correct: When the central bank follows Tight money policy, it reduces the supply of money in the economy, causing a disinflationary effect.

12. (d)

Recently, The **World Bank released its latest Migration and Development Brief**.

- The remittance flows are expected to reach \$840 billion in 2023 for the world.
 - In 2024, the remittances growth rate globally is projected to increase to 2.0% in 2024, increasing inflows by \$18 billion.
- Region Wise: The growth of remittances is likely to be the highest in Latin America and the Caribbean (forecast of 3.3%), as the labour market in the US continues to be strong.

13. (d)

Statement 1 is not correct: An increase in the Cash Reserve ratio decreases the money multiplication in the market as the banks need to put more cash with them in reserve and the money moving into the market would be less naturally reducing its multiplication.

Statement 2 is not correct: A haircut is the difference between the loan amount and the actual value of the asset used as collateral. It reflects the lender's perception of the risk of fall in the value of assets. In simple terms, taking a haircut means "agreeing to settle a deal for a loss" which means banks will settle for loss in deal with the borrower when the borrower declares bankruptcy.

14. (b)

Statement 1 is correct: HNIs belong to the financial services sector where a class of individuals has an **investible surplus of more than Rs 5 crore**. Such investors are categorised as retail as they are measured by their net worth in the financial industry.

- Types of HNIs
 - **High-net-worth individuals (HNWIs):** Investors who own liquid assets valued between Rs 5 lakh and Rs 5 crore.
 - **Very-high-net-worth individuals (VHNWIs):** Investors who possess liquid assets valued between Rs 5 crore and Rs 25 crore.
 - **Ultra-high-net-worth individuals (UHNWIs):** Investors who own more than Rs 25 crore in liquid assets.

Outflow of HNIs

- In 2023, India will be the **second-biggest loser of millionaires**, after China's net outflow of 13,500.
- **In 2022**, India lost 7,500 HNWIs, the **3rd highest** after China (10,800) and war-wrecked Russia (8,500). **Hence, statement 2 is not correct.**
- Between 2013 and 2022, India lost 48,500 HNWIs, these outflows are not particularly concerning as **India produces far more new millionaires than it loses to migration.**

15. (d)

All the statements are correct: About Competition Commission of India (CCI)

- The **Competition Commission of India** has been established to enforce the competition law under the Competition Act, 2002.
- It comes under the **Ministry of Corporate Affairs**. It is a **quasi-judicial body**.
- It should be noted that on the **recommendations of Raghavan committee, the Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act)** was repealed and **replaced by the Competition Act, 2002**.
- The Commission consists of a Chairperson and not more than 6 Members appointed by the Central Government.
- It is the **statutory duty of the Commission to eliminate practices** having an adverse effect on competition, promote and sustain competition, protect the interests of consumers and ensure freedom of trade carried on by other participants, in markets in India as provided in the Preamble as well as Section 18 of the Act.

Competition Act

- The Competition Act, 2002, as **amended by the Competition (Amendment) Act, 2007**, follows the philosophy of modern competition laws.
- The **Act prohibits anti-competitive agreements**, abuse of dominant position by enterprises and regulates combinations (acquisition, acquiring of control and M&A), which causes or likely to cause an appreciable adverse effect on competition within India.

16. (c)

In News: Recently, the Union government allocated 145 Crores rupees to Nagaland for the purpose of **Unity Mall under One District One Product (ODOP) in Dimapur**.

Statement 1 is correct: One District, One Product is an initiative to **boost Indian tradition and ease of doing business**. This initiative was proposed in the Budget 2023 by the Finance Minister. The initiative aims to make **regional products more accessible while providing capital to those who produce them**.

Statement 2 is correct: Unity Malls will be based on the principle of promotion and sale of the state's own "ODOPs (one district, one product)". The unity malls would focus on the promotion and sale of the state's own "ODOPs (one district, one product), GI products and other handicraft products, and for providing space for such products of all other States". Unity Mall aka Ekta Mall is not a novel concept, one such Ekta Mall is already operational near the Statue of Unity in Gujarat.

17. (a)

Statement 1 and 2 are correct: World Economic Forum is the International Organization for **Public-Private Cooperation**.

- The Forum engages the foremost **political, business, cultural and other leaders** of society to shape global, regional and industry agendas.
- It was **established in 1971** as a not-for-profit foundation and is headquartered in Geneva, Switzerland.
- It is independent, impartial and not tied to any special interests.

Statement 3 is not correct: Global Economic Prospects is the **World Bank** flagship report. It is a semi-annual report that examines global economic developments and prospects, with a special focus on emerging markets and developing countries.

18. (c)

Inflation:

- **Inflation** or the **inflation rate** is the rate at which the **general price level rises**.
- When it is reported that the inflation rate was 5% in June it implies that the general price level of the economy (as measured by a representative basket of goods and services) was **5% more than what it was in June 2022**.
- There are two main ways in which inflation happens.
 - Either prices get pushed up because input costs have risen — this is called **cost-push inflation**.
 - Or they are pulled up because there is excess demand — this is called **demand-pull inflation**.
- **Disinflation:**
 - Disinflation refers to the trend when the **inflation rate decelerates**.
 - Suppose it was 10% in April, 7% in May and 5% in June. This is disinflation.
 - In other words, disinflation refers to a period when even though prices are rising (or inflation is happening), it is happening at a slower rate each passing month.

Deflation:

- Deflation is the exact opposite of inflation. Imagine if the general prices level in June was 5% lower than what it was in June last year. That's deflation.

Reflation:

- Reflation typically follows deflation as policymakers try to pump up economic activity either by government spending more and/or interest rates being reduced.



AGRICULTURE

1. Which of the following are the reasons behind Punjab's decreasing area under cotton cultivation?

1. Attack by Whiteflies in the recent past
2. Infestation of leaf curl virus
3. Pink Bollworm insect disease

Select the correct answer using the code given below:

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

2. With reference to India's Dairy Sector, Consider the following statements:

1. India is the highest milk producer in the world contributing half of the global milk production.
2. During the 1960s, India was a milk-deficit nation dependent on imports.
3. Operation Flood was launched in the Fifth Five Year Plan.

How many of the statements given above are correct?

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

3. With reference to the Direct seeding of rice (DSR), consider the following statements:

1. It is also called the broadcasting seed technique.
2. It is supposed to be cost-effective as it is less labour-intensive than the conventional method.
3. The seed requirement for DSR is lower than the transplanting method.

Which of the statements given above are correct?

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

4. Consider the following statements regarding Transgenic crops in India:

1. Cotton remains the only transgenic crop that is being commercially cultivated in India.
2. The Genetic Engineering Appraisal Committee (GEAC) is the final arbiter in the case of GM crops.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

5. Consider the following statements:

1. India is the largest producer and exporter of rice in the world.
2. Joha Rice is majorly grown in the eastern coastal regions of India.
3. Joha Rice is aromatic in nature and proven to be effective in diabetes management.

How many of the above statements are correct?

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

6. Consider the following statements:

1. **Statement-I:** The DDT (dichloro-diphenyl-trichloroethane) used for agriculture decimates the bald eagle population across the US.
2. **Statement-II:** Silent Spring book written by Rachel Carson documented the major cause of decline of bald eagle population.

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

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

EXPLANATIONS

1. (d)

Decrease in Punjab's cotton cultivation

- About:
 - Punjab has recently recorded its lowest-ever area under cotton cultivation in over six decades.
 - This year Punjab managed to bring **1.75 lakh hectares of land** under cotton cultivation, falling short of the state government's **target of 3 lakh hectares** by 42%, with the **lowest-ever area recorded** under cotton farming.
 - The state's cotton yield has **decreased by 45%** compared to the previous year.
- Reasons behind the decreasing area under cotton: All the options are correct.

Whiteflies:

- The decline began in 2015, when the cotton crop was severely attacked by whiteflies.
- These are tiny white insects that suck sap from the cotton plant's phloem or living tissue, which transports food made in the leaves (through photosynthesis) to other parts.

Leaf curl virus:

- The whiteflies insect is also a carrier for the **leaf curl virus**.
- The disease-affected plants get stunted and lead to reduced yields.

Pink Bollworm insect:

- The Pink Bollworm insect also caused disease among the crop in 2021 and farmers were unaware of the means to deal with it.
- The information on controlling the disease reached them after a delay, causing substantial losses.

2. (a)

Statement 1 is not correct: India is the highest milk producer and ranks first position in the world contributing **24%** of global milk production in the year 2021-22.

Statement 2 is correct: During the 1950s and 1960s, India was a milk-deficit nation dependent on imports, and the annual production growth was negative for several years. In 1950-51, per capita consumption of milk in the country was only 124 grams per day. By 1970, this figure had dropped to 107 grams per day, one of the lowest in the world. The country produced less than 21 million tonnes of milk per annum despite having the largest cattle population in the world.

Statement 3 is not correct: Starting in **1970 (Fourth Five Year Plan)**, NDDB replicated the Anand Pattern cooperatives through the Operation Flood programme all over India. Dr. Verghese Kurien, widely renowned as the **“Father of White Revolution” in India**, was the first chairman of NDDB.

Operation Flood

It was implemented in the following phases:

- **Phase I (1970–1980)** was financed by the sale of skimmed milk powder and butter oil donated by the European Union (then the European Economic Community) through the World Food Programme.
- **Phase II (1981–1985)** increased the number of milk sheds from 18 to 136; urban markets expanded the outlets for milk to 290. By the end of 1985, a self-sustaining system of 43,000 village cooperatives with 42,50,000 milk producers had been covered.
- **Phase III (1985–1996)** enabled dairy cooperatives to expand and strengthen the infrastructure required to procure and market increasing volumes of milk. This phase added 30,000 new dairy cooperatives, which led to a total of 73,000.

3. (a)

Statement 1 and 2 are correct:

About Direct seeding of rice

- It is also called the **‘broadcasting seed technique’** and is a **water-saving method** of sowing paddy.
- Seeds are **directly drilled** into the fields in this method.
- It allows the farmers to go ahead with sowing the seed without having to wait for rainfall and without the need for spending a month on growing paddy nurseries and planting them — both tasks require heavy manpower.

Benefits and Need

- The direct-seeding method allows farmers to save time as the initial growth would require far less water than in traditional sowing.
- **It is supposed to be cost-effective as it is less labour-intensive than the conventional method.**
- Little disturbance to the soil structure.
- Statement 3 is not correct: Challenges
- The biggest challenge in the direct-seeding method is the problem of weeds beginning to grow along with Paddy.

The seed requirement for DSR is also higher than transplanting.

- In transplanting, farmers prepare nurseries where the paddy seeds are first sown and raised into young plants. These seedlings are then uprooted and replanted 25-35 days later in the main field. The nursery seed bed is 5-10% of the area to be transplanted.

4. (a)

Status of transgenic crops in India

About:

- There is an array of crops — **brinjal, tomato, maize, chickpea** — in various stages of trials that employ transgenic technology.
- However, cotton remains the only transgenic crop that is being commercially cultivated in India. **Hence statement 1 is correct.**

Mustard hybrid:

- **The GEAC, the apex technical body** charged with **evaluating proposals for testing genetically modified (GM) seeds**, has recently approved the environmental release of **Mustard hybrid DMH-11** and its parental lines.
- However, the GEAC, which is under the Union Environment Ministry, isn't the final arbiter in the case of GM crops. **Hence statement 2 is incorrect.**
- There is **long-standing litigation in the Supreme Court** on the **permissibility of allowing transgenic food crops** in farmer fields based on petitions filed by activist Aruna Rodrigues and Gene Campaign, an NGO.
- Following the GEAC approval for DMH-11, the petitioners approached the Supreme Court asking for a stay on the release of the crop because it would encourage farmers to spray herbicides, which are banned in India.
- Hearings on this case are still ongoing.

5. (a)

Statement 1 is not correct: Rice is one of the most important food crops and feeds more than 60 per cent of the population of India. It is India's largest agricultural crop (accounting for over 40% of the total foodgrain output). India is the world's biggest exporter (around 40% of the world's export). **India is the 2nd largest rice producer in the world after China.**

Statement 2 is not correct: Joha is a short-grain winter paddy known for its significant aroma and noteworthy taste. **It is cultivated in the Northeastern region of India.** Assam's aromatic Joha rice has also got the GI (geographical indications) tag.

Statement 3 is correct: The Joha variety of rice is found to be **effective in lowering blood glucose and preventing diabetes** is an effective nutraceutical of choice in diabetes management. The research explored the nutraceutical properties of **aromatic Joha rice**. They detected two unsaturated fatty acids viz., linoleic acid (omega-6) and linolenic (omega-3) acid.

6. (a)

- **Statement 1 is correct:** The appearance of DDT (dichloro-diphenyl-trichloroethane) used for agriculture decimates the bald eagle population. DDT is promoted as an insecticide and is used to kill malaria-carrying mosquitos and agricultural pests. Water bodies contaminated with DDT, which in turn contaminated the fish in them. The chemical would enter the bald eagles' bloodstream when they would eat these fish. DDT resulted in female eagles laying extremely thin-shelled eggs, leading to nesting failures.
- **Statement 2 is correct:** Silent Spring book written by Rachel Carson for the first time, documented the detrimental effects of chemical pesticides on the environment and meticulously described how DDT was the prime cause behind the decline in bald eagle populations. Rachel Carson's Silent Spring played a large role in articulating ecology as a 'subversive subject'. Notably, a nationwide ban on the use of DDT for agricultural use was introduced in 1972 post environmental movement.



INDIAN POLITY & CONSTITUTION

1. Consider the following statements with reference to the Sedition:
 1. It is a bailable and non-cognizable offense drafted by Thomas Babington Macaulay.
 2. It is dealt with in Section 124A of Criminal Procedure Code (CrPC).
 3. The Law Commission has recently recommended the total repeal of the Sedition law.How many of the statements given above are correct?
 - (a) Only one
 - (b) Only two
 - (c) All three
 - (d) None
2. With reference to the Law Commission of India, consider the following statements:
 1. It is a Quasi judicial body.
 2. It works under the Ministry of Law & Justice, Department of Legal Affairs.
 3. Its vision is reforming the laws for maximizing justice in society and promoting good governance under the rule of law.How many statements given above is/are correct?
 - (a) Only one
 - (b) Only two
 - (c) All three
 - (d) None
3. This state of India has become the first state to declare access to the internet a basic human right and has already achieved the milestone of 100% literacy.
The above description mentions which state of India?
 - (a) Assam
 - (b) Meghalaya
 - (c) Kerala
 - (d) Manipur
4. Consider the following statements regarding the Law Commission of India:
 1. It is a statutory body constituted by the Ministry of Law & Justice, Department of Legal Affairs.
 2. It is constituted with a definite term of reference to carry out research in the field of law.Which of the statements given above is/are correct?
 - (a) 1 only
 - (b) 2 only
 - (c) Both 1 and 2
 - (d) Neither 1 nor 2
5. With reference to the Uniform Civil Code (UCC), consider the following statements:
 1. It is mentioned under Article 44 of the Indian Constitution.
 2. Goa is the only state to have Uniform Civil Code.
 3. The 22nd Law Commission favored its adoption throughout India.How many of the above statements are correct?
 - (a) Only one
 - (b) Only two
 - (c) All three
 - (d) None

EXPLANATIONS

1. (d)

In News: The Law Commission of India has recommended against the total repeal of sedition law and has instead proposed that the provision be retained with certain amendments.

- **Statement 1 is not correct:** Sedition is a **non-bailable** and **cognizable** offence, which can invite imprisonment upto three years, or for life, and a fine as imposed by the court in session.
- **Statement 2 is not correct:** **Section 124A of the Indian Penal Code (IPC)**, which deals with sedition, was drafted by Thomas Babington Macaulay and included in the IPC in 1870. It defines Sedition as every speech or expression that "brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the government established by law in India".
- **Statement 3 is not correct:** The Law Commission of India has recommended retention of the sedition law and enhancement of the minimum punishment to seven years in jail from the current three years, while proposing procedural safeguards to prevent abuse.

2. (b)

Statement 1 is not correct: Law Commission of India is not a quasi judicial body but is constituted by a notification of the Government of India.

Statement 2 and 3 are correct: It comes under the Ministry of Law & Justice, Department of Legal Affairs.

- **Vision:** Reforming the laws for maximizing justice in society and promoting good governance under the rule of law.
- **Function:** To carry out **research in the field of law and the Commission makes recommendations to the Government** (in the form of Reports) as per its terms of reference.
 - The Law Commission has taken up various subjects on references made by the Department of Legal Affairs, Supreme Court and High Courts and submitted 280 reports.
 - It provides excellent thought provoking and vital review of the laws in India.

3. (c)

Option c is correct: Kerala has been declared India's first fully e-governed state, implementing the e-office system and digital literacy campaigns.

Kerala becomes first state to declare access to internet a basic human right. Kerala already achieved the milestone of 100% literacy.

4. (b)

About the Law Commission of India

- **About:**
 - Law Commission of India is a **non-statutory body**
 - It is constituted by a **notification** of the Government of India, **Ministry of Law & Justice, Department of Legal Affairs. Hence statement 1 is incorrect.**
- **Terms of reference & recommendations:**
 - It is constituted **with definite terms of reference to carry out research in the field of law. Hence statement 2 is correct.**
 - The Commission **makes recommendations to the Government** in the form of **Reports** as per its terms of reference.

- The Law Commission until now has **taken up various subjects** on references made by the Department of Legal Affairs, Supreme Court and High Courts.
- **Origin:**
 - The first Law Commission was established during colonial rule in India by the **East India Company under the Charter Act of 1833** and was presided over by Lord Macaulay.
 - After that, **three more commissions were established** in pre-independent India.

5. (b)

- **Statement 1 is correct:** The UCC refers to a common set of laws governing personal matters such as marriage, divorce, adoption, inheritance and succession for all citizens, irrespective of religion. Article 44 of the Constitution makes a reference to a UCC and says, "The State shall endeavour to secure for the citizens a uniform civil code throughout the territory of India."
- **Statement 2 is correct:** Goa is the only state in India that has uniform civil code regardless of religion, gender, caste. Goa's 'uniform' civil code allowed certain privileges also to Hindus in such matters like second marriage under a law called the Code of Usages and Customs of Gentile Hindus.
- **Statement 3 is not correct:** The 22nd Law Commission of India sought fresh suggestions from various stakeholders, including public and religious organisations, on the Uniform Civil Code (UCC). The previous 21st Law Commission had said UCC is neither necessary nor desirable at this stage in the country.



INDIAN SOCIETY

1. Which of the following parameters are identified in the National Institutional Ranking Framework (NIRF)?

1. Teaching, Learning, and Resources
2. Research and Professional Practices
3. Graduation Outcomes
4. Outreach and Inclusivity

Select the correct answer using the code given below:

- | | |
|----------------------|--------------------|
| (a) 2, 3, and 4 only | (b) 1,3 and 4 only |
| (c) All of the above | (d) None |

2. With reference to the Manual Scavenging, consider the following statements:

1. The definition of manual scavenger doesn't include people employed to clean septic tanks, ditches, or railway tracks.
2. No person or agency can engage or employ any person for manual scavenging anymore.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

3. Regarding the Global Gender Gap Index, consider the following statements:

1. It is published annually by the World Bank (WB).
2. According to the 2023 index, Finland is the most gender-equal country in the world.
3. India has improved eight positions since the 2022 edition.

Which of the above pairs is/are correctly matched?

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

4. Consider the following statements with reference to Global Liveability Index 2023.

1. It is published by the World Economic forum (WEF).
2. It assesses the best living conditions of cities based on healthcare and education only.
3. Vienna in Austria tops the ranking of the most liveable cities in the world in 2023.

Which of the statements given above is/are correct?

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

5. Consider the following statements:

1. The Meira Paibis are also known as Imas or Mothers of Meghalaya.
2. Meira Paibis role as society's conscience keepers is widely acknowledged.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

6. With reference to the Modern Slavery, consider the following statements:

1. Forced labour, forced marriage and debt bondage are termed as modern slavery.
2. Global Slavery Index is released by the human rights organisation, Walk Free.
3. India, China, North Korea, Pakistan, Russia hosts the maximum number of people living in modern slavery.

How many statements given above is/are correct?

- (a) One only (b) Two only
(c) All three (d) None

EXPLANATIONS

1. (c)

In News: The National Institutional Ranking Framework (NIRF) announced the India Rankings 2023 of higher education institutions.

It has been accepted by the MoE and launched by the Honourable Minister for Education on 29th September 2015.

- This framework outlines a methodology to rank institutions across the country.
- The methodology draws from the overall recommendations broad understanding arrived at by a Core Committee set up by MHRD, to identify the broad parameters for ranking various universities and institutions.
- The parameters broadly cover “Teaching, Learning and Resources,” “Research and Professional Practices,” “Graduation Outcomes,” “Outreach and Inclusivity,” and “Perception”.

2. (b)

Statement 1 is not correct: The Act of Manual Scavenging refers to manually cleaning, carrying, and disposing of, or handling in any manner, human excreta in an insanitary latrine.

- In 2013, the definition of manual scavengers was also broadened to include people employed to clean septic tanks, ditches, or railway tracks.

Statement 2 is correct: Manual scavenging as defined under Section 2 (1) (g) of the “Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 (MS Act, 2013)” is prohibited with effect from 6.12.2013.

- No person or agency can engage or employ any person for manual scavenging from the above date.
- Any person or agency who engages any person for manual scavenging in violation of the provisions of the MS Act, 2013 is punishable under Section 8 of the above Act, with imprisonment upto 2 years or fine upto Rs. One Lakh or both.

3. (d)

Statements 1 and 2 are not correct: World Economic Forum (WEF) released its annual Gender Gap Report 2023.

- According to the Index, no country has yet achieved full gender parity, although the top nine countries (Iceland, Norway, Finland, New Zealand, Sweden, Germany, Nicaragua, Namibia, and Lithuania) have closed at least 80% of their gap.
- Iceland is the most gender-equal country in the world for the 14th consecutive year and the only one to have closed more than 90% of its gender gap, according to the report.

Statement 3 is correct: India was ranked 127 out of 146 countries in terms of gender parity — an improvement of eight places from last year.

- India was ranked 135 in the report's 2022 edition.

4. (b)

In News: Recently, the Global Liveability Index 2023 was published.

Statements 1 and 2 are not correct : Global Liveability Index 2023 is published by the **Economic Intelligence Unit (EIU) of the Economist**.

- The concept of livability assesses the best or worst living conditions of cities based on 30 qualitative and quantitative factors across five broad categories of **stability, healthcare, culture and environment, education, and infrastructure**.
- It quantifies the challenges that might be presented to an individual's lifestyle in 173 cities worldwide

Statement 3 is correct: Vienna in Austria tops the ranking of the most liveable cities in the world followed by Copenhagen in Denmark, Melbourne, and Sydney on 3rd and 4th rank while Vancouver has been placed as the 5th best city on the liveability index.

- Damascus in Syria and Tripoli in Libya remained at the bottom of the liveability index.

5. (b)

Statement 1 is not correct: The Meira Paibi was **formed in 1977**.

- The Meira Paibis, also known as **Imas or Mothers of Manipur**, are Meitei women who come from all sections of society in the Imphal valley, are widely respected, and represent a powerful moral force.

Statement 2 is correct: The Meira Paibis are **loosely organised**, usually led by groups of senior women, but have no rigid hierarchy or structure, or any overt political leanings.

- Their role as society's conscience keepers is widely acknowledged.

6. (c)

All three statements are correct: Modern slavery refers to situations of exploitation that a person cannot refuse or leave because of threats, violence, coercion, deception, or abuses of power.

- Modern slavery is an umbrella term and includes a whole variety of abuses such as **forced labour, forced marriage, debt bondage, sexual exploitation, human trafficking, slavery-like practices, forced or servile marriage, and the sale and exploitation of children**.

Global Slavery Index:

- The index is released by **Walk Free**, a human rights organisation and uses data provided by the **Global Estimates of Modern Slavery**, which, in turn, is produced by **International Labour Organization (ILO), Walk Free, and International Organization for Migration (IOM)**.
- This is the **fifth edition** of the Global Slavery Index and is based on the **2022 estimates**.
- **Prevalence of modern slavery:** The prevalence refers to the incidence of modern slavery per 1000 population. The Country-wise findings are,
 - **countries with the Highest prevalence:** North Korea, Eritrea, Mauritania, Saudi Arabia, Turkey.
 - **countries with the lowest prevalence:** Switzerland, Norway, Germany, Netherlands, Sweden.
 - **Countries hosting the maximum number of people living in modern slavery:** India, China, North Korea, Pakistan, Russia.
- The countries hosting the maximum number of people living in modern slavery account for six members from G20 nations: **India, China, Russia, Indonesia, Türkiye, and the US**.



DEFENCE/ INTERNAL SECURITY

1. Which of the following missiles were developed under Integrated Guided Missile Development Programme (IGMDP)?

- | | |
|------------|---------|
| 1. Prithvi | 2. Agni |
| 3. Akash | 4. Nag |

Select the correct answer using the codes given below:

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

2. What is the Wolf Amendment of 2011?

- (a) It prohibits the National Aeronautics and Space Administration (NASA) from working directly with any China-affiliated organisation.
- (b) It is an international treaty for climate change.
- (c) It provides the legal obligations for the international laws related to outer space.
- (d) It gives limited rights to the refugees during any war situation.

3. Consider the following statements:

- 1. CERT-in is a nodal agency to deal with cyber security threats in India established under the IT Act 2000.
- 2. The National Disaster Management Authority (NDMA) has overlapping responsibilities with CERT-IN comes under the Prime Minister's Office.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

4. With reference to the Stockholm International Peace Research Institute (SIPRI) Annual Report 2023, consider the following statements:

- 1. China could potentially have at least as many intercontinental ballistic missiles (ICBMs) as either the USA or Russia by the turn of the decade.
- 2. The USA, Israel, and Japan together are estimated to host about 70 percent of the Private military and security companies (PMSCs).
- 3. The five largest arms importers were India, Ukraine, Qatar, Pakistan and China.

How many statements given above is/are **not** correct?

- | | |
|---------------|--------------|
| (a) One only | (b) Two only |
| (c) All three | (d) None |

5. With reference to the Central Bureau of Investigation (CBI), consider the following statements:
1. The agency must mandatorily obtain the consent of the state government concerned before beginning to investigate a crime in a state.
 2. CBI was set up by a resolution of the Ministry of Home Affairs on the recommendation of the First Administrative Reform Commission.
 3. The CBI is the nodal police agency in India that coordinates investigations on behalf of Interpol Member countries.
 4. The CBI has jurisdiction all over the country.
- How many of the above statements are correct?
- (a) Only one (b) Only two
(c) Only three (d) All four
6. Which of the following statements is **not correct** regarding the 'Theatre Command System'?
- (a) The idea behind the 'Theatre Command System' is to bring synergistic coordination between the three branches of the armed forces.
(b) There are no joint services commands in India.
(c) The USA was the first country to enforce a theatre command system
(d) None of the above
7. Consider the following statements:
1. A corvette is the largest type of naval ship.
 2. INS Kirpan is a Khukri class missile corvette.
 3. Corvette are the modern naval ships developed post 1990.
- How many statements given above are correct?
- (a) Only one (b) Only two
(c) All three (d) None
8. Consider the following statements:
1. The Appointments Committee of the Cabinet is headed by the Prime Minister of India.
 2. The Research and Analysis Wing was established after the 1962 border war with China.
 3. Rameshwar Nath Kao was the first director of RAW.
- How many of the statements given above are correct?
- (a) Only one (b) Only two
(c) All three (d) None
9. Emergency Response Support System (ERSS) recently seen in the news, is it related to which of the following committees?
- (a) Rajamannar committee (b) Justice JS Verma committee
(c) KV Kamath Committee (d) N.K. Singh committee

EXPLANATIONS

1. (d)

A successful training launch of a medium-range ballistic missile, Agni-1 was carried out by the Strategic Forces Command from APJ Abdul Kalam Island, Odisha.

Integrated Guided Missile Development Programme (IGMDP) was conceived by renowned scientist Dr A P J Abdul Kalam to enable India to attain self-sufficiency in the field of missile technology.

The missiles developed under the programme were:

- Short-range surface-to-surface ballistic missile (Prithvi)
- Intermediate-range surface-to-surface ballistic missile (Agni)
- Short-range low-level surface-to-air missile (Trishul)
- Medium-range surface-to-air missile (Akash)
- Third generation anti-tank missile (Nag)

2. (a)

In 2011, the Wolf Amendment was passed, prohibiting NASA from working directly with any China-affiliated organisation — unless explicitly authorised by Congress — for fear of possible theft of secret technology, intellectual properties, and documents.

3. (a)

The CoWIN portal, which is used by most Indians to register for COVID-19 vaccination, has been in the news recently after reports of a data breach by a Telegram bot.

The **Indian Computer Emergency Response Team (CERT-In)** had been asked to investigate the issue and submit a report.

CERT-in

- It is an office within the **Union Ministry of Electronics and Information Technology (MeitY)** established in **2004 under the IT Act 2000**. Hence statement 1 is correct.
- It is the **nodal agency to**
- Deal with cyber security threats.
- Strengthen the security-related defence of the Indian Internet domain.
- Coordinate with public and private organisations in India when cyber incidents like data breaches and ransomware attacks are reported.
- Issue advisories for software vulnerabilities as guidance for organisations.
- CERT-IN has **overlapping responsibilities with other agencies such as:**
- National Critical Information Infrastructure Protection Centre (NCIIPC) which is under the National Technical Research Organisation (NTRO) that comes under the Prime Minister's Office.
- The National Disaster Management Authority (NDMA) is under the Ministry of Home Affairs. Hence statement 2 is not correct

4. (b)

Statement 1 is correct: The nine nuclear-armed states—the United States, Russia, the United Kingdom, France, China, India, Pakistan, the Democratic People's Republic of Korea (North Korea) and Israel—continue to modernize their nuclear arsenals. Russia and the USA together possess almost 90 percent of all nuclear weapons.

China: China's nuclear arsenal **increased from 350 warheads in January 2022 to 410** in January 2023, and it is expected to keep growing. China could potentially have at least as many **intercontinental ballistic missiles (ICBMs)** as either the USA or Russia by the turn of the decade.

Statements 2 and 3 are not correct: The past 20 years have witnessed the rapid growth of PMSCs. There is no universally accepted, legally binding, standard definition of a PMSC and the sector often operates in a legal lacuna: the employees of PMSCs are not soldiers or civilians, nor can they usually be defined as mercenaries.

- The **USA, the United Kingdom, China and South Africa** together are estimated to host about **70 percent of the entire sector**.

- The five largest arms importers were **India, Saudi Arabia, Qatar, Australia and China**, which together accounted for **36 percent** of total arms imports.
- The region that received the largest volume of imports of major arms in 2018–22 was **Asia and Oceania**, accounting for **41 percent** of the global total, followed by the Middle East (31 percent), Europe (16 percent), the Americas (5.8 percent) and Africa (5.0 percent).

5. (b)

About the Central Bureau of Investigation (CBI)

- It is the premier investigating police agency in India. It has its origin in the Special Police Establishment set up in 1941 to probe bribery and corruption during World War II. Later, it was set up by a resolution of the **Ministry of Home Affairs in 1963 after Santhanam committee recommendation. Hence, Statement 2 is not correct.**
- The CBI is governed by the **Delhi Special Police Establishment Act (DPSEA)**. Under this law, the CBI is a special wing of the Delhi Police and hence, its original jurisdiction is restricted to the Capital. **Hence, Statement 4 is not correct.**
- Therefore, the CBI must mandatorily obtain the consent of the state government concerned before beginning to investigate a crime in a state. **Hence, Statement 1 is correct.**
- The CBI is under the administrative control of the Ministry of Personnel, Pension & Public Grievances, Government of India.
- It is also the nodal police agency in India, which coordinates investigations on behalf of Interpol Member countries. **Hence, Statement 3 is correct.**
- The CBI is different from the National Investigation Agency, which has jurisdiction all over the country.

6. (b)

Joint Theatre Commands

Idea:

- The idea behind 'Theatre Command System' is to bring synergistic coordination between the three branches of the armed forces. **Hence statement (a) is correct.**
- Besides the operational synergies, the theatre command system will also contribute to more streamlined costs and a leaner fighting force.
- There are two joint services commands in India: Hence statement (b) is incorrect.

Andaman and Nicobar Command (ANC):

- Based on the principle of theatre command system, ANC is considered to be the only one of its kind in the country that amalgamates the army, navy and air force.

Strategic Forces Command (SFC):

- As SFC takes care of the nuclear assets of India and is not related to any specific theatre of war.

Countries with theater commands:

- Various countries around the globe already have some form of theatre or joint command in place to bring better integration among their military forces.
- Notably, the USA was the first country to enforce a theatre command system with six geographical and four functional commands presently in place. **Hence statement (c) is correct.**

7. (a)

Statement 1 is not correct: A corvette is the smallest type of naval ship, falling below the frigate's warship class. It is amongst the most agile ships along with missile boats, anti-submarine ships, coastal patrol crafts, and swift attack naval vessels.

Statement 2 is correct: INS Kirpan is a Khukri class missile corvette displacing 1,350 tonnes and was commissioned into the Navy in 1991.

The Kirpan and Shield were main weapons of Sikhs. The design of the sword and the shield is taken from "The Journal of Indian Art and Industry vol. VI" reproduced from the specimen preserved in the Lahore museum, which was displayed in the Indian and colonial exhibition of 1886.

Statement 3 is not correct: Corvettes date back to the 18th and the 19th century when they were extensively used in the naval warfare duels that were fought at high seas.

8. (c)

All the statements are correct: The Appointments Committee of the Cabinet headed by the Prime Minister, has approved IPS officer Ravi Sinha's appointment as Secretary, Research and Analysis Wing (RAW) for a tenure of two years.

Research and Analysis Wing (RAW)

About:

- **Research and Analysis Wing (RAW)** is India's premier intelligence agency and was created in 1968 to handle India's external intelligence affairs.
- The chief of RAW is **designated secretary (research) in the Cabinet Secretariat**, which is part of the prime minister's office.
- **RAW reports directly to the prime minister instead of the Ministry of Defense.**
- Since its inception, RAW is credited with providing **intelligence support to many significant operations on foreign soil.**

History:

- Until 1968, the **Intelligence Bureau (IB)** was handling both the **internal and external intelligence.**
- After the **1962 border war with China**, the need for a separate external intelligence agency was felt. During that conflict, our intelligence failed to detect Chinese build up for the attack.
- As a result, India established a dedicated external intelligence agency, the **Research and Analysis Wing.**
- **Founded mainly to focus on China and Pakistan**, over the last forty years the organization has expanded its mandate and is credited with greatly increasing India's influence abroad.
- In 1968, **Prime Minister Indira Gandhi** appointed **R. N. Kao as the first director of RAW.**

9. (b)

Recently, the decision has been taken to integrate Women Helpline, and Child Helpline with ERSS-112 (Emergency Response Support System) as part of the broader vision of One Nation One Helpline.

The Ministry of Home Affairs (MHA) has accepted the recommendations of the Justice JS Verma Committee in the backdrop of the unfortunate incident of Nirbhaya in December 2012 and has approved a national project by the name of 'Emergency Response Support System (ERSS)', earlier referred as Nationwide Emergency Response System (NERS) with a view to introducing a Pan-India Single Emergency Response Number '112' to address all kinds of distress calls such as police, fire, and ambulance, etc.



INTERNATIONAL RELATIONS

1. Consider the following countries:

1. Philippines
2. Maldives
3. Mauritius
4. Singapore

How many countries are a part of the South East Asia Region?

- | | |
|----------------|---------------|
| (a) Only one | (b) Only two |
| (c) Only three | (d) Only four |

2. Recently, the Chinese President chaired the inaugural China-Central Asia Summit. In this context, The Central Asia region (CA) comprises which of the following countries?

1. Kazakhstan
2. Saudi Arabia
3. Uzbekistan
4. Tajikistan

Select the correct answer using the code given below

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

3. "The Helmand River Treaty" often heard in the news corresponds to which of the following countries?

- | | |
|---------------------------|--------------------------------|
| (a) Iran and Iraq | (b) Afghanistan and Tajikistan |
| (c) Iran and Turkmenistan | (d) Afghanistan and Iran |

4. With reference to Quadrilateral Security Dialogue, consider the following statements:

1. It is an informal multilateral grouping of India, Australia, Japan, and France.
2. It was formalised in 1999 after the Asian financial crisis.
3. The Quad leaders held their first formal summit in 2022 in Japan.

Which of the statements given above are correct?

- | | |
|----------------------|------------------|
| (a) 1 and 3 only | (b) 2 and 3 only |
| (c) All of the above | (d) None |

5. With reference to the North Atlantic Treaty Organization (NATO), consider the following statements:

1. The key purpose of NATO's formation was to create a "collective defence".
2. New members are admitted with the consent of a majority of 2/3rd members present and voting.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

6. Atlantic declaration recently seen in the news, is related to which of the following?

- (a) France and Canada
(b) Brazil and Norway
(c) United States of America and United Kingdom
(d) Saudi Arabia and United Arab Emirates

7. With reference to the European Union's recently signed Asylum Policy, consider the following statements:

1. An asylum seeker is a person who has left their country and is seeking protection from persecution and serious human rights violations.
2. The regulation sets obligations for asylum seekers to apply in the member states of first entry.
3. The total duration of the asylum and return border procedure should be not more than a year.

How many statements given above is/are correct?

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

8. With reference to the The World Food Programme (WFP), consider the following statements:

1. Its Parent organisation is the UN General Assembly.
2. It launched its first development programme in Somalia in 1963.
3. It was awarded the Nobel Peace Prize 2020 for its efforts to provide food assistance in areas of conflict.

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

9. With reference to The United Nations Educational, Scientific and Cultural Organisation (UNESCO), consider the following statements:

1. India is among the founding members of the Organisation.
2. In 2011, the United States halted the funding of the organization and exited due to recession and financial crisis.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

10. Consider the followings statements:

1. World Refugee Day was held for the first time in 2005 to commemorate the 50th anniversary of the Refugee Convention.
2. India is not a signatory to the 1951 UN Convention relating to the Status of Refugees and the 1967 Protocol.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

- 11.** Which of the following initiatives is/are a part of India's bilateral relationship with the USA?
1. Initiative on Critical and Emerging Technology (iCET)
 2. The Preparedness and Resilience for Emerging Threats (PRET) Initiative
 3. Markets in Crypto Assets (MiCA)
- Select the correct answer using the code given below:
- (a) 1 only (b) 2 only
(c) 3 only (d) All of the above
- 12.** Which of the following nations are part of the 'NATO plus five' alliance?
1. Australia
 2. New Zealand
 3. Japan
 4. Israel
 5. South Korea
- Choose the correct answer using the code given below:
- (a) 1, 2 and 3 only (b) 1, 3, 4 and 5 only
(c) 2, 3, 4 and 5 (d) 1, 2, 3, 4 and 5
- 13.** Consider the following statements:
1. The India-UAE CEPA is the first deep and full free trade Agreement signed by India with any country in the past decade.
 2. India and the UAE have set a target of doubling non-oil bilateral trade to 500 billion US Dollars by 2030.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 14.** Consider the following statements regarding the 'Atlantic Declaration' of 2023:
1. It is a security arrangement that currently includes NATO and five aligned nations.
 2. It aims to serve as a deterrent to China.
 3. India is not a party to this declaration
- Which of the statements given above is/are correct?
- (a) 1 only (b) 1 and 2 only
(c) 3 only (d) 1, 2 and 3
- 15.** With reference to Wagner Group, consider the following statements:
1. It is a private military company and a network of mercenaries.
 2. It first emerged in 2014, during Russia's annexation of Crimea.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 16.** With reference to the Nuclear Suppliers Group (NSG), consider the following statements:
1. It is a voluntary, non-legally binding association of major countries that trade in nuclear material and was established in 1974.
 2. It works on the basis of voting, i.e any decision needs to be ratified by more than half of the member countries.

3. NSG is formally linked to the UN and its activities contribute to the UN's efforts in the field of non-proliferation and export controls.
4. Following the India-US civil nuclear deal of 2006, India became a member of the NSG in 2008.

How many statements given above is/are correct?

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

17. With reference to the Egypt, consider the following statements:

1. India and Egypt played a pivotal role in founding the Non-Aligned Movement (NAM).
2. Al-Hakim Mosque is a 11th-century mosque restored with the help of India's Dawoodi Bohra community.
3. The Indian Prime Minister was conferred with the 'Order of the Nile', Egypt's highest honor.

How many statements given above is/are correct?

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

18. Which of the following countries share land borders with Laos ?

1. Myanmar
2. Thailand
3. Vietnam
4. Indonesia

Select the correct answer using the code given below:

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

19. With reference to the Mineral Security Partnership (MSP), consider the following statements:

1. India recently joined the MSP.
2. It is a strategic grouping of 13 member states including Vietnam, Japan and Democratic Republic of Congo.
3. It aims to catalyse public and private investment in critical mineral supply chains globally.

How many statements given above is/are correct?

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

EXPLANATIONS

1. (b)

South East Asia Region

- It is the **geographical south-eastern region of Asia**, consisting of the regions that are situated south of mainland China, east of the Indian subcontinent, and north-west of mainland Australia which is part of Oceania.
- Southeast Asia is composed of **eleven countries**: Brunei, Burma (Myanmar), Cambodia, Timor-Leste, Indonesia, Laos, Malaysia, **the Philippines, Singapore**, Thailand and Vietnam.

2. (c)

Central Asia region (CA) comprises the countries of Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.

It is a diverse region with a mix of upper-middle and low-income countries with major strategic importance due to their geographic location and natural resource endowments.

3. (d)

Afghanistan and Iran are locked in a long-standing dispute over the sharing of water from the Helmand River.

- Afghanistan and Iran signed an agreement — the **Helmand River Treaty** — in **1973** to regulate the allocation of river water. But the accord was neither ratified nor fully implemented, causing disagreements and tensions to persist.
- Iran has accused **Afghanistan of violating its water rights for years**, arguing that far less water than the amount agreed to in the 1973 treaty flows into Iran.

Helmand River

- The Helmand is Afghanistan's longest river. It originates near Kabul in the western Hindu Kush mountain range and flows in a southwesterly direction through desert areas for a total of about 1,150 kilometers before emptying into **Lake Hamun**, which straddles the Afghanistan-Iran border.
- Lake Hamun is the largest freshwater lake in Iran. It used to be one of the world's largest wetlands fed by Helmand.
- It is separated from the watershed of the Kabul River by the Unai Pass.

4. (d)

Recently, Prime Minister Shri Narendra Modi participated in the third in-person Quad Leaders' Summit in Hiroshima, Japan.

Statements 1, 2 and 3 are not correct: Quadrilateral Security Dialogue is an informal multilateral grouping of **India, the U.S., Australia, and Japan** aimed at cooperation for a free and open Indo-Pacific region.

- The Quad began as a loose partnership after the **devastating 2004 Indian Ocean tsunami** when the four countries joined together to provide humanitarian and disaster assistance to the affected region.
 - It was formalised by former Japanese Prime Minister Shinzo Abe in 2007, but then fell dormant for nearly a decade, particularly amid Australian concerns that its participation in the group would irritate China.
 - The group was resurrected in 2017, reflecting changing attitudes in the region toward China's growing influence.
- The **first Leaders' Summit of the Quad**, held virtually in **March 2021**, had outlined the vision and purpose of this grouping (in its new and formal reemergence).

5. (a)

North Atlantic Treaty Organization (NATO)

About:

- **North Atlantic Treaty Organization** is a **military alliance** made up of the United States, Canada, France, and eight other European countries.
- It was founded in 1949.
- The key purpose of NATO's formation was to create a **"collective defence"** against any potential German or Soviet Union attack in the **aftermath of World War II**.
- **Article 5:** If a NATO member attacks another member, it is considered **'an attack on all NATO members'**, according to Article 5 of NATO. **Hence statement 1 is correct.**

Membership of NATO

- It is open to **all European nations that fulfil certain criteria** that include “a functioning **democratic political system** based on a **market economy**; fair treatment of **minority populations**; a **commitment to resolve conflicts peacefully**; an ability and **willingness to make a military contribution to NATO operations**; and a commitment to **democratic civil-military relations and institutions**”.
- New members are admitted with the unanimous consent of **all members**. Hence **statement 2 is incorrect**.

Finland and Sweden’s application for NATO membership:

- Finland and its neighbour Sweden applied for NATO membership soon after the Russian invasion of Ukraine.
- **Finland is now the 31st NATO member.**
- **Sweden’s bid** is being held up by Turkey and Hungary.

6. (c)

US President Joe Biden and UK Prime Minister Rishi Sunak agreed on an “**Atlantic declaration**.”

- The Atlantic Declaration and accompanying Action Plan form the basis of a new type of innovative partnership across the full spectrum of economic, technological, commercial, and trade relations.
It is the “**first of its kind**” in covering the broad spectrum of the two countries.
- It will constitute a new economic security framework covering ever-closer **cooperation on critical and emerging technologies** and stronger protective toolkits.

7. (b)

European Union ministers have agreed on a deal to **overhaul the bloc’s asylum procedures**.

Statement 1 and 2 are correct: An asylum seeker is a person who has left their country and is seeking **protection from persecution and serious human rights violations in another country**, but who hasn’t yet been legally recognized as a refugee and is **waiting to receive a decision on their asylum claim**.

- **Preventing abuse and secondary movements:** The policy also contains measures aimed at **preventing abuse by the asylum seeker** and avoiding secondary movements (when a migrant moves from the country in which they first arrived to seek protection or permanent resettlement elsewhere).

The regulation for instance sets obligations for asylum seekers to **apply in the member states of first entry** or legal stay and discourages secondary movements.

8. (c)

Statement 1 is correct: The World Food Programme (WFP) is an international organisation within the United Nations (UN). **Its Parent organisation is the UN General Assembly.**

- It is the world's largest humanitarian organisation that provides food assistance worldwide. It aims to achieve the **Sustainable Development Goal (SDG) 2** which is about creating a world free of hunger by 2030.

Statement 2 is not correct: It was established In **1961** after the 1960 Food and Agriculture Organisation (FAO) Conference. It launched its **First development programme in Sudan in 1963**.

Statement 3 is correct: WFP was awarded the **Nobel Peace Prize 2020** for its efforts to provide food assistance in areas of conflict.

9. (a)

United Nations Educational, Scientific and Cultural Organisation (UNESCO)

- It is a **UN agency** tasked with furthering international cooperation and peace through the promotion of educational, scientific and cultural causes.
- The United States was a founding member of UNESCO in **1945**.
- It designates locations globally as World Heritage Sites, which means international recognition and possible funding.
- UNESCO's programmes contribute to the achievement of the **Sustainable Development Goals defined in the 2030 Agenda**, adopted by the UN General Assembly in 2015.
- It has **195 member states and ten associate members**. India is among the founding members of the Organisation. **Hence, Statement 1 is correct.**
- In 2011, **UNESCO inducted Palestine as a member**. This led to the US halting the agency's funding, worth millions of dollars, under then President Barack Obama.
- US laws, owing to the country's **historical ties with Israel**, prohibit funding to any UN agency that implies recognition of the Palestinians' demands for their own state. **Hence, Statement 2 is not correct.**

10. (b)

Recently, World Refugee Day was observed.

Statement 1 is not correct: World Refugee Day is an international day designated by the **United Nations** to honor refugees around the globe.

- It falls each year on **20 June** and celebrates the strength and courage of people who have been forced to flee their home country to escape conflict or persecution.
- It was held **globally** for the **first time on 20 June 2001**, commemorating the **50th anniversary of the 1951 Convention** relating to the Status of Refugees.

Statement 2 is correct: India is not a signatory to the 1951 UN Convention relating to the Status of Refugees and the 1967 Protocol.

- All foreign undocumented nationals are governed as per the provisions of The Foreigners Act, of 1946, The Registration of Foreigners Act, of 1939, The Passport (Entry into India) Act, of 1920 and The Citizenship Act, of 1955.

11. (a)

Option 1 is correct - iCET

About:

- The **Initiative on Critical and Emerging Technologies** is a framework agreed upon by India and the U.S. for cooperation on critical and emerging technologies in areas including **artificial intelligence, quantum computing, semiconductors and wireless telecommunication**.
 - The framework was first announced on the sidelines of the Quad meeting in Tokyo in May 2022.

Significance:

- **India US partnership:**
 - The iCET seeks to position New Delhi and Washington D.C. as "trusted technology partners" to build supply chains and support the co-production and co-development of items.
 - It was launched to strengthen their strategic partnership and drive technology and defence cooperation.

Option 2 is not correct - More about the PRET Initiative

- The World Health Organization (WHO) has launched a new initiative to be better prepared for future outbreaks of a similar scale and devastation as the COVID-19 pandemic.
 - The initiative was announced at the **Global Meeting for Future Respiratory Pathogen Pandemics** held in **Geneva, Switzerland**.
- **Aim:** The **Preparedness and Resilience for Emerging Threats (PRET) Initiative** is aimed at providing “guidance on integrated planning for responding to any respiratory pathogen such as influenza or coronaviruses”.

Option 3 is not correct - EU’s Markets in Crypto Assets (MiCA)

- The European Parliament recently approved the cryptocurrency regulation “Markets in Crypto Assets (MiCA)”.
- MiCA will impose compliance on the issuers of crypto assets, who are defined as the “legal person who offers to the public any type of crypto-assets”.
- It will apply to crypto-asset service providers (CASPs) providing one or more of these services.

12. (d)

Recently, the US Congress Committee recommended introducing legislation to give India ‘NATO plus five’ defence status.

NATO Plus, currently NATO Plus 5 is a security arrangement that brings together NATO and five aligned nations-Australia, New Zealand, Japan, Israel and South Korea- to boost defence cooperation and intelligent ties.

About North Atlantic Treaty Organization (NATO)

- NATO, also called the North Atlantic Alliance, is an intergovernmental military alliance.
- Headquarters: Brussels, Belgium
- **Background:** It was established by 12 countries from Europe and North America with the signing of the North Atlantic Treaty (also known as Washington Treaty) in 1949 in Washington DC, to provide collective security against the Soviet Union attack in the aftermath of World War II.
- **Collective defence:** According to Article 5, NATO works on the principle of collective defence, where an attack on any NATO member is considered an attack on all NATO members, so far, Article 5 has been invoked once in response to the 9/11 terrorist attacks in the United States in 2001.
- **Members:** It comprises 31 member states- two North American Countries (USA and Canada) 28 European countries and one eurasian country (Turkey). Finland became the 31st member in 2023.

13. (a)

Recently, India and UAE signed a Mutual Recognition Arrangement for Authorised Economic Operators.

Statement 1 is correct : The Mutual recognition arrangement comes as the continuation of historic India-United Arab Emirates Comprehensive Economic Partnership Agreement (CEPA).

The **CEPA is the first deep and full-fledged FTA signed by India with any country in the past decade.**

Statement 2 is not correct : India and the United Arab Emirates (UAE) have agreed to increase non-petroleum trade from \$48 billion to **\$100 billion by 2030.**

14. (c)

The Atlantic Declaration:

- The **United Kingdom** Prime Minister Rishi Sunak and the **United States (US)** President Joe Biden recently signed "The Atlantic Declaration: A Framework for a Twenty-First Century **US-UK Economic Partnership**".
 - Hence statements 1 and 2 are not correct and statement 3 is correct.
- **About:** The Atlantic Declaration is a symbolic representation of the political will in the UK and US to work together on critical areas and make this alliance ready for the future.
- **The new partnership:**
 - Declared as the first of its kind, the declaration and its action plans are expected to promote a **"new type of innovative partnership"** to cover all areas of cooperation including **technology, economy and trade**.
 - While deepening the trade and investment relations, the declaration is also expected to strengthen the UK-US cooperation in sectors like **defence, health, space, and science**.

15. (c)

Recently, Wagner Group waged an armed rebellion against Russia and vowed to topple the country's defence leadership.

Statements 1 and 2 correct : the Wagner Group is a Russian paramilitary organisation headed by Yevgeny Prigozhin.

- Legally, it is not a Russia-based private military company though it works closely with the Russian security apparatus.
- It is basically a private military company and a network of mercenaries.
- It was first identified in 2014 while backing pro-Russian separatist forces in eastern Ukraine.

16. (a)

Statement 1 is correct: NSG is a **group of nuclear supplier countries** "that seeks to contribute to the non-proliferation of nuclear weapons through the implementation of two sets of Guidelines for nuclear exports and nuclear-related exports".

- It is a **voluntary, non-legally binding association** of major countries that trade in nuclear material and was established in **1974**.

Statement 2 is not correct: Participants: Signatories to the NPT can join the NSG. It works on the basis of consensus, i.e any decision needs to be ratified by all member countries. It currently has **48 participants**, who work on accepted guidelines to prevent proliferation while indulging in nuclear commerce.

Statement 3 is not correct: NSG has no formal link to the UN, but its activities contribute to the UN's efforts in the field of non-proliferation and export controls.

Statement 4 is not correct: Being a **non-signatory to NPT**, India is normally not to be considered for NSG membership.

- Following the India-US civil nuclear deal of 2006, the US lobbied hard for an exception for India, citing the country's impeccable record.
- In 2008, NSG members agreed to grant India a "clean waiver" from its existing rules, in exchange for a commitment to "no nuclear trade with non-NPT countries".
- China has opposed India's inclusion in the NSG, citing the non-NPT status and unwilling to make an exception. New Zealand, Ireland and Austria have also opposed India, citing the same clause.

17. (c)

All three are correct: PM Modi was conferred with the '**Order of the Nile**', Egypt's highest honor, by President Abdel Fattah El-Sisi at the Presidential palace in Cairo.

- PM Modi visited Egypt's historic 11th century **Al-Hakim Mosque in Cairo**, restored with the help of India's **Dawoodi Bohra** community.
- Over a thousand years old, al-Hakim is the **fourth oldest mosque** in Cairo, and the **second Fatimid mosque** to be built in the city.
- India established a **bilateral relationship** with Cairo just three days after it got Independence on August 15, 1947. The bond further solidified in later years.
- **Non-Aligned Movement (NAM):** Both the nations played a pivotal role in founding the NAM along with Yugoslavia, Indonesia and Ghana.

18. (a)

In a new study, researchers have reported more human remains found in Tam Pà Ling in Laos **which** is a landlocked country located in the southeast of the Asian continent in the centre of the Indo-china Peninsula.

- It has borders with Cambodia, **Myanmar, Thailand, Vietnam** and China.

19. (b)

Statement 1 is correct: India recently joined the **coveted critical minerals club — the Mineral Security Partnership (MSP)** — headed by the United States.

Statement 2 is not correct: MSP is a strategic grouping of **13 member** states including Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea, Sweden, the United Kingdom, US, the European Union, Italy and now India.

- The MSP is elitist in its very idea of formation and induction of members. Countries like **Indonesia, Vietnam, the Democratic Republic of Congo**, which have abundant reserves of critical minerals are not part of this strategic grouping formed by the US.

Statement 3 is correct: It aims to **catalyse public and private investment** in critical mineral supply chains globally.

■■■■

SCIENCE & TECHNOLOGY

1. Consider the following statements with reference to the Lithium metal:

1. It is used in manufacturing batteries used in electric cars and other renewable energy infrastructure.
2. Australia has the largest known reserves of lithium.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

2. Consider the following pairs:

Satellite	Country
1. Malligyong-1	Japan
2. EMISAT	India
3. RISAT	France

How many pairs given above are correctly matched?

- | | |
|---------------------|--------------------|
| (a) Only one pair | (b) Only two pairs |
| (c) All three pairs | (d) None |

3. Consider the following statement with reference to the antibiotic resistance:

1. It is a phenomenon where humans and animals become resistant against the antibiotic making them ineffective.
2. It occurs naturally, but misuse of antibiotics in humans and animals is accelerating the process.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

4. With reference to the Higgs Boson, consider the following statements:

1. It was proposed in 1964 by Peter Higgs and François Englert.
2. The stronger a particle's interaction with the Higgs boson, the less mass it has.
3. The Standard Model says that a Higgs boson will decay to a Z boson and a photon 0.1% of the time.

How many of the above statements are correct?

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

5. Consider the following statements:

1. The Indigen Project aims to undertake whole genome sequencing of all Tribes across India.
2. Genome India Project aims to sequence 10,000 Indian human genomes in three years and create a database.

3. Human Genome Project (HGP) began in 1990 was coordinated by the National Institutes of Health, USA and the Department of Energy, USA.

Which of the statements given above are correct?

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

6. Consider the following statements:

1. X-rays were first discovered in 1895 by Paul Villard, a French chemist.
2. X-rays have much higher energy and much shorter wavelengths than ultraviolet light.

Which of the statements given above is/are correct?

- (a) 1 Only (b) 2 Only
(c) Both 1 and 2 (d) Neither 1 nor 2

7. Which of the following best describes 'Norin-10' that was recently in the news?

- (a) A semi-dwarf wheat variety (b) A flock of robotic birds
(c) A computer virus (d) An exoplanet

8. India's Svalbard mission of 1997, which was recently in news, is related to which of the following?

- (a) River cleaning project
(b) One of the sounding rockets developed by ISRO
(c) India's Evacuation Mission
(d) Soft landing on the moon

9. With reference to Betelgeuse, consider the following statements:

1. It is classified as a red supergiant, the largest type of star.
2. It is much older than the nearly 5-billion-year-old Sun.
3. It is particularly easy to spot because of its brightness; it is often the tenth-brightest star in the sky.

Which of the statements given above are correct?

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

10. The term 'Trichoderma' was seen in the news, consider the following statements regarding this:

1. It is the first synthetically made fungus used as dye for many experiments.
2. It is used for the bioremediation of soil.

Choose the correct answer using the code given below:

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

11. Which of the following sectors uses Artificial Intelligence?

1. Healthcare 2. Manufacturing
3. Transportation 4. Security

Choose the correct answer using the code given below:

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

12. Which of the following best describes 'Cry2Ai', that was recently in the news?
- A platform to gather information related to cybersecurity
 - Gene variant in BT Cotton
 - Hypersonic nuclear missile
 - A computer worm
13. 'MQ 9 Reaper' recently seen in the news, is related to which of the following?
- Main Battle Tank (MBT)
 - Supercomputer
 - Anti-Cancer Drug
 - Unmanned Aerial Vehicle (UAV)
14. Consider the following statements:
- All humans have linear chromosomes arranged in pairs within the nucleus of the cell.
 - Histones are the unique structure of chromosomes that keep DNA tightly wrapped around spool-like proteins.
 - Humans have 23 pairs of autosomal chromosomes.
- How many of the statements given above is/are correct?
- Only one
 - Only two
 - All three
 - None
15. With reference to the Phonons, consider the following statements:
- Vibration energy can only be exchanged in the form of phonons.
 - Each phonon represents the vibration of millions of atoms within a material.
 - Scientists have successfully split phonons paving the path for a new type of quantum computer called linear mechanical quantum computers.
- How many statements given above are correct?
- Only one
 - Only two
 - All three
 - None
16. With reference to the GEMCOVAC-OM, consider the following statements
- It is India's first indigenous mRNA vaccine for the Omicron variant.
 - It does not need ultra-low temperature conditions for transport and storage.
 - It is supported under the Mission COVID Suraksha which is led by the Ministry of Health and Family Welfare.
- Which of the statements given below is/are correct?
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
17. 'MATSYA 6000' recently seen in the news, it is a
- Supersonic Cruise Missile
 - Gas-operated assault rifle
 - Submersible vehicle
 - Multi-role fighter jet
18. Consider the following statements :
- Statement-I:** India is the world's largest cutting and polishing center for diamonds, accounting for over 90% of polished diamond manufacturing globally.
 - Statement-II:** Natural diamonds are more affordable and eco friendly than a lab-grown diamonds.
- Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

19. Consider the following statements, with reference to the Special Chemicals, Organisms, Materials, Equipment, and Technologies (SCOMET):

1. SCOMET list deals with the dual-use items that can be used for both civilian and military applications.
2. Indian Trade Classification based on the Harmonized System (ITCHS) is an eight digit code that was adopted in India for import-export operations.

How many of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

20. With reference to the NASA's Artemis Programme, consider the following statements:

1. The program's name is derived from the Greek goddess of the moon and twin sister to Apollo.
2. Artemis 1 was uncrewed to test the safety of the SLS rocket, and the Orion capsule's ability.
3. The most ambitious of the Artemis mission's objectives involves using the moon as a stepping stone for a mission to Mars.

How many of the statements given above are correct?

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

21. The recent purchase agreement of "MQ-9 Reaper" armed drones was signed between India and which of the following countries?

- (a) Russia
- (b) Israel
- (c) France
- (d) United States

22. Consider the following statements regarding 'a radio telescope':

1. They are ground-based and not located in orbit.
2. The most common radio telescopes have a parabolic dish antenna.
3. One of the biggest radio telescopes in the world today is the 'FAST instrument' located in Pune.

Which of the statements given above is/are correct?

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

23. With reference to the Nandi Portal, consider the following statements:

1. It is developed by the Department of Animal Husbandry and Dairying (DAHD) in collaboration with the Central Drugs Standard Control Organization (CDSCO).
2. The Portal will assist in keeping the count of the animals in the dairy sector.
3. The portal will seamlessly integrate with the SUGAM portal of the CDSCO.

How many statements given above is/are correct?

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

24. Consider the following statements:

1. Artificial Intelligence (AI) is the ability of machines and systems to acquire and apply knowledge, and to carry out intelligent behavior.
2. AI-driven diagnosis is one of the top uses of AI in the healthcare sector.
3. In India Apollo Hospitals uses AI to assess cardiovascular risk more accurately than established benchmarks and at massive scale.

How many statements given above is/are correct?

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

25. Consider the following pairs:

Telescope	Country
1. Effelsberg radio telescope	United Kingdom
2. Lovell Telescope	Germany
3. Nancay Radio Telescope	France
4. Sardinia Radio Telescope	Italy

How many pairs given above are **not** correctly matched?

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

EXPLANATIONS

1. (a)

Statement 1 is correct: Lithium, an alkali metal, is one of the key components in rechargeable batteries that find usage in mobiles, laptops, electric vehicles, and medical devices like pacemakers. It is also used in energy storage solutions.

- This grey, shiny, non-ferrous metal is the lightest and the least dense of all metals and it is highly reactive.
- **It is an element needed to manufacture batteries used in electric cars and other renewable energy infrastructure.**
- Multiple countries have ramped up efforts to find reserves of lithium, sometimes dubbed 'white gold', in what has been called the "new era gold rush".

Statement 2 is not correct: The stories of two South American countries, **Chile and Bolivia** — which have the largest known reserves of lithium — are particularly instructive.

2. (a)

A **North Korean** military reconnaissance satellite **Malligyong-1** was launched through a new type of rocket named Chollima-1.

- **EMISAT:** The satellite was successfully placed in its intended sun-synchronous polar orbit of 748 km height by PSLV-C45 in 2019.
 - It has been developed under **DRDO's Project Kautilya** which aims to boost India's space surveillance capacity.

- It detects electronic signals on the ground, especially hidden enemy radars.
- **RISAT-2** is a Radar Imaging Satellite with the all-weather capability to take images of the Earth. This Satellite enhances **ISRO's capability for Disaster Management applications**.
- RISAT-2 was launched on 20 April 2009 by the PSLV-C12 launch vehicle.
- It was a radar-imaging satellite that was India's first "eye in the sky" to keep surveillance on the country's borders as part of anti-infiltration and anti-terrorist operations.

3. (b)

Statement 1 is not correct: Antibiotic resistance occurs when **bacteria change in response to the use of antibiotics**. This ultimately **threatens the ability of medicines to treat common infectious diseases**.

- Bacteria, not humans or animals, become antibiotic-resistant. These bacteria may infect humans and animals, and the **infections they cause are harder to treat than those caused by non-resistant bacteria**.

Statement 2 is correct: Antibiotic resistance occurs naturally, but misuse of antibiotics in humans and animals is accelerating the process.

4. (c)

Statement 1 is correct: The Higgs boson is the **fundamental particle associated with the Higgs field**, a field that gives **mass to other fundamental particles such as electrons and quarks**.

- The Higgs boson **was proposed in 1964 by Peter Higgs, François Englert**, and four other theorists to explain why certain particles have mass.
- The particle was finally discovered in 2012, by researchers at the **Large Hadron Collider (LHC)** — the most powerful particle accelerator in the world — **located at the European particle physics laboratory CERN, Switzerland**.

Statement 2 is not correct: The **stronger a particle's interaction** with the Higgs boson, **the more mass it has**. This is why electrons have a certain mass, protons have more of it, and neutrons have just a little bit more than protons, and so on.

Statement 3 is correct: Scientists have detected a Higgs boson decaying into a **Z boson particle and a photon**.

- The Higgs boson is a **heavy particle** and that is why it is an **unstable particle** that decays into **lighter particles**. We can't always say which combination of particles it will decay into. However, the theory that describes the properties of fundamental particles has clearly predicted the **probability that it will take a given path**.
- The Standard Model says that a Higgs boson will decay to a **Z boson and a photon 0.1% of the time**. This means the LHC needed to have created at least **1,000 Higgs bosons to have been able to spot one of them decaying to a Z boson and a photon**. As it happens, the **Z boson is also unstable**.

5. (b)

Human Genome Project (HGP)

- It was the international research effort to determine the DNA sequence of the entire human genome.
- It began in 1990 and completed in 2003.
- The HGP gave us the ability, for the first time, to read nature's complete genetic blueprint for building a human being.
- It was coordinated by the National Institutes of Health, USA and the Department of Energy, USA.

Genome India Project

- It is a Centre-backed, Department of Biotechnology's (DBT) initiative to sequence 10,000 Indian human genomes in three years and create a database.
- It is India's gene-mapping project that is being described as the **"first scratching of the surface of the vast genetic diversity of India"**

Indigen Project

- It aims to undertake whole genome sequencing of a thousand Indian individuals representing diverse ethnic groups from India.
- It is funded by the **CSIR India (autonomous body)**.
 - CSIR is the largest research and development (R&D) organization in India under the Ministry of Science and Technology.
- Its objective is to create a pilot dataset to enable genetic epidemiology of carrier genetic diseases towards enabling affordable carrier screening approaches in India.

6. (b)

In a phenomenal feat, Scientists have for the first time identified an element by X-raying a single atom.

Statement 1 is not correct: X-rays are a form of electromagnetic radiation, similar to visible light. They were first observed and documented in **1895 by German scientist Wilhelm Conrad Roentgen**. He discovered that firing streams of X-rays through arms and hands created detailed images of the bones inside.

Statement 2 is correct: X-rays have much higher energy and much shorter wavelengths than ultraviolet light, and scientists usually refer to X-rays in terms of their energy rather than their wavelength.

7. (a)

'Norin-10'

- In 1949, an American biologist S.C. Salmon stationed in Japan – under US occupation after World War II – identified a wheat variety developed at an experimental station there. Called **'Norin-10'**, its plants grew to only 2-2.5 feet, as against the 4.5-5 feet height of traditional tall varieties.
- **In India:** By 1966-67, farmers were planting these on a large scale and India, from being an importer, turned self-sufficient in wheat.

8. (b)

The Svalbard mission

- About:
 - On November 20, 1997, a **Rohini RH-300 Mk-II** sounding rocket rose to the skies from Svalbard, Norway, operationalizing a new rocket launching range there.
 - The solid propellant-powered **rocket was shipped from India for the launch**.
 - 'The RH-300 Mk-II was given a new name by the NSC (Norwegian Space Centre): **Isbjorn-1**, which translates literally as **'Polar Bear-I.'**
- Rohini Family:
 - The RH-300 Mk-II was **part of the Rohini family** of sounding rockets developed by **ISRO's Vikram Sarabhai Space Centre (VSSC)** in **Thiruvananthapuram**.

- Challenge:
 - On the technical side, the Norway mission presented unique challenges for ISRO. The Rohini rockets had till then flown only in the tropical hot and humid conditions in India.
 - ISRO shipped the RH-300 Mk-II to Norway only after qualifying it for arctic weather conditions.

9. (c)

Statement 1 is correct: Betelgeuse is classified as a **red supergiant, the largest type of star**. It is more than 10 times the mass of the sun. If it resided at the center of the solar system, its surface would extend to the planet Jupiter.

Statement 2 is not correct: At roughly 10 million years old, Betelgeuse is **much younger than nearly 5-billion-year-old Sun**. But while it is much younger, it is also much more massive and will burn through its materials faster and will therefore have a **shorter lifespan** than a star like the Sun.

Statement 3 is correct: Betelgeuse is particularly easy to spot because of its brightness; it is often the **tenth-brightest star in the sky**.

It is called '**Thiruvathirai**' or '**Ardra**' in Indian astronomy, and is easily spotted in the **constellation Orion**.

10. (b)

Statement 1 is not correct: "Trichoderma" is the Latin name for a genus of fungi that are present in all types of soils. Trichoderma is present naturally in the soil and it has been isolated by scientists in the lab.

Statement 2 is correct: Trichoderma is used all across the agricultural sector because of their bio-control mechanism. These are free-living fungi that can be found in several soil and root ecosystems. Bioremediation refers to the process of degrading or detoxifying any contaminants that may be present in the soil, making it healthier and cleaner. Trichoderma is used by farmers all across the country to degrade any remnants of herbicides, pesticides, and insecticides from the soil before it is used again for planting the next crop.

11. (d)

Artificial intelligence is the **simulation of human intelligence processes by machines**, especially computer systems. Specific applications of AI include **expert systems, natural language processing, speech recognition and machine vision**.

What are the applications of AI?

- **AI in healthcare:** Companies are applying machine learning to make better and faster medical diagnoses than humans.
- **AI in governance:** Digital India on the back of Artificial Intelligence (AI) is the future of e-governance in India. Digital technology-backed programs like Aadhar expansion, Common Services Centres, Direct Benefit Transfer, UMANG services, etc. have occupied a huge proportion of India's e-governance model.
 - The launch of the 'National AI Portal' and 'Responsible AI for Youth' is expected to take Indian governance to an AI-powered future.
- **AI in education:** AI can automate grading, giving educators more time for other tasks. It can assess students and adapt to their needs, helping them work at their own pace. AI tutors can provide additional support to students, ensuring they stay on track.
- **AI in business:** Machine learning algorithms are being integrated into analytics and customer relationship management (CRM) platforms to uncover information on how to better serve customers.

- **AI in manufacturing:** Manufacturing has been at the forefront of incorporating robots into the workflow. Smaller, multitasking robots that collaborate with humans and take on responsibility for more parts of the job in warehouses, factory floors and other workspaces.
- **AI in security:** By analyzing data and using logic to identify similarities to known malicious code, AI can provide alerts to new and emerging attacks much sooner than human employees and previous technology iterations.
- **AI in transportation:** AI technologies are used in transportation to manage traffic, predict flight delays, and make ocean shipping safer and more efficient. In supply chains, AI is replacing traditional methods of forecasting demand and predicting disruptions, a trend accelerated by COVID-19 when many companies were caught off guard by the effects of a global pandemic on the supply and demand of goods.

12. (b)

Cry2Ai

- The **Cry2Ai seed** has passed preliminary, confined trials and was recommended by the GEAC **to be tested in farmer's fields** in Telangana, Maharashtra, Gujarat and Haryana.
- The cotton seed has been developed by the Hyderabad-based Bioseed Research India with Cry2Ai which makes it resistant to pink bollworm.

13. (d)

Recently, the Defence Acquisition Council approved the procurement of 31 armed MQ-9 Reaper Unmanned Aerial Vehicles (UAVs) from the USA.

MQ-9 Reaper:

- The MQ-9 Reaper is a large unmanned aircraft manufactured by military contractor, General Atomics. It is remotely operated by a two-person team, consisting of a pilot and an aircrew member who operates sensors and guides weapons.
- Of the 31 UAVs to be procured, 15 are meant for the Indian Navy, with eight each for the Army and Air Force. The total cost, estimated to be more than \$3 billion, also includes maintenance, overhaul and repair of the platforms.

14. (b)

Statement 1 and 2 are correct: The term **chromosome** comes from the Greek words for **color (chroma)** and **body (soma)**.

- Chromosomes are **thread-like structures located inside the nucleus** of animal and plant cells. Each chromosome is made of **protein** and a single molecule of deoxyribonucleic acid (DNA) passed from parents to offspring.
- The unique structure of chromosomes keeps DNA tightly wrapped around spool-like proteins, called **histones**. Without such packaging, DNA molecules would be too long to fit inside cells.
- Humans, along with other animals and plants, have **linear chromosomes** that are **arranged in pairs within the nucleus of the cell**.

Statement 3 is not correct: Humans have **22 pairs** of numbered chromosomes (**autosomes**) and one pair of sex chromosomes (XX or XY), for a **total of 46**.

- Each pair contains two chromosomes, **one coming from each parent**, which means that children inherit half of their chromosomes from their mother and half from their father.
- Biologically female individuals have **two X chromosomes** (XX) while those who are biologically male have **one X and one Y chromosome** (XY).

15. (c)

All three statements are correct: Phonons

According to quantum mechanics, **microscopic vibrations (sound waves) in solid media are quantized**. This means that **vibration energy** can only be exchanged in the form of so-called **phonons**.

Phonons vs Photons

- Phonons are to sound what photons are to light. Photons are tiny packets of energy for light or electromagnetic waves. Similarly, **phonons are packets of energy for sound waves**. Each phonon represents the vibration of millions of atoms within a material.
- Both photons and phonons are of central interest to quantum computing research, which exploits the properties of these quantum particles.
- However, phonons have proven challenging to study due to their **susceptibility to noise and issues with scalability and detection**.

New Study

- The laws of quantum mechanics hold that quantum particles are fundamentally indivisible and therefore cannot be split, but researchers at the University of Chicago are exploring what happens when you try to split a phonon.
- In the new study, the researchers developed an acoustic beam-splitter — a tiny device resembling a comb, with 16 metal bars jutting out of it.
- The acoustic beamsplitter "split" phonons and thereby demonstrated their quantum properties.
- Scientists have successfully split phonons paving the path for a new type of quantum computer called **linear mechanical quantum computers**.

16. (a)

Recently, the GEMCOVAC-OM vaccine got a nod from the office of the Drug Control General of India (DCGI) for Emergency Use Authorization (EUA).

Statements 1 and 2 are correct: GEMCOVAC-OM is India's first indigenous mRNA vaccine for the Omicron variant.

- It is developed using the indigenous platform technology by Gennova Biopharmaceuticals Ltd.
- Like the prototype vaccine, it is a thermostable vaccine, which **does not require ultra-cold chain infrastructure** used for other approved mRNA-based vaccines, making it easy for deployment pan India.

Statement 3 is not correct: It is supported under the Mission COVID Suraksha, led by the **Department of Biotechnology (DBT)** and is being implemented by Biotechnology Industry Research Assistance Council (BIRAC), a Public Sector Undertaking (PSU) of DBT.

17. (c)

The Titan submersible, operated by OceanGate Expeditions, has been imploded in the Atlantic Ocean.

- Titan tragedy offers lessons for proposed Indian submersible dive because India is in the process of designing the **submersible, 'MATSYA 6000'**.
- 'MATSYA 6000' vehicle is being designed and developed by National Institute of Ocean Technology (NIOT), Chennai under Ministry of Earth Sciences.
- It will carry three persons to a depth of 6000 metres for exploration of deep-sea resources like minerals into the Indian Ocean, at a point about 1,500 km away from Kanyakumari.

18. (c)

Prime Minister Narendra Modi gifted a 7.5-carat lab-grown diamond to U.S. First Lady Jill Biden during his state visit.

Statement 1 is correct: India is the world's largest cutting and polishing center for diamonds, accounting for over 90% of polished diamond manufacturing globally. India exports more than 75% of the world's polished diamond, gems and jewellery.

India depends largely on imports of rough gem diamonds for its Cutting and Polishing Industry as there is no notable production except for one producer in Madhya Pradesh.

Statement 2 is not correct: Lab-grown diamonds (LGD) are diamonds that are produced in laboratories, using specific technology which mimics the geological processes that grow natural diamonds. Lab-grown diamonds offer a more affordable alternative to natural diamonds and are considered eco-friendly. They are around 20% cheaper than their naturally-formed equivalent

19. (c)

The Directorate General of Foreign Trade (DGFT), has simplified and liberalised the policy for **export of Drones/UAVs meant for civilian end uses from India.**

Statement 1 is correct:

SCOMET list:

- SCOMET is an acronym for **Special Chemicals, Organisms, Materials, Equipment, and Technologies**. The list deals with the **dual-use items** that can be used for both civilian and military applications.
- India's Foreign Trade Policy regulates the export of items on the SCOMET List.
- The exporter must obtain a licence from the Directorate General of Foreign Trade (DGFT), Ministry of Commerce, to export SCOMET.

Statement 2 is correct:

ITCHS classification:

- **Indian Trade Classification based on the Harmonized System (ITCHS)** was adopted in India for import-export operations.
- Indian custom uses **eight digit** ITC-HS Codes.
- **ITC-HS Codes Schedules:** ITC-HS codes are divided into two schedules.
 - **Schedule I** describes the rules and guidelines related to **import policies**
 - **Schedule II** describes the rules and regulations related to **export policies**.

20. (c)

All three statements are correct: NASA's Artemis program is an effort to place **astronauts on the lunar surface and develop an ongoing presence there.** Through the Artemis program, NASA will land the **first woman and first person of color on the Moon.**

- The program's name is derived from Artemis, **the Greek goddess of the moon and twin sister to Apollo.**
- The most ambitious of the Artemis mission's objectives involves using the **moon as a stepping stone for a mission to Mars.** NASA aims to send astronauts there by the 2030s.
- For crewed Artemis missions, the rocket will launch the Orion spacecraft to the moon.
 - Orion is a space capsule larger than the Apollo command modules that are designed to carry four astronauts on missions to the moon.
- **Artemis 1 (2022):** The first mission was uncrewed to **test the safety of the SLS rocket, and the Orion capsule's ability** to reach the moon, perform in lunar orbit and return to Earth for an ocean splashdown. The mission was completed successfully.

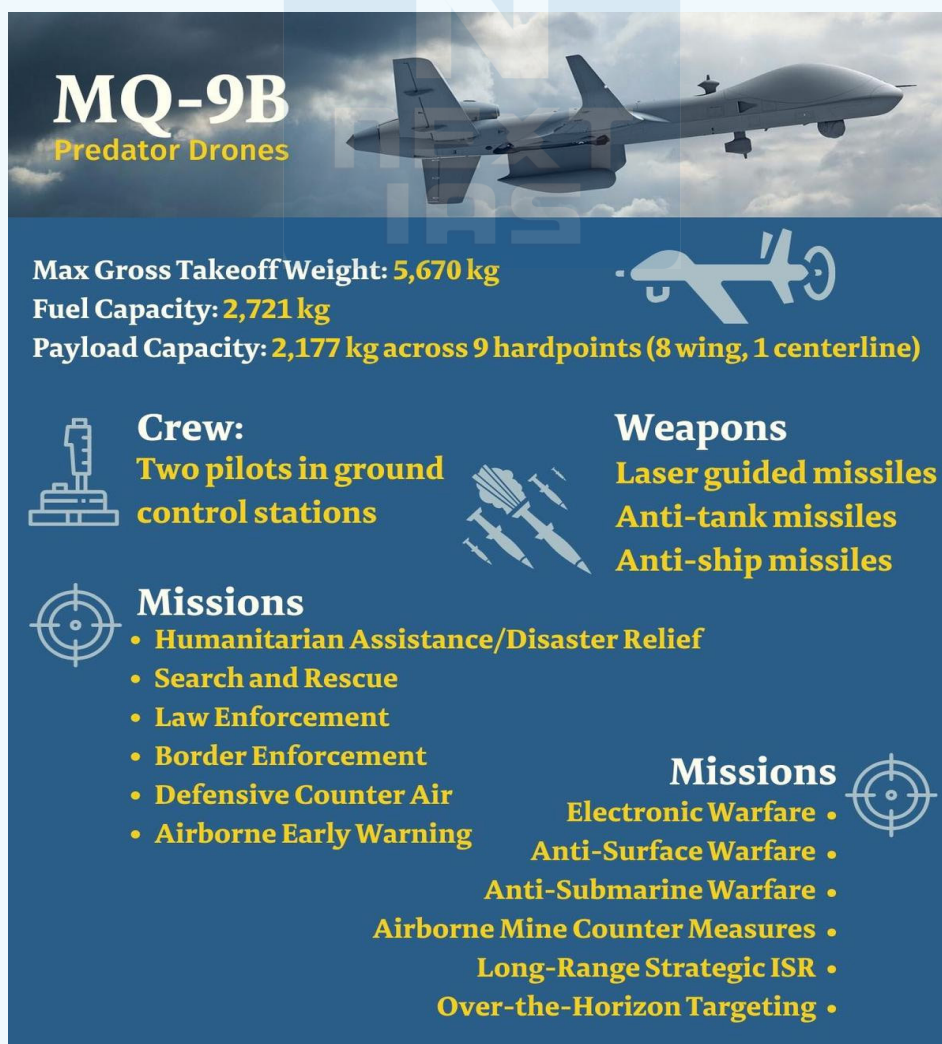
- **Artemis 2 (2024):** Carrying the first four Artemis astronauts, the Orion capsule will take the crew farther from Earth than humans have ever traveled before. Over the approximately 10-day mission, the crew will complete a lunar flyby and return to Earth, evaluating the spacecraft's systems while carrying humans.
- **Artemis 3 (2025):** This will see the next man and first woman step onto the lunar surface. Providing previous missions have been successful, the astronauts will shoot towards the moon, using the lunar lander to lower two people to the moon's south polar region. They will remain on the moon for around a week.

21. (d)

Prime Minister Narendra Modi and US President Joe Biden announced the mega deal on the purchase of **General Atomics MQ-9 "Reaper" armed drones** by India.

About MQ-9 'Reaper' Armed Drone

- With an endurance of over 27 hours, the General Atomics MQ-9 "Reaper" speeds speeds of 240 KTAS, can operate up to 50,000 feet, and has a 3,850 pound (1,746 kilogrammes) payload capacity.
- It can carry 500 per cent more payload and has nine times the horsepower in comparison to the earlier MQ-1 Predator.
- is designed to fly over the horizon via satellite for up to 40 hours, depending on configuration, in all types of weather.
- The MQ-9B has two variants — the **SkyGuardian** and the **SeaGuardian**. 15 SeaGuardians are for the Indian Navy and 16 SkyGuardians — eight each for the Indian Army and Air Force.



MQ-9B
Predator Drones

Max Gross Takeoff Weight: **5,670 kg**
 Fuel Capacity: **2,721 kg**
 Payload Capacity: **2,177 kg across 9 hardpoints (8 wing, 1 centerline)**

Crew:
 Two pilots in ground control stations

Weapons
 Laser guided missiles
 Anti-tank missiles
 Anti-ship missiles

Missions

- Humanitarian Assistance/Disaster Relief
- Search and Rescue
- Law Enforcement
- Border Enforcement
- Defensive Counter Air
- Airborne Early Warning

Missions

- Electronic Warfare
- Anti-Surface Warfare
- Anti-Submarine Warfare
- Airborne Mine Counter Measures
- Long-Range Strategic ISR
- Over-the-Horizon Targeting

22. (b)

Radio telescope:

- A radio telescope is a telescope that helps scientists 'see' the universe using radio waves (1 mm to more than 10,000 km in wavelength).
- Radio telescopes can detect radio waves from a number of celestial objects, such as stars, galaxies, and black holes.
- Structure: They are ground-based, and not in orbit because they are usually quite large. **Hence statement 1 is correct.**
 - This is because the size of the antenna – the dish-like structure that detects the waves – is proportional to the wavelength being tracked.
- In fact, the most common radio telescopes have a parabolic dish antenna. **Hence statement 2 is correct.**
 - Due to its curved shape, the radio waves hitting the dish bounce to a point called the focus, where a receiver collects them.
- **China's FAST instrument:** One of the biggest radio telescopes in the world today is the FAST instrument in China, with a 500-metre-wide dish. Hence statement 3 is not correct.

23. (b)

- **Statement 1 is correct:** It is developed by the **Department of Animal Husbandry and Dairying (DAHD)** in collaboration with the **Central Drugs Standard Control Organization (CDSCO)**.
- **Statement 2 is not correct:** The Portal Will **expedite the regulatory approval process** for veterinary products. It will enhance transparency and efficiency in assessing and examining proposals for veterinary drugs and vaccines.
- **Statement 3 is correct:** The initiative is a significant step towards advancing **Digital India** and promoting the well-being of livestock and the livestock industry.
- The portal will seamlessly integrate with the **SUGAM portal** of the CDSCO, further simplifying the approval process for veterinary products.

24. (c)

All three statements are correct: World Economic Forum has released a report that highlights the **transformative potential of Artificial Intelligence in healthcare** and the importance of **public-private collaboration** in driving its global adoption.

Artificial Intelligence: The ability of machines and systems to acquire and apply knowledge, and to carry out intelligent behavior.

- It is the science and engineering of making intelligent machines, especially intelligent computer programs.
- As per the World Economic Forum Report **Top uses of AI in healthcare:** In the areas of **AI-driven diagnosis and risk stratification**, clinical trial optimization, and outbreak intelligence and prediction.
 - Several additional areas, including administrative, workflow and training solutions; automated triage processes; supply chain and manufacturing; and drug discovery also deserve greater exploration and may hold equal promise.
- Apollo Hospitals uses AI to assess cardiovascular risk **more accurately than established benchmarks and at massive scale.**
 - Apollo Hospitals operates more than 50 hospitals serving more than 300 million patients across India.

- **AI tool used by Apollo:** It has developed an **AI-powered cardiovascular disease risk tool** that assigns every patient a score of either “**high**”, “**moderate**” or “**minimal**”.

25. (b)

An international team of astronomers from India, Japan and Europe has published the results from monitoring pulsars, called ‘nature’s best clocks’, by using six of the world’s most sensitive radio telescopes, including **India’s largest telescope uGMRT**.

- The 100-m **Effelsberg radio telescope** in **Germany**, the **Lovell Telescope** of the Jodrell Bank Observatory in the **United Kingdom**, the **Nancay Radio Telescope** in **France**, the **Sardinia Radio Telescope** in **Italy** and the **Westerbork Synthesis Radio Telescope** in the **Netherlands** were used for observations.
- The results provide a hint of evidence for the relentless vibrations of the fabric of the universe, caused by ultra-low frequency gravitational waves.



HEALTH

1. Consider the following statements

1. Antarashtriya Yoga Diwas Media Samman was instituted by the Ministry of Health and Family Welfare in 2020.
2. The idea of the International Day of Yoga was first proposed at the United Nations General Assembly (UNGA) in 2014.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 Only | (b) 2 Only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

2. What is 'Captagon', recently seen in the news?

- (a) A newly discovered radioactive compound.
- (b) Type of hydrofluorocarbon used in synthetics.
- (c) Synthetic chemical compound used for making microbeads.
- (d) Highly addictive amphetamine-type drug.

3. With reference to the Blood Donor Day, consider the following statements:

1. It is celebrated on the birthday anniversary of Karl Landsteiner.
2. It is celebrated for the discovery of the ABO blood group system.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

4. Consider the following statements:

1. Production of red blood cells is controlled by erythropoietin, a hormone produced primarily by the kidneys.
2. White blood cells protect the body from infection and account for about 10 percent of human blood.
3. Antibodies are proteins found on the surface of red blood cells. They're part of the body's natural defences.

How many statements given above is/are correct?

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

5. Consider the following statements with reference to the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP).

1. It was launched by the Ministry of Health and Family Welfare.
2. Under it ,generic medicines are provided free of cost at the Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBJK).

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

6. Consider the following statements:

1. Assisted Reproductive Technology (ART) refers to techniques that seek to obtain a pregnancy by handling a gamete (sperm or egg) outside the human body.
2. Intrauterine Insemination and Intra-cytoplasmic sperm injection (ICSI) doesn't come under the ART.
3. Altruistic Surrogacy means surrogacy in which no charges, expenses, fees, remuneration or monetary incentive are involved.

How many statements given above is/are correct?

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

7. With reference to the World Drug Report, consider the following statements:

1. It is published annually by the World Health Organisation (WHO).
2. The first report was published in 2005 by WHO.
3. As per the 2023 report, illegal manufacture of synthetic drugs is expanding in low- and middle-income countries, including in countries with strong rule of law.

How many statements given above is/are correct?

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

8. Consider the following statements:

1. The collection of the Umbilical Cord is a painful process and poses risk to the health of the mother.
2. Umbilical Cord Blood banks (UCB) are not legally permitted in India.
3. Through a transplant process, Umbilical Cord Blood may help cure Cancers like leukaemia and lymphoma.

Which of the statements given above is/are correct?

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

9. Consider the following statements:

1. There are five kinds of malarial parasites.
2. Cases of Plasmodium Ovale are mostly seen on the African continent and it is the deadliest of all plasmodiums.
3. Plasmodium Vivax can remain dormant in the liver and cause repeated bouts of malaria.

How many of the above statements is/are correct?

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

10. We often see the compound 'Aspartame' in the ingredients list of many food items. It is an example of:

- (a) Food Preservative (b) Taste Enhancer
(c) Artificial Sweetener (d) Acidity Regulator

11. With reference to the Body Mass Index (BMI), consider the following statements:

1. It diagnoses the body fatness or health of an individual.
2. It is considered the most perfect way to measure body fat.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

EXPLANATIONS

1. (b)

The second edition of Antarashtriya Yoga Diwas Media Samman was announced.

Statement 1 is not correct: the **Ministry of Information and Broadcasting (I&B)** instituted the first **Antarashtriya Yoga Diwas Media Samman (AYDMS)** in 2019 acknowledging the positive role & responsibility of media in disseminating the outreach of Yoga in India and abroad.

The first edition of the awards was conferred in 2020.

Statement 2 is correct: The International Day of Yoga has been celebrated annually on 21 June since 2015.

The idea of the International Day of Yoga was first proposed by the Prime Minister of India, Shri Narendra Modi, during his address at the **United Nations General Assembly (UNGA)**, on **27 September 2014**.

2. (d)

Reports suggest that the Islamic State (IS) and Syrian fighters widely consumed **Captagon Pills** to increase alertness and suppress appetite during their gruelling battles.

Captagon is a highly addictive amphetamine-type drug, which is produced mainly in Syria and widely smuggled across West Asia. The original Captagon contained fenethylline, a synthetic drug of the phenethylamine family to which amphetamine also belongs. According to a 2015 report published by Vox, Captagon pills, like other amphetamine-based drugs, stimulate the central nervous system, providing “a boost of energy, enhance someone’s focus, let someone stay awake for longer periods of time, and produce a feeling of euphoria.

3. (c)

Both Statement 1 and 2 are correct: Every year June 14 is observed as World Blood Donor Day.

- **Background:** It is celebrated on the birthday anniversary of **Karl Landsteiner** who was **awarded the Nobel Prize** for his discovery of the **ABO blood group system**.
- It was designated as an annual event by the **World Health Assembly (WHO)** in **2005**.
- **Objective:** Celebrate and thank individuals who donate blood and encourage more people to become new donors.

4. (a)

Statement 1 is correct: Blood is a specialised body fluid which has **four** main components:

- **Plasma:** It is the liquid component of the blood and a mixture of water, sugar, fat, protein and salts.

The main job of the plasma is to **transport blood cells** throughout the body along with nutrients, waste products, antibodies, clotting proteins, chemical messengers such as hormones, and proteins that help maintain the body's fluid balance.

- **Red blood cells:** These are the most abundant cells in the blood.
 - Blood appears red because of the large number of red blood cells
 - Red cells contain a special protein called **haemoglobin**, which helps **carry oxygen** from the lungs to the rest of the body and then returns carbon dioxide from the body to the lungs so it can be exhaled.
 - **Production of red blood cells is controlled by erythropoietin, a hormone produced primarily by the kidneys.**

Statements 2 and 3 are not correct: White blood cells: White blood cells protect the body from infection and account for about **1 percent** of human blood.

- **Platelets:**
 - Platelets are small, colourless cell fragments in our blood that help the blood clotting process (or coagulation) by gathering at the site of an injury.
 - A normal platelet count ranges from 150,000 to 450,000 platelets per microliter of blood.

Types of blood groups:

- There are 4 main blood groups (types of blood) – A, B, AB and O.
- The blood group is identified by antibodies and antigens in the blood.
- **Antibodies** are proteins **found in plasma**. They're part of the body's natural defences. They recognise foreign substances, such as germs, and alert the immune system, which destroys them.
- **Antigens** are protein molecules found on the **surface of red blood cells**.

5. (d)

The Jan Aushadhi scheme has helped citizens to save around Rs 20,000 cr on their medicine bills in the last 9 years.

Statements 1 and 2 are not correct: Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) is a campaign launched in November 2008 by the **Department of Pharmaceuticals in association with Central Pharma Public Sector Undertakings**, to provide quality medicines at affordable prices to the masses through dedicated outlets known as Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBJK).

The **drugs are sold** at the Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBJK). are **50% to 90% cheaper** than their branded counterparts.

6. (b)

Statement 1 is correct: Assisted Reproductive Technology: It refers to techniques that seek to obtain a pregnancy by handling a gamete (sperm or egg) outside the human body and transferring the gamete or fertilised embryo into the woman's uterus.

Statement 2 is not correct: Assisted Reproductive Techniques:

- **In vitro Fertilization:** Mature eggs are collected (retrieved) from ovaries and fertilized by sperm in a lab. Then the fertilized egg (embryo) is transferred to the uterus.
- **Gamete Donation:** A person provides his /her gametes (sperm or oocyte) with the objective of enabling an infertile couple or woman to have a child.
- **Intrauterine Insemination:** A procedure in which laboratory processed sperm are placed in the uterus to attempt a pregnancy.
- **Intra-cytoplasmic sperm injection (ICSI):** A procedure in which a single spermatozoon is injected into the oocyte cytoplasm.

- **Pre-implantation Genetic Testing:** A test performed to analyze the DNA from oocytes or embryos for HLA-typing or for determining genetic abnormalities.
- **Surrogacy:** A practice whereby one woman bears and gives birth to a child for an intending couple with the intention of handing over such child to the intending couple after the birth.
- **Altruistic Surrogacy:** Surrogacy in which no charges, expenses, fees, remuneration or monetary incentive of whatever nature, except the medical expenses and such other prescribed expenses incurred on surrogate mother and the insurance coverage for the surrogate mother, are given to the surrogate mother. **Hence, Statement 3 is correct.**

7. (a)

Statement 1 and 2 are not correct: The World Drug Report is published **annually** by the United Nations Office on Drugs and Crime.

- The first report was published in **1997**, the same year the agency was established.
- The World Drug Report provides an **annual overview** of the major developments in drug markets for the various drug categories, ranging from production to trafficking, including development of new routes and modalities, as well as consumption.

Statement 3 is correct: As per the World Drug Report 2023, illegal manufacture of synthetic drugs is expanding in low- and middle-income countries, including in countries with strong rule of law.

- **Synthetic Drugs:** Without the need for plant-based inputs that require large tracts of land in territories with weak rule of law, synthetic drugs only require cheap chemical inputs that can be easily sourced.
- Synthetic drugs offer criminals several advantages, namely lower operational costs, fewer production impediments, and reduced risks of detection, interdiction and prosecution because they can be produced closer to destination.

8. (c)

Cord blood banking

About:

- Cord blood banking is the process of collecting the cord blood and extracting and cryogenically freezing its stem cells and other cells of the immune system for potential future medical use.
- **Collection process & storage:**
 - The process of preserving umbilical cord blood and stem cells involves collecting the blood immediately after childbirth.
 - This collection is non-invasive, painless, and does not pose any risk to the mother or the baby. **Hence statement 1 is incorrect.**
 - The collected blood is then sent to specialised laboratories where it undergoes a series of tests and is processed for long-term storage.

Significance of Umbilical cord blood:

- Umbilical cord blood is a **rich source of stem cells** that can potentially develop into different types of cells.
- Once stem cells are transplanted into those individuals, they help make new, healthy cells. Stem cell transplants help people with:
 - Cancers like leukemia and lymphoma. **Hence statement 3 is correct.**
 - Bone marrow diseases requiring a transplant.
 - Anemia like sickle cell disease.
 - Certain immune system disorders.

- **Cord blood banking in India:** Umbilical Cord Blood banks (UCB) are permitted only under license and monitoring by the Central Drug Standards Controlling Organization (CDSCO). **Hence statement 2 is incorrect.**

9. (b)

Statement 1 is correct: There are **five kinds of malarial parasites** Plasmodium falciparum, Plasmodium vivax (the commonest ones), Plasmodium malariae, Plasmodium ovale and Plasmodium knowlesi.

- **P. falciparum is the deadliest form of the disease**, resulting in several complications including cerebral malaria if left untreated. Cases of p. falciparum are mostly seen on the African continent.
- **Outside the African continent, p vivax causes most of the malaria cases.** Though not as deadly as p. falciparum, it poses a unique challenge as the parasite is capable of laying dormant in the liver for extended periods. **Hence, statement 2 is not correct.**
- **P. vivax is always the last parasite surviving** in countries that try to or have eliminated the infection.
- **Statement 3 is correct: P. vivax can remain dormant in the liver** and cause repeated bouts of malaria.
- In the human body, parasites initially multiply in liver cells and then attack the Red Blood Cells (RBCs).

10. (c)

Aspartame sweetener to be declared possible cancer risk by WHO, says reports.

Aspartame is a type of **low-calorie sweetener**. Aspartame contains calories—**four calories per gram just like sugar**. But aspartame is 200 times sweeter than sugar, so very little is needed to provide the same sweetness.

- **Chemical composition:** Aspartame is a methyl ester of the dipeptide of two natural amino acids, L-aspartic acid and L-phenylalanine.
- **Use:** It is used in a wide range of diet soft drinks, sugar-free chewing gum, sugar-free ice cream, sugar-free breakfast cereals, etc.
- **Discovered by James M Schlatter**, in 1965, by accident while researching an anti-ulcer drug, he happened to lick his finger and detected a sweet taste.

11. (d)

Both statements 1 and 2 are not correct: The **American Medical Association (AMA)** has accepted that **Body Mass Index (BMI)** was an **imperfect way to measure body fat**.

- Body Mass Index (BMI) is a person's **weight in kilograms (or pounds) divided by the square of height in meters (or feet)**.
- A high BMI can indicate high body fatness. BMI screens for **weight categories** that may lead to health problems, but it **does not diagnose the body fatness or health** of an individual.

Criticism

- BMI takes into account natural variations in body shape, giving a healthy weight range for a particular height.
- Muscle is much denser than fat, so very muscular people, such as heavyweight boxers, weight trainers and athletes, may be a healthy weight even though their BMI is classed as obese.



ENVIRONMENT AND ECOLOGY

1. With reference to evapotranspiration, consider the following statements:

1. It is the combination of two separate processes whereby water is lost.
2. It was first defined by Thornthwaite in 1944.
3. It is one of the most important components of the water cycle.

Which of the statements given above are correct?

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

2. Consider the following statements:

1. **Statement-I** : The Mangrove Alliance for Climate (MAC) is an initiative led by India and France.
2. **Statement-II**: The intergovernmental alliance will work on a voluntary basis which means there are no real checks and balances to hold members accountable.

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

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I.
- (c) Statement-I is Correct but Statement-II is incorrect.
- (d) Statement-I is incorrect but Statement-II is correct.

3. Consider the following statements:

1. Plastic refers to a wide range of synthetic or semi-synthetic materials that use polymers as a main ingredient.
2. The Plastisphere is the result of marine plastic pollution.

Which of the statements given above is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

4. Consider the following statements with reference to the National Mission on Advanced and High-Impact Research (MAHIR):

1. The mission aims to identify emerging technologies in the power sector and develop them indigenously.
2. The mission is Planned for an initial period of three years.
3. The apex committee will be chaired by the Principal Scientific Advisor.

How many statements given above is/are correct?

- | | |
|---------------|--------------|
| (a) One only | (b) Two only |
| (c) All three | (d) None |

5. Recently the 'Fish kill' phenomenon was observed in the USA's Texas. Which of the following are the potential reasons for it?
1. Warm Water
 2. Stormy sea
 3. Deep water
 4. Low levels of dissolved oxygen
- Select the correct answer using the code given below:
- | | |
|------------------|------------------|
| (a) 1 and 2 only | (b) 2 and 3 only |
| (c) 3 and 4 only | (d) 1 and 4 only |
6. The "Miyawaki method" recently seen in the news, is related to which of the following?
- | | |
|---------------------------|------------------------|
| (a) Vaccine manufacturing | (b) Space exploration |
| (c) Plantation of trees | (d) Nuclear technology |
7. Consider the following statements:
1. High seas are open ocean areas that are outside the jurisdiction of any country.
 2. The High Seas Treaty will work as an implementation agreement under the Paris Agreement.
- Which of the statements given above is/are correct?
- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |
8. Which of the following are the objectives of the United Nations High Seas Treaty?
1. Demarcation of marine protected areas (MPAs)
 2. Capacity building and technology transfer
 3. Sustainable use of marine genetic resources
- Select the correct answer using the code given below:
- | | |
|------------------|------------------|
| (a) 1 and 2 only | (b) 2 and 3 only |
| (c) 1 and 3 only | (d) 1, 2 and 3 |
9. With reference to the Green Credit Programme (GCP), consider the following statements:
1. The Ministry of Commerce and Industry notified the draft 'Green Credit Programme (GCP)' implementation rules 2023 recently.
 2. The programme aims to create a market-based mechanism for the entities to earn incentives in the form of green credits.
 3. As per the recent guidelines the green credits will be non- tradable.
- How many statements given above is/are correct?
- | | |
|---------------|--------------|
| (a) Only one | (b) Only two |
| (c) All three | (d) None |
10. Consider the following statements:
1. Climate change is not among one of the factors causing human-animal conflict.
 2. Plan Bee is one of the initiatives to increase awareness about the importance of bees for biodiversity.
 3. Wildlife Protection Act 1972 lays down the rules and regulations for the conservation and protection of Animals in India.
- How many of the above statements is/are correct?
- | | |
|---------------|--------------|
| (a) Only one | (b) Only two |
| (c) All three | (d) None |

EXPLANATIONS

1. (d)

Statement 1, 2 and 3 are correct: The combination of two separate processes whereby water is lost on the one hand from the soil surface by **evaporation** and on the other hand from the crop by **transpiration** is referred to as **evapotranspiration (ET)**.

Evapotranspiration = Evaporation + Transpiration

- 'Evapotranspiration,' both actual and potential, was first defined by **Thorntwaite in 1944**.
- Evapotranspiration is one of the most important components of the water cycle.
- In the agricultural sector, it is an important soil water balance component that plays a role in determining the potential yields.
- Irrigators can use plant evapotranspiration information for more accurate irrigation schedules in order to help achieve top yields and improve water productivity.
- In a farm situation, ET can help give a relatively objective and reliable estimate of the water needed for actively growing plants

2. (d)

Mangrove Alliance for Climate (MAC)

- At the COP27 to UNFCCC at Sharm el-Sheikh in Egypt, the Mangrove Alliance for Climate (MAC) was launched with India as a partner.
- **Members:** The MAC is an initiative led by the **United Arab Emirates (UAE) and Indonesia**. It also includes India, Sri Lanka, Australia, Japan, and Spain as partner countries.
- **Objectives:** It seeks to spread awareness on the role of mangroves in curbing global warming and its potential as a "**nature-based solution to climate change**".
- **The intergovernmental alliance will work on a voluntary basis which means that there are no real checks and balances to hold members accountable.**
- Instead, the parties will decide their own commitments and deadlines regarding planting and restoring mangroves.
- The members will also share expertise and support each other in researching, managing and protecting coastal areas.

3. (c)

Both statements 1 and 2 are correct: The word plastic is derived from the Greek word **plastikos**, meaning "**capable of being shaped or moulded**."

- Plastic refers to a **wide range of synthetic or semi-synthetic materials** that use **polymers** as a main ingredient with their defining quality being their **plasticity** – the ability of a solid material to undergo permanent deformation in response to applied forces.
 - This makes them extremely adaptable, capable of being shaped as per requirement.
- In the ocean, the **plastic waste is eventually fragmented into microplastics (MPs)** under the disruption of physical and chemical processes. MPs are colonized by microbial communities such as fungi, diatoms, and bacteria, which **form biofilms on the surface of the plastic called "plastisphere"**.

4. (a)

Statement 1 is correct: The Ministry of Power and the Ministry of New and Renewable Energy are jointly launching National Mission MAHIR.

- The mission aims to identify emerging technologies in the power sector and develop them indigenously, at scale, for deployment within and outside India.

Statement 2 and 3 are not correct: The mission is Planned for an initial period of **five years from 2023-24 to 2027-28**.

The Mission will have a two-tier structure:

- **Technical Scoping Committee:**
 - It will be chaired by the Chairperson of Central Electricity Authority.
 - It will identify ongoing and emerging research areas globally and recommend potential technologies for development under the Mission.
- **Apex Committee:**
 - It will be chaired by the Union Minister for Power & New and Renewable Energy.
 - It will deliberate on the technology and products to be developed and approve the research proposals.

5. (d)

Texas 'Fish kill':

- **About:**
 - Tens of thousands of dead fish recently washed up on multiple beaches of southeast Texas, USA.
 - Incident took place due to a phenomenon called **"fish kill"**.
- **Reasons of Texas Fish kill:**
 - Primary cause:
 - ♦ It occurs mainly due to **low levels of dissolved oxygen** in the water that **causes suffocation of the fish. Hence option 4 is correct.**
 - ♦ A combination of **factors led to the occurrence of the Texas fish kill.**
 - Warm water:
 - ♦ When sea surface temperatures rise, it becomes difficult for the fish to breathe as oxygen dissolves easily in colder water in comparison to warmer water. **Hence option 1 is correct.**
 - Shallow water:
 - ♦ Things take a turn for the worse when a school of fish gets trapped in shallow water, which gets warmer more quickly.
 - ♦ This causes fish to act more erratically, which in turn, further depletes the oxygen from the water. **Hence option 3 is incorrect.**
 - Calm sea:
 - ♦ Another factor that contributed to the Texas fish kill was calm seas.
 - ♦ Experts suggest that one of the ways for oxygen to enter the water is by mixing with wind and waves.
 - ♦ But in the past few weeks, the waves along the Texas Gulf Coast have been very calm, causing the depletion of dissolved oxygen. **Hence option is 2 incorrect.**
 - Overcast weather:
 - ♦ One more problem was the overcast weather in Texas.
 - ♦ Officials pointed out that due to cloudy skies, phytoplankton were unable to carry out the process of photosynthesis, which is another way of producing oxygen in the water.

6. (c)

Prime Minister Narendra Modi during his latest 'Mann ki Baat' episode spoke about the Miyawaki plantation.

Miyawaki is the Japanese method of creating dense urban forests in a small area.

- It is named after Japanese botanist Akira Miyawaki and it was developed in the 1970s, with the basic objective to densify green cover within a small parcel of land.
- It is an ecological engineering work where native plants/ trees are planted in a scientific method to create an arrangement of fast-growing, dense, varied species of plants, 20 times faster than normal.

7. (a)

The **United Nations** has recently adopted the first-ever treaty to protect marine life in the high seas.

Statement 1 is correct: High seas are open ocean areas that are **outside the jurisdiction of any country**.

- The high seas comprise **64 percent of the ocean surface** and about **43 percent of the Earth**.
- These areas are home to about 2.2 million marine species and up to a trillion different kinds of microorganisms, according to the **Deep Ocean Stewardship Initiative (DOSI)**, a network of global experts on oceans.

Statement 2 is not correct: It is also referred to as the '**Paris Agreement for the Ocean**'.

- The agreement was reached during the **Intergovernmental Conference (IGC) on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ)**, which was held in **New York**.
- The High Seas Treaty will work as an implementation agreement under the UNCLOS.

8. (d)

UN High Seas treaty

- About:
 - It is also called the '**Paris Agreement for the Ocean**'.
 - The treaty deals with **Biodiversity Beyond National Jurisdiction** and has been under discussion for several years.
 - **The treaty has four main objectives:**
 - Demarcation of **marine protected areas (MPAs)**, rather like there are protected forests or wildlife areas;
 - Sustainable use of **marine genetic resources** and equitable sharing of benefits arising from them;
 - Initiation of the **practice of environmental impact assessments** for all major activities in the oceans; and
 - **Capacity** building and **technology** transfer.
- ♦ Hence all the options are correct.

9. (a)

Statement 1 is not correct: The Ministry of Environment, Forest and Climate Change (MoEFCC) notified the **draft 'Green Credit Programme (GCP)'** implementation rules 2023 under **Mission LiFE**.

Statement 2 is correct: Aim: The programme aims to create a **market-based mechanism** for the entities to earn incentives in the form of green credits.

- **Sectors:** The **eight identified sectors** include increasing the green cover across the country through tree plantation and related activities; water conservation and harvesting, water-use efficiency; natural and regenerative agricultural practices and land restoration, soil health and nutritional value of food produced; waste management and steps for reducing air pollution and

other pollution abatement activities.

- The draft has also included **mangrove conservation and restoration-based green credit** to promote measures for the conservation and restoration of mangroves.

Statement 3 is not correct: Trading Platform: The trading platform for the exchange of green credits shall be established by the trading service provider accredited by the administrator in accordance with the approved guidelines.

- The green credits will be **tradable** and those earning it will be able to put these credits up for sale on a proposed domestic market platform.

10. (a)

Statement 1 is not correct: What is Human-wildlife conflict?

- It's an encounter between humans and wildlife which leads to negative results, such as loss of property, livelihoods, and even life.

Factors causing Human-Animal conflict

- **Urbanisation and Agricultural expansion:** Increased pressure on forest resources due to urbanization and expansion of agriculture is leading to increased encounters between humans and animals.
- **Lack of Protected areas:** A new report by WWF and UNEP has found that 35 per cent of India's tiger ranges currently lie outside protected areas.
- **Climate change:** Climate change induced extreme weather events like droughts and heat waves is causing animals to move outside forests in search of water.
- **Increase in eco-tourism:** Pristine forest resources are being disturbed in the wake of weekend holidays in the forest areas.

Statement 2 is not correct: Plan Bee: It is adopted by the Northeast Frontier Railway (NFR) which is a unique method to keep elephants away from railway tracks and plans are afoot to implement it all over the country to save the lives of elephants.

Statement 3 is correct: Wildlife Protection Act 1972: It lays down the rules and regulations for the conservation and protection of Animals in India.



MISCELLANEOUS

1. Consider the following statements regarding the Gandhi Peace Prize:
 1. It is awarded annually to the Indian individuals/organisations for their contributions towards social, economic and political transformation through Gandhian ideology.
 2. The Selection committee is chaired by the Prime Minister, and comprises two ex-officio members and eminent personalities.
 3. Gita Press is awarded the prize for the year 2021.How many of the statements given above is/are correct?
 - (a) Only one
 - (b) Only two
 - (c) All three
 - (d) None
2. Consider the following statements:
 1. The Paralympics are solely for athletes with intellectual impairment.
 2. The Special Olympics focus more on physical disabilities.Which of the statements given above is/are correct?
 - (a) 1 only
 - (b) 2 only
 - (c) Both 1 and 2
 - (d) Neither 1 nor 2

EXPLANATIONS

1. (b)
 - **Statement 1 is not correct:** This is an annual award given to individuals and institutions for their contributions towards social, economic and political transformation through non-violence and other Gandhian methods. The award is open to all persons regardless of **nationality, race, language, caste, creed or gender**. Even foreigners also eligible for the award like recent foreigners who got the awards are Former President of South Africa Nelson Mandela, Bangabandhu Sheikh Mujibur Rahman of Bangladesh etc.
 - **Statement 2 is correct:** The Jury chaired by **Prime Minister and comprises two ex-officio members**, namely the Chief Justice of India and Leader of the single largest Opposition Party in Lok Sabha. Two eminent members are also part of the Jury, Speaker of the Lok Sabha, and Founder of Sulabh International Social Service Organisation.
 - **Statement 3 is correct:** **Gita Press is awarded the prize for the year 2021.** Gita Press is **one of the world's largest publishers** of Bhagavad Gita, the Ramayana and the Upanishads, having published 41.7 crore books in 14 languages, including 16.21 crore **Bhagavad Gita**. It completes **100 years of its establishment in 2023**. The institution has never **relied on advertisement in its publications, for revenue generation**.

2. (d)

India ended their Special Olympics World Games campaign with a whopping 202 medals.

- **Both Statements 1 and 2 are not correct:** The Paralympics, as the largest sports competition for athletes with an impairment worldwide, involve athletes from several impairment categories.
- The six main disability categories are: amputee, cerebral palsy, intellectual impairment, visually impaired, spinal injuries and Les Autres (French for "the others", a category that includes conditions that do not fall into the categories mentioned before).
- **In contrast, the Special Olympics are solely for athletes with intellectual impairment.**

■■■■

