

CSE 2025 Prelims Analysis and Direct Hits

Coverage from Lectures Bureau:
90 Marks (45 Qs)

Timeline: Strictly from Oct 2023 to Apr 2025

Q1

In the context of electric vehicle batteries, consider the following elements:

- I. Cobalt
- II. Graphite
- III. Lithium
- IV. Nickel

How many of the above usually make up battery cathodes?

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

Answerable from Current Affairs Magazine

January 2024 Pre & Mains Based

Variants of EV

- For example, Tesla uses cathodes based on Nickel-Manganese-Cobalt (NMC) and Lithium Iron Phosphate (LFP) in their batteries.
- While NMC batteries have high energy density and provide longer range, LFP batteries have longer life, better stability, less toxic and have faster charging times.
- For instance, a temperature sensor can be installed to detect dangerous conditions and shut down the battery, preventing a fire.

Geography III Sectional Test

Applications of Graphite

- Refractories:** Used in materials that retain strength at high temperatures.
- Batteries:**
 - Graphite is crucial in constructing the anode of all major battery technologies.
 - The lithium-ion battery, in particular, utilizes roughly twice the amount of graphite compared to lithium carbonate.
- Steelmaking:** Used for carbon raising in molten steel to make it stronger.
- Brake Linings:** Amorphous graphite is used in brake linings for heavier vehicles, especially as a substitute for asbestos.

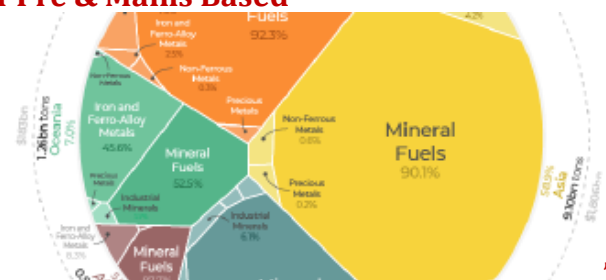
June 2024 Pre & Mains Based

- India doesn't have the basic raw materials for making battery electric vehicles, and large amounts of metals like cobalt, nickel and lithium.
- The only advantage with hybrids is that they are very small battery pack and their total cost of ownership is slightly higher because of the differential tax rate.
 - Hybrids today are taxed even more than ICE vehicles.
- For a country like India, the subsidy is not sustainable because of the sheer numbers, and doing so the progression and development would stop.

March 2024 Pre & Mains Based

Critical minerals in demand

- Rare earth minerals are used in offshore wind turbine generators and electric vehicle motors.
- Lithium, Nickel and cobalt are used in energy storage technologies and other manufacturing technologies.



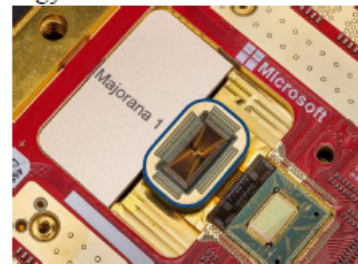
Consider the following statements:

- I. It is expected that Majorana 1 chip will enable quantum computing.
- II. Majorana 1 chip has been introduced by Amazon Web Services (AWS).
- III. Deep learning is a subset of machine learning.
- Which of the statements given above are correct?
- (a) I and II only
(b) II and III only
(c) I and III only
(d) I, II and III

Feb 2025 Pre & Mains Based

Microsoft unveils new quantum chip

- Microsoft has announced a new chip, called **Majorana 1**, joining Google and IBM in predicting that a fundamental change in computing technology.
- The biggest challenge of quantum computing is that its **fundamental building block called a qubit**, which is fast but difficult to control and is prone to errors.
- Microsoft said its new Majorana 1 chip is less prone to these errors than rival designs.
- Its supposed fault-tolerant abilities come from the properties of an **exotic subatomic particle called the Majorana fermion**, which has been hard to find since it was first theorised in the 1930s.



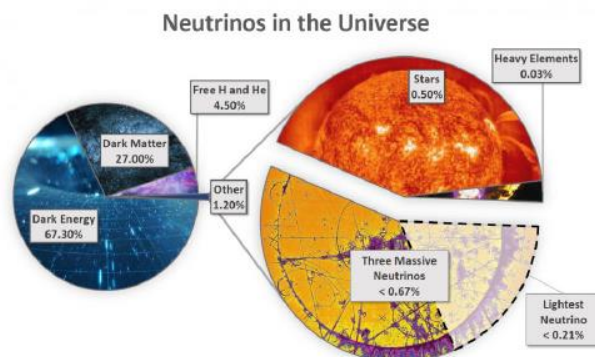
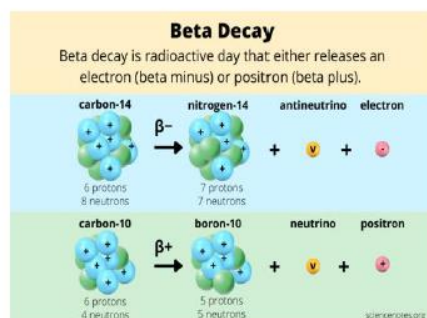
New data keeps the search for rare subatomic mystery going

Microsoft announced a new quantum computing chip called **Majorana 1** that it expected would realise quantum computers capable of solving meaningful, industrial-scale problems in years, not decades.

Majorana 1

- Microsoft named the chip “Majorana 1” because it consists of Majorana particles, which is a particular type of subatomic particle with unusual properties.
- One is that **a Majorana particle is its own anti-particle**. The particles that make up matter, called fermions, have anti-particles with distinct identities.
- For example, the electron’s anti-particle is a positron, not another electron. The proton’s anti-particle is the anti-proton, not another proton.
- But among fermions, **a Majorana particle’s anti-particle is yet another Majorana particle**. If two of them meet, they will annihilate each other in a flash of energy.

Neutrinos, neutrinos everywhere



M45 Mains Answer Writing Detailed Synopsis:

Machine Learning

- Machine learning (ML) is a branch of artificial intelligence (AI) focused on enabling computers and machines to imitate the way that humans learn, to perform tasks autonomously, and to improve their performance and accuracy through experience and exposure to more data.
- Since deep learning and machine learning tend to be used interchangeably, it's worth noting the nuances between the two. Machine learning, deep learning, and neural networks are all sub-fields of artificial intelligence. **However, neural networks is actually a sub-field of machine learning, and deep learning is a sub-field of neural networks.**

Consider the following statements:

- I. India has joined the Minerals Security Partnership as a member.
- II. India is a resource-rich country in all the 30 critical minerals that (It) has identified.
- III. The Parliament in 2023 has amended the Mines and Minerals (Development and Regulation) Act, 1957 empowering the Central Government to exclusively auction mining lease and composite license for certain critical minerals.
- Which of the statements given above are correct?
- (a) I and II only
(b) II and III only
(c) I and III only
(d) I, II and III

Full Test I

37. Consider the following statements about Mineral Security Partnership (MSP)

(2 po

1. It is a US-led global alliance to secure supply chains of critical minerals, aimed at reducing dependency on China
2. India was recently inducted into the Mineral Security Partnership (MSP)

Which of the above statements is/are correct?

July & December 2024 Pre & Mains BasedIndia's reliance on China for critical mineralsThe story so far

- The Ministry of Mines in 2023 identified 30 critical minerals deemed essential for the nation's economic development and national security.
- India's complete import dependency for 10 critical minerals, it did not fully address a more pressing concern the extent and nature of dependency on China.

Is India dependent on China?

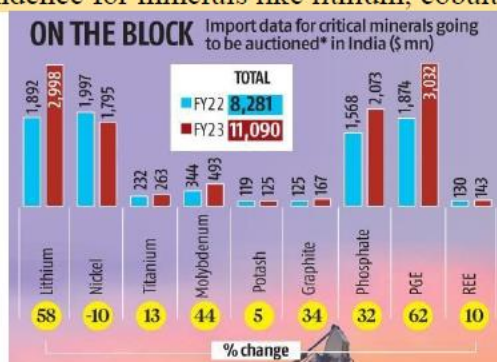
- The import data of 30 critical minerals spanning 2019 to 2024 reveals India's acute vulnerability to Chinese supplies, particularly for six critical minerals where,
 - dependency exceeds 40%: bismuth (85.6%), lithium (82%), silicon (76%), titanium (50.6%), tellurium (48.8%), and graphite (42.4%).

January 2025 Pre & Mains BasedGovernment's initiative

- The Ministry of Mines identified 30 critical minerals that are deemed essential for national security.
- Union government set up a designated body, **Khanij Bidesh India Ltd. (KABIL)**, which has been tasked with obtaining overseas investments in critical minerals such as lithium and cobalt.
- Parliament passed **Mines and Minerals (Development and Regulation) Amendment Act, 2023**, lifting restrictive classifications on some rare earth elements that used to be considered 'atomic minerals'.

July 2024 Pre & Mains Based

- In India, the lack of ready reserves of critical minerals has resulted in 100% import dependence for minerals like lithium, cobalt, and nickel.

**Digging Deep**

GSI estimates 79 million tonnes of heavy mineral near shoreline; 153,996 MT of lime mud in EEZ; 745 MT of construction sand in territorial waters

Preliminary resources of heavy minerals in inner & mid-shelf off Odisha, Andhra, Kerala-TN & Maharashtra coasts; lime mud in EEZ off Gujarat and Maharashtra coasts; construction grade sand within & outside tidal wave line off Kerala coast

Phosphorite in EEZ's eastern and western continental margins

- Realising the vulnerabilities for Indian supply chains, the central government amended the **Mines and Minerals (Development and Regulation) Act, 1957**,
 - to enable it to grant mining concessions for 24 critical and strategic minerals.

Economy III Sectional Test

1. **Removal of 6 minerals from the list of 12 atomic minerals limited to exploration by State agencies** (i.e., lithium, beryllium, niobium, titanium, tantalum and zirconium). This opens up opportunity for private sector involvement in their exploration and mining.
2. **Empowering the government to exclusively auction mineral concessions for critical minerals, including rare earth elements, graphite, cobalt, lithium, nickel, phosphate, potash and tin.** Revenue generated from these auctions will go to the concerned State Governments, accelerating the pace of auction and production for vital industries like space, electronics and energy transition.

Q4

India is one of the founding members of the International North-South Transport Corridor (INSTC), a multimodal transportation corridor, which will connect

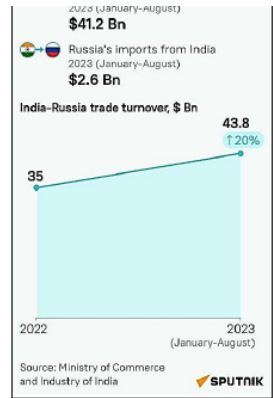
- India to Central Asia to Europe via Iran
- India to Central Asia via China
- India to South-East Asia through Bangladesh and Myanmar
- India to Europe through Azerbaijan

Answerable from Current Affairs Magazine

July 2024 Pre & Mains Based

Trade related agreements

- India and Russia also agreed to increase bilateral trade to \$100 billion dollars by 2030, including the use of national currencies to circumvent Western sanctions.
- The bilateral trade already stands at around \$65 billion, because of the surge in India's imports of Russian crude at discount owing to sanctions.
- Use of new connectivity routes, including the Chennai-Vladivostok maritime route and Northern Sea Route and International North-South Transport Corridor via Iran,
 - will help in better investments in the energy sector including nuclear energy, infrastructure development and priority areas.



May 2024 Pre & Mains Based

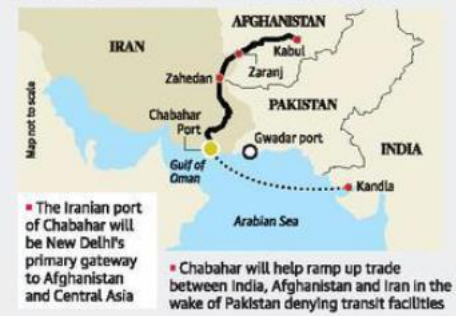
Chabahar port critical for India's connectivity plans

- India will invest \$120 million and offer a credit facility of \$250 million to further develop the terminal in Chabahar's Shahid Beheshti port and related projects.
- It offers an alternative route to Afghanistan and Central Asia by bypassing Pakistan, allowing better trade with Central Asia.
- Chabahar is expected to be connected to the International North-South Transport Corridor (INSTC), bringing India closer to Europe.
 - An alternative to the Suez route, a fully operational NSTC would reduce the time and money spent on intercontinental trade.
- The port, 200 km from Pakistan's Gwadar, where China is developing a port as part of its BRI, would also help India expand its geopolitical influence in Central Asia.



Geo-strategic push

The consignment of wheat is the first of six shipments to be sent to Afghanistan over the next few months via Iran



Q5

Consider the following countries:

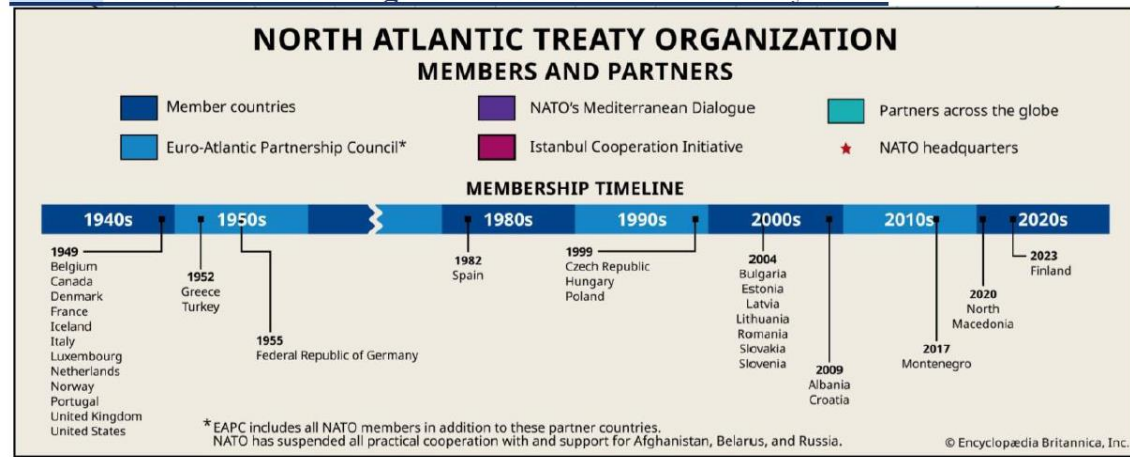
- Austria
- Bulgaria
- Croatia
- Serbia
- Sweden
- North Macedonia

How many of the above are members of the North Atlantic Treaty Organization?

Answerable from Current Affairs Magazine

Dec 2023 Pre & Mains Based

NATO member Finland to grant U.S. access to 15 military bases



Q6

Answerable from Current Affairs Magazine

Consider the following statements:

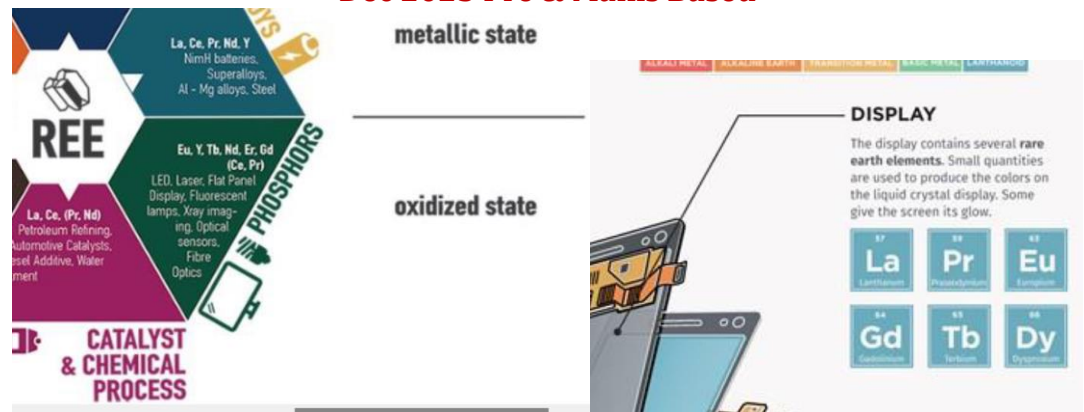
Statement I:

Some rare earth elements are used in the manufacture of flat television screens and computer monitors.

Statement II:

Some rare earth elements have phosphorescent properties.

Dec 2023 Pre & Mains Based



Q7

Answerable from Current Affairs Magazine & PTS

Consider the following statements:

I. Indian Railways have prepared a National Rail Plan (NRP) to create a "future ready" railway system by 2028.

II. "Kavach" is an Automatic Train Protection system developed in collaboration with Germany.

III. The "Kavach" system consists of RFID tags fitted on the track in station sections.

Which of the statements given above are not correct?

- (a) I and II only
(b) II and III only
(c) I and III only
(d) I, II and III

Economy III Sectional Test

Which of the statements given above is/are the features of the National Rail Plan 2030?

- ☐ Only one
☒ Only two
☐ All three
☐ None

Explanation:

Statement 3 is incorrect.

National Rail Plan 2030(NRP):

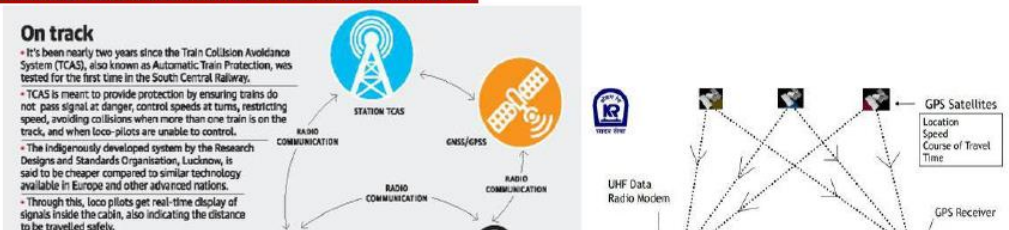
- The ambitious National Rail Plan 2030 is more comprehensive, aiming *to identify new dedicated freight and high-speed rail corridors and to significantly increase the average speed of freight trains to 50 kmph.*
- This transformative roadmap is a testament to PM Modi's vision for a 'future-ready' India that is better connected and more efficiently served by a robust public transport infrastructure.
- The National Rail Plan (NRP) aims to develop a comprehensive framework that targets both operational capacities and commercial policy initiatives *to boost the modal share of Railways in freight transportation to 45 percent by 2050.*

November 2023 Pre & Mains Based

How Kavach Works

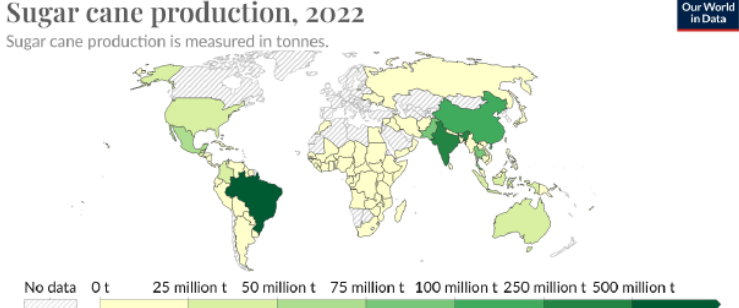
- Kavach was developed by the Indian Railways Research Designs and Standards Organisation (RDSO).
- Kavach warns the train's driver (loco pilot) if they miss a 'red signal' and are about to overshoot it.
- If the loco pilot doesn't slow down as advised, Kavach automatically applies the brakes to stop the train.
- The system relies on Radio Frequency Identification (RFID) technology.

Kavach Infrastructure and Functionality



Q8	Answerable from PTS
<p>Consider the following statements:</p> <p>I. Panchayats at the intermediate level exist in all States.</p> <p>II. To be eligible to be a Member of a Panchayat at the intermediate level, a person should attain the age of thirty years.</p> <p>III. The CM of a State constitutes a commission to review the financial position of Panchayats at the intermediate levels and to make recommendations regarding the distribution of net proceeds of taxes and duties</p> <p>Which of the statements given above are not correct?</p>	<p>Polity III Sectional Test</p> <p>b) Three Tiers of Panchayati Raj Part IX provides for a 3 tier Panchayat system, which would be constituted in every state at the village level, intermediate level and district level. This provision brought the uniformity in the Panchayati Raj structure in India. However, the states which were having population below 20 Lakh were given an option to not to have the intermediate level. All the members of these three level are elected. Further, the chairperson of panchayats at the intermediate and district levels are indirectly elected from amongst the elected members. But at the village level, the election of chairperson of Panchayat (Sarpanch) may be direct or indirect as provided by the state in its own Panchayati Raj Act.</p> <p>c) Reservation in Panchayats There is a provision of reservation of seats for SCs and STs at every level of Panchayat. The seats are to be reserved for SCs and STs in proportion to their population at each level. Out of the Reserved Seats, 1/3rd have to be reserved for the women of the SC and ST. Out of the total number of seats to be filled by the direct elections, 1/3rd have to be reserved for women. There has been an amendment bill pending that seeks to increase reservation for women to 50%. The reserved seats may be allotted by rotation to different constituencies in the Panchayat. The State by law may also provide for reservations for the offices of the Chairpersons.</p> <p>d) Duration of Panchayats A clear term for 5 years has been provided for the Panchayats and elections must take place before the expiry of the terms. However, the Panchayat may be dissolved earlier on specific grounds in accordance with the state legislations. In that case the elections must take place before expiry of 6 months of the dissolution.</p> <p>e) Disqualification of Members Article 243F makes provisions for disqualifications from the membership. As per this article, any person who is qualified to become an MLA is qualified to become a member of the Panchayat, but for Panchayat the minimum age prescribed is 21 years. Further, the disqualification criteria are to be decided by the state legislature by law.</p> <p>f) Finance Commission State Government needs to appoint a finance commission every five years, which shall review the financial position of the Panchayats and to make recommendation on the following: • The Distribution of the taxes, duties, tolls, fees etc. levied by the state which is to be divided between the Panchayats.</p>
Q9	Answerable from Mains Ans Writing
<p>Consider the following statements:</p> <p>I. Without the atmosphere, temperature would be well below freezing point everywhere on the Earth's surface.</p> <p>II. Heat absorbed and trapped by the atmosphere maintains our planet's average temperature.</p> <p>III. Atmosphere's gases, like carbon dioxide, are particularly good at absorbing and trapping radiation.</p> <p>Which of the statements given above are correct?</p>	<p>M7 Mains Ans Writing</p> <p>5. Absorption</p> <ul style="list-style-type: none"> • In our earth's atmosphere due to the different composition, act as a barrier to the insolation or it absorbed some solar radiation, may be assimilated by the object is generally termed as atmospheric absorption. • The different material on earth has different absorptive capabilities with different wavelength of solar radiation. It is happening in all electromagnetic radiations at certain spectral bands by the composition present in the atmosphere. • The most efficient absorbers of solar radiation in this regard are water (H₂O), carbon dioxide (CO₂) ozone (O₃), Oxygen (O₂) nitrous oxide (NO₂). • The cumulative effect of the absorption by the various constituents can cause the atmosphere to close down completely in certain regions of the spectrum that leads to an increase in temperature. • Similarly, our earth atmosphere easily transmits incoming shortwave solar radiation but is a poor transmitter of outgoing longwave emitted energy by earth's surface. This differential transmission causes the greenhouse effect in the atmosphere. • Due to greenhouse effect of the atmosphere, the earth's atmospheric temperature is hospitable. Without this effect, the living conditions could not be created. The average global temperature of 15 °C is possible only due to greenhouse effect otherwise, without this effect, the average temperature would come down to – 17 °C. <p>2. Scattering</p> <ul style="list-style-type: none"> • Atmospheric gases and dust particles physically interact with incoming solar radiations through processes of scattering. A redirection of energy through refraction and reflection is called scattering.

Q10	<p align="center">Answerable from Current Affairs Magazine</p> <p align="center">November 2023 Pre & Mains Based</p>
<p>Artificial way of causing rainfall to reduce air pollution makes use of</p> <p>(a) Silver iodide and potassium iodide</p> <p>(b) Silver nitrate and potassium iodide</p> <p>(c) Silver iodide and potassium nitrate</p> <p>(d) Silver nitrate and potassium chloride</p>	<p><u>Cloud types</u></p> <ul style="list-style-type: none"> Clouds are ‘warm’ and ‘cold’, and required different chemicals to stimulate water production in them. Colder clouds could be best served with silver iodide, as was the case when China carried out cloud-seeding. In Solapur, the clouds were warmer and doused with calcium chloride. Clouds are chaotic and clouding is a complex phenomenon and need a lot of planning and strategy to execute a successful cloud seeding operation <div data-bbox="1018 286 1524 616"> </div> <p align="center">Oct 2023 Pre Based Add On</p> <p><u>Cloud Seeding</u></p> <ul style="list-style-type: none"> Cloud seeding is a kind of weather modification technology to create artificial rainfall. It works only when there are enough pre-existing clouds in the atmosphere. Drones are charged into the clouds and cause an electric shock due to which they clump together and cause rainfall. Otherwise, in this process either silver iodide, potassium iodide or dry ice (solid carbon dioxide) is dumped onto the clouds causing rainfall. The seeds of chemicals can be delivered by
Q11	<p align="center">Answerable from Current Affairs Magazine</p>
<p>Consider the following statements with regard to pardoning power of the President of India:</p> <p>I. The exercise of this power by the President can be subjected to limited judicial review.</p> <p>II. The President can exercise this power without the advice of the Central Government.</p> <p>Which of the statements given above is/are correct?</p> <p>(a) I only</p> <p>(b) II only</p> <p>(c) Both I and II</p> <p>(d) Neither I nor II</p>	<p align="center">April 2025 Pre & Mains Based</p> <p><u>Constitutional heads and judicial review</u></p> <ul style="list-style-type: none"> The basic proposition laid down by the Court after reviewing a catena of cases is that no exercise of power under the constitution is beyond pale of judicial review. So, it has held that there is no reason to exclude the discharge of functions by the Governor or President under Articles 200 and 201 respectively from judicial review. While it is true that Parliament alone has the right to amend the Constitution, it is the job of the judiciary to explain and interpret the constitutional provisions. In fact, the Constitution Bench under Article 145(3) decides substantial questions of law as to the interpretation of the Constitution. <p align="center">December 2024 Pre & Mains Based</p> <p><u>What are the controversies around pardoning power?</u></p> <p>U.S. President Joe Biden has granted an unconditional pardon to his son Hunter Biden who faced sentencing for federal tax and gun convictions.</p> <p><u>Can the President pardon anyone?</u></p> <ul style="list-style-type: none"> The ‘royal prerogative of mercy’ is a historic prerogative of the British monarch to grant pardons to convicted persons. <ul style="list-style-type: none"> This was originally used by the monarch to withdraw or provide alternatives to death sentences. According to the U.S. Constitution, the President can grant pardon except in cases of impeachment. <p><u>Indian system</u></p> <ul style="list-style-type: none"> Article 72 and 161 of Constitution provide powers to the President and Governor respectively to grant pardon, commutation, remission, respite or reprieve to a convict. These are sovereign powers which are to be exercised on the advice of the council of ministers. The Supreme Court in <i>Epuru Sudhakar case (2006)</i> has held that the exercise of pardoning power is subject to judicial review on the grounds of arbitrariness, mala fides or extraneous considerations. <div data-bbox="1252 1948 1564 2049"> </div>

<p>Q12</p> <p>Consider the following statements: Statement I: In India, State Governments have no power for making rules for grant of concessions in respect of extraction of minor minerals even though such minerals are located in their territories. Statement II: In India, the Central Government has the power to notify minor minerals under the relevant law.</p>	<p>Answerable from PTS</p> <p>Economy III Sectional Test</p> <ul style="list-style-type: none"> <i>In India, the minerals are classified as minor minerals and major minerals under MMDRA, 1957. Classification is not related to quantum/ availability/ level of production/ mechanization/ EXIM of these minerals but related to relative value and end use of these minerals.</i> 'Minor Minerals' comprise of gravel, building stones, soil, ordinary clay, ordinary sand, and murum. Other sand used for prescribed purposes, and any other mineral which the Central Government may, by notification in the Official Gazette, declare to be a minor mineral. 'Major Minerals' are those specified in the first schedule appended in the Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act 1957). The common major minerals include coal, uranium, lignite, iron ore, gold etc. In other words, anything that is not declared as a 'minor mineral' can be treated as the major mineral. Calcium, chloride, magnesium, phosphorus, potassium, sodium, and sulphur are the 'Major Minerals' that are used and stored in large quantities in the body. The trace minerals are equally important for our health as the major minerals, however, we do not require them in large quantity. <p>Environment I Sectional Test</p> <p>Explanation:</p> <p>On 25 July, in a 8:1 majority, a nine-judge Constitution Bench of the Supreme Court held that states have the power to levy tax on mines and minerals. The Bench held that the “royalty” collected by state governments under Section 9 of the Mines and Minerals (Development & Regulation) Act, 1957 (MMDRA) is not a tax. The judgement overruled a 35 year old decision, <i>India Cements v State of Tamil Nadu</i> (1989), which had declared that royalty is a tax.</p>
<p>Q13</p> <p>Consider the following statements: Statement I: Of the two major ethanol producers in the world, i.e., Brazil and the United States of America, the former produces more ethanol than the latter. Statement II: Unlike in the United States of America where corn is the principal feedstock for ethanol production, sugarcane is the principal feedstock for ethanol production in Brazil.</p>	<p>Answerable from Current Affairs Magazine & PTS</p> <p>Dec 2023 Pre & Mains Based</p> <p>Feedstock for Ethanol Production</p> <ul style="list-style-type: none"> Major feedstocks for ethanol production are sugarcane and corn, with Brazil and the U.S. being prominent producers. Corn-based ethanol reduces its use as food or livestock feed, creating a direct link between food prices and crude oil prices. High crude prices from 2004-2014 impacted ethanol and corn prices, contributing to the 2006-14 global food crisis. <p>Geography III Sectional Test</p> <p>Sugar cane production, 2022 Sugar cane production is measured in tonnes.</p>  <p>Data source: Food and Agriculture Organization of the United Nations (2023) OurWorldInData.org/agricultural-production CC BY</p> <p>Ethanol Production and Green Energy</p> <ul style="list-style-type: none"> Global Leadership: <i>India dominates the sugar market in the Eastern Hemisphere, while Brazil dominates in the Western Hemisphere</i> Ethanol Production: <i>India is the 3rd largest ethanol producer globally, after the USA and Brazil.</i> Commitment to Green Energy: <ul style="list-style-type: none"> Ethanol Blending: Increased from 5% in 2019-20 to 12% in 2022-23. Production Growth: Ethanol production rose from 173 crore litres to over 500 crore litres during the same period. Strategic Importance: This shift towards ethanol production addresses surplus sugar issues, reduces fossil fuel imports, and contributes to meeting COP 26 climate targets for India.

Q14	Answerable from PTS
<p>Who among the following rulers in ancient India had assumed the titles ‘Mattavilasa’, ‘Vichitrachitta’ and ‘Gunabhara’?</p> <p>(a) Mahendravarman I (b) Simhavishnu (c) Narasimhavarman I (d) Simhavarman</p>	<p style="text-align: center;">Full Test III</p> <p>82. Which of the following ruler is associated with the titles of Vichitrachitta, Chitrakarapuli and Chaityakari in the inscription at Mandagapattu? (2 points)</p> <p> <input checked="" type="radio"/> Mahendravarman I <input type="radio"/> Narasimhavarman I <input type="radio"/> Paramesvaravarman I <input type="radio"/> Simhavishnu </p> <p>Explanation:</p> <p>Murals under the Pallava, Pandava and Chola Kings, the tradition of painting extended further down south in Tamil Nadu in the preceding centuries with regional variations during the regimes of Pallava, Pandya and Chola dynasties.</p> <p>The Pallava kings who succeeded the Chalukya kings in parts of South India, were also patrons of arts. Mahendravarma I who ruled in the seventh century was responsible for building temples at Panamalai, Mandagapattu and Kanchipuram. The inscription at Mandagapattu mentions Mahendravarman I with numerous titles such as Vichitrachitta (curious-minded), Chitrakarapuli (tiger among artists), Chaityakari (temple builder), which show his interest in art activities.</p> <p style="text-align: center;">Art & Culture Sectional Test</p> <p>Murals under the Pallava, Pandava and Chola Kings</p> <ul style="list-style-type: none"> The tradition of painting extended further down south in Tamil Nadu in the preceding centuries with regional variations during the regimes of Pallava, Pandya and Chola dynasties. The Pallava kings who succeeded the Chalukya kings in parts of South India, were also patrons of art <i>Mahendravarma I who ruled in the seventh century was responsible for building temples at Panamalai, Mandagapattu and Kanchipuram.</i> The inscription at Mandagapattu mentions Mahendravarman I with numerous titles such as Vichitrachitta (curious-minded), Chitrakarapuli (tiger among artists), Chaityakari (temple builder), which show his interest in art activities. The paintings in these temples too were done at his initiative, though only fragments remain.
Q15	Answerable from Current Affairs Magazine
<p>Consider the following statements:</p> <p>Statement I: Activated carbon is a good and an attractive tool to remove pollutants from effluent streams and to remediate contaminants from various industries.</p> <p>Statement II: Activated carbon exhibits a large surface area and a strong potential for adsorbing heavy metals.</p> <p>Statement III: Activated carbon can be easily synthesized from enviro wastes with high C content.</p>	<p style="text-align: center;">July 2024 Pre & Mains Based</p> <p>Carbon derived from coconut husks can power supercapacitors, find researchers</p> <p>Researchers have devised a method to produce activated carbon, from coconut husks, suitable for supercapacitor fabrication, which are a major agricultural residue in Kerala.</p> <div data-bbox="446 1422 1484 1803"> </div> <ul style="list-style-type: none"> The coconut husk biowaste-derived activated carbon holds immense promise for sustainable and efficient green solutions. It is known for its high-performance supercapacitors owing to its availability, low cost, and eco-friendly nature. Supercapacitors, with higher capacitance and energy storage capacity have emerged as a vital component in the quest for sustainable energy storage solutions. <ul style="list-style-type: none"> The search for an ideal supercapacitor electrode material has been a challenge.

Q16

Consider the following statements:

- I. India accounts for a very large portion of all equity option contracts traded globally thus exhibiting a great boom.
- II. India's stock market has grown rapidly in the recent past even overtaking Hong Kong's at some point of time.
- III. There is no regulatory body either to warn the small investors about the risks of options trading or to act on unregistered financial advisors in this regard.

Answerable from Mains Ans Writing

M13 Mains Ans Writing

What is Sebi, and what are its functions?

- The Securities and Exchange Board of India, or Sebi, is expected to protect investor interests, promote the development of the securities market, and regulate it under the Sebi Act, 1992
 - Sebi has the authority to make rules, enforce them, and also adjudicate disputes under the Sebi Act, Securities Contracts (Regulation) Act, 1956, the Depositories Act, 1996, the Companies Act, 2013 and others.
-
- Sebi works for the development and regulation of the securities market in India, ensuring investor protection through awareness programmes, financial literacy initiatives, and addressing investor grievances.
 - Sebi also works on global securities standards as part of the International Organization of Securities Commissions (IOSCO).

Q17

Consider the following statements in respect of BIMSTEC:

- I. It is a (regional) organization consisting of seven member States till January 2025.
 - II. It came into existence with the signing of the Dhaka Declaration, 1999.
 - III. Bangladesh, India, Sri Lanka, Thailand and Nepal are founding member States of BIMSTEC.
 - IV. In BIMSTEC, the subsector of 'tourism' is being led by India.
- Which of the statements given above is/are correct?
- a) I and II
 - (b) II and III
 - (c) I and IV
 - (d) I only

Answerable from Current Affairs Magazine

May 2024 Pre Based

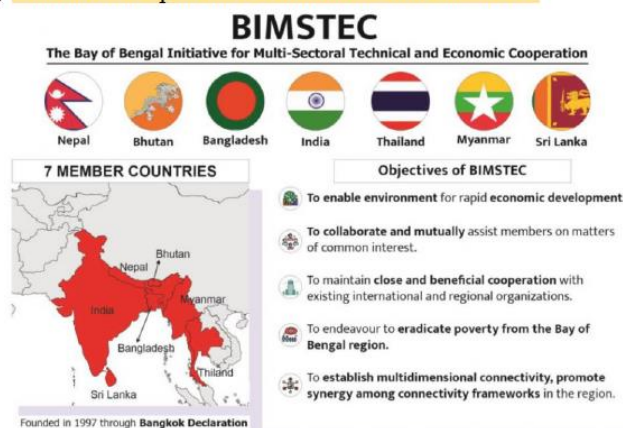
About BIMSTEC

- BIMSTEC – Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation, a regional organization group of littoral countries of the Bay of Bengal with own flag and emblem.
- Established in – 1997, by the **Bangkok Declaration**.
- The year 2022 marked the 25th anniversary of BISTEC formation.
- Secretariat at – Dhaka, Bangladesh.
- Aim – To foster economic & social development among members.
- 7 members – Bangladesh, Bhutan, India, Nepal, Sri Lanka, Myanmar and Thailand.

May 2024 Pre &Mains Based

BIMSTEC gets 'legal personality' after charter comes into force

- The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) will now be open to new members and observers.



- It was decided after a historic first charter of grouping came into force on May 20, in the 5th summit of the BIMSTEC leaders.

Q18	Answerable from Current Affairs Magazine
<p>GPS-Aided Geo Augmented Navigation (GAGAN) uses a system of ground stations to provide necessary augmentation. Which of the following statements is/are correct in respect of GAGAN?</p> <p>I. It is designed to provide additional accuracy and integrity.</p> <p>II. It will allow more uniform and high-quality air traffic management.</p> <p>III. It will provide benefits only in aviation but not in other modes of transportation.</p>	<p style="text-align: center;">Dec 2023 Pre & Mains Based</p> <ul style="list-style-type: none"> They include messaging interface that can receive messages from control stations and transmit them to specific areas required. <p><u>Other satellites by India</u></p> <ul style="list-style-type: none"> India also operates the GPS-Aided Geo Augmented Navigation (GAGAN) system, which was developed by the ISRO and the Airports Authority of India. Its primary purpose is safety-of-life civil aviation applications catering to the Indian airspace and for providing correction and integrity messages for GPS. <p style="text-align: center;">March 2024 Pre & Mains Based</p> <p><u>Introducing a new toll collection system</u></p> <p>Road Transport and Highways Minister Nitin Gadkari said the plans to implement a new highway toll collection system based on the global navigation satellite system.</p> <p><u>New proposed highway tolling system</u></p> <ul style="list-style-type: none"> The global navigation satellite system uses a large constellation of satellites to provide more accurate location and navigation information to users globally. Its implementation will involve an On-Board Unit (OBU), or a tracking device, fitted inside a vehicle whose location can be mapped using GAGAN. <ul style="list-style-type: none"> Indian satellite navigation system with an approximate accuracy of 10 metres. The system will additionally have gantries, or arches mounted with CCTV cameras, at various points on a highway for enforcement purposes.
Q19	Answerable from PTS
<p>Consider the following statements about Lokpal:</p> <p>I. The power of Lokpal applies to public servants of India, but not to the Indian public servants posted outside India.</p> <p>II. The Chairperson or a Member shall not be a MP or a Member of the Legislature of any State or UT, and only the Chief Justice of India, whether incumbent or retired, has to be its Chairperson.</p> <p>III. The Chairperson or a Member shall not be a person of less than forty-five years of age on the date of assuming office as the Chairperson or Member, as the case may be.</p> <p>IV. Lokpal cannot inquire into the allegations of corruption against a sitting Prime Minister of India.</p>	<p style="text-align: center;">Polity IV Sectional Test</p> <p><u>Features of the Act:</u></p> <ul style="list-style-type: none"> It seeks to establish Lokpal at Centre, Lokayuktas in the States. Jurisdiction of Lokpal includes the Prime Minister, Ministers, Members of Parliament, Group A, B, C, D officers & other Central officials. Lokpal : consists of Chairperson & max 8 members (50% Judicial members). <u>50% of the members of the Lokpal shall come from amongst the SCs, the STs, the OBCs, minorities and women.</u> The Chairperson & members will be selected through a selection committee consisting of PM, Speaker, LoP in LS, CJI or his nominee, and eminent jurist nominated by the President on the recommendation of the other 4 members of committee. A Search Committee shall assist the selection committee. 50% members of Search Committee will be SCs, STs, OBCs, Minorities & women. PM is under the purview of Lokpal but with a special process of handling complaints and certain exclusions on subject matters. Lokpal can refer complaints regarding Group A, B, C, D officers to CVC. In Group A, B officer case, CVC conducts preliminary enquiry & final decision is of Lokpal. In Group C, D officer case, CVC conducts preliminary enquiry & takes further decision subject to reporting & review by Lokpal. Lokpal will have the power of superintendence over all authorities, including CBI, dealing with cases referred to them by Lokpal. High powered Committee, chaired by PM will select the Director of CBI. <u>Provides for attachment & confiscation of property of civil servants acquired through corrupt means, even when prosecution is pending.</u> <u>States timeline for preliminary inquiry as 3 months, for investigation it's 6 months, for trial it's 1 year extendable by 1 year. Special courts to be set up.</u> <u>Max punishment under Prev of Corruption Act extended to 10 years.</u> <u>Institutions financed fully or partially by Govt are under the purview of Lokpal, but institutions that are aided by Government are excluded.</u> <u>Lokpal given power to grant sanction for prosecution of public servant.</u>

Q20

Answerable from Current Affairs Magazine & PTS

Consider the following statements:

- I. On the dissolution of the House of the People, the Speaker shall not vacate his/her office until immediately before the first meeting of the House of the People after the dissolution.
- II. According to the provisions of the Constitution of India, a Member of the House of the People on being elected as Speaker shall resign from his/her political party immediately.
- III. The Speaker of the House of the People may be removed from his/her office by a resolution of the House of the People passed by a majority of all the then Members of the House, provided that no resolution shall be moved unless at least fourteen days' notice has been given of the intention to move the resolution.

Oct 2023 Pre & Mains Based Text Version**Impartiality Expected of a Speaker**

- In Britain, the Speaker resigns from their political party after election and seeks re-election as an impartial Speaker, while in India it is not followed.
- The higher judiciary has limitations in dealing with Speaker-related issues.
- The Speaker's office should follow British practices to inspire confidence, but in the meantime, Speakers must show impartiality and adhere to democratic principles.

Full Test II

Statement 2 is incorrect: An independent member joining any other party after his/her election can be disqualified on the ground of defection, regardless of the time period in which he/she joins another party.

Statement 3 is correct: It is true that Anti defection law provides exemption to the Speaker as well as Deputy Speaker of Lok Sabha. If a member, after being elected as the Speaker/Deputy Speaker of the House, voluntarily gives up the membership of his party or re-joins it after he ceases to hold that office cannot be disqualified on the grounds of defection. This exemption has been provided in view of the dignity and impartiality of the Speakers' office.

Q21

Answerable from PTS

Consider the following statements:

With reference to the Constitution of India, if an area in a State is declared as Scheduled Area under the Fifth Schedule:

I. The State Government loses its executive power in such areas and a local body assumes total administration.

II. The Union Government can take over the total administration of such areas under certain circumstances on the recommendations of the Governor.

Which of the statements given above is/are correct?

- (a) I only
- (b) II only
- (c) Both I and II
- (d) Neither I nor II



Polity III Sectional Test**Administration of Scheduled Areas.**

Various features of Admin contained in the Fifth Schedule are:

- President is empowered to declare or undeclare an area as scheduled, increase or decrease or change its boundary or make any fresh order in this regard.
- The executive power of States extend to these areas, but the Governor has special responsibility for these areas.
- The Governor has to submit reports to the President & Centre can give directions to the State regarding the administration of these areas.
- Each state having scheduled areas must establish a Tribes Advisory Council to advice on the welfare of the Scheduled Tribes. Should consist 20 members, 3/4th should be ST members of Leg Assembly. A similar Council can be established in states not having scheduled areas but STs only if President directs so.
- The Governor can direct that any Central or State law does not apply to a Scheduled area or applies with modifications.
- The Governor with the consent of the President & with the advice of the Tribes Advisory Council can make regulations regarding the transfer of land, allotment of land, money-lending & to repeal or amend a central or state law.

Q22	Answerable from Current Affairs Magazine & PTS
<p>Consider the following subjects under the Constitution of India:</p> <p>I. List I – Union List, in the Seventh Schedule</p> <p>II. Extent of the executive power of a State</p> <p>III. Conditions of the Governor's office</p> <p>For a constitutional amendment with respect to which of the above, ratification by the Legislatures of not less than one-half of the States is required before presenting the bill to the President of India for assent?</p>	<p style="text-align: center;">Polity I Sectional Test</p> <p><u>By Special Majority of Parliament and Ratification of States</u></p> <p>All the provisions in the Constitution which are related to the federal structure of polity can be amended (changed) by a special majority of the Indian Parliament and ratification of half of the total states.</p> <p>Provisions like <u>Election of the President, Supreme Court and High Court, lists mentioned in the seventh schedule, executive and legislative powers of the Union and the State, Representation of State in Parliament, and Article 368 itself.</u></p>
Q23	Answerable from Current Affairs Magazine & PTS
<p>With reference to the Indian polity, consider the following statements:</p> <p>I. The Governor of a State is not answerable to any court for the exercise and performance of the powers and duties of his/her office.</p> <p>II. No criminal proceedings shall be instituted or continued against the Governor during his/her term of office.</p> <p>III. Members of a State Legislature are not liable to any proceedings in any court in respect of anything said within the House.</p> <p>Which of the statements given above are correct?</p> <p>(a) I and II only (b) II and III only (c) I and III only (d) I, II and III</p>	<p style="text-align: center;">July 2024 Pre & Mains Based & Polity III Sectional Test</p> <p><u>Do Governors have immunity?</u></p> <ul style="list-style-type: none"> Article 361 (1) provides that <i>President and Governors are not answerable to any court for acts done in exercise and performance of their powers and duties.</i> The article allows the conduct of the President to be reviewed by any court, tribunal or body designated by either House of Parliament for the investigation <ul style="list-style-type: none"> of a charge under Article 61 (impeachment for violation of the Constitution). The second proviso to Article 361(1) holds that the <i>immunity cannot stop a person from suing the Centre or State concerned.</i> The clause in question before the Supreme Court in the current case is <i>clause (2) of Article 361</i> which mandates that; <ul style="list-style-type: none"> <i>“No criminal proceedings whatsoever shall be instituted or continued against the President, or the Governor of a State, in any court during his term of office”.</i> <p style="text-align: center;">March 2024 Pre & Mains Based</p> <p><u>What did the top court rule now?</u></p> <ul style="list-style-type: none"> Upon article 105 and 194, SC rules that such privileges are guaranteed to sustain an environment in which debate and deliberations can take place in legislature. However, <i>such a purpose is destroyed when a member is induced to vote or speak in a certain manner following an act of bribery.</i> <i>Bribery is not rendered immune under Article 105(2) and 194</i>, because a member engaging in bribery commits a crime, <ul style="list-style-type: none"> which is not essential to the casting of the vote or the ability to decide on how the vote should be cast.

<p>Q24</p> <p>Consider the following statements:</p> <p>I. The Constitution of India explicitly mentions that in certain spheres the Governor of a State acts in his/her own discretion.</p> <p>II. The President of India can, of his/her own, reserve a bill passed by a State Legislature for his/her consideration without it being forwarded by the Governor of the State concerned.</p> <p>Which of the statements given above is/are correct?</p> <p>(a) I only (b) II only (c) Both I and II (d) Neither I nor II</p>	<p>Answerable from Current Affairs Magazine</p> <p>November 2023 Pre & Mains Based</p> <p><u>Governor's Discretion and Ministerial Advice</u></p> <ul style="list-style-type: none"> As per Supreme Court decisions, the Governor does not exercise discretionary powers independently; actions are based on the advice of the Council of Ministers. Withholding assent may occur for Private Members' Bills or if the incumbent government falls before the Governor's assent. <p><u>Return of Bills and Governor's Discretion</u></p> <ul style="list-style-type: none"> Bills can be returned for reconsideration based on ministerial advice. Past instances, like the Tamil Nadu Governor returning a Bill on online gambling, show Governors exercising discretion. If the Bill is passed again, the Governor must assent. Governors can exercise discretion only in rare cases where there is a constitutional conflict. <p>November 2023 Pre & Mains Based</p> <p><u>Distribution of Power in Democracy</u></p> <ul style="list-style-type: none"> Real power in a parliamentary democracy lies with elected representatives. Governor, as an appointee, is a titular head and acts on the advice of the Council of Ministers, except where discretion is allowed. The court concluded that the Speaker, as the guardian of the House's privilege, acted within jurisdiction in adjourning the House sine die. <p>November 2023 Pre & Mains Based</p> <p><u>The Process of Granting Assent</u></p> <ul style="list-style-type: none"> Article 200 of the Constitution outlines the Governor's options when presented with a Bill passed by both Houses of the Legislature. The Governor can either declare assent, withhold assent, or reserve the law for the President if it affects the power of judicial review of the High Court. If the Governor withholds assent, they should return the Bill "as soon as possible" with a message for the Legislative Assembly to reconsider or suggest amendments. The Assembly will then reconsider and pass the Bill and the Governor must not withhold assent.
<p>Q25</p> <p>Which organization has enacted the Nature Restoration Law (NRL) to tackle climate change and biodiversity loss?</p> <p>(a) The European Union (b) The World Bank (c) The Organization for Economic Cooperation and Development (d) The Food and Agriculture Organization</p>	<p>Answerable from Current Affairs Magazine</p> <p>October 2024 Pre & Mains Based</p> <p><u>The case for a nature restoration law in India</u></p> <p>The Nature Restoration Law (NRL), enacted by the European Union (EU), is an inspiring model from which India can draw points to tackle its growing environmental crises.</p> <p><u>The environmental, economic case for India</u></p> <ul style="list-style-type: none"> According to ISRO's Desertification and Land Degradation Atlas, nearly 29.7% of India's total geographical area underwent land degradation in 2018-19. It is prevalent in key States such as Gujarat, Karnataka, Maharashtra and Rajasthan, which together form 23.79% of India's desertified land area.

Q26	Answerable from Current Affairs Magazine
<p>Consider the following statements:</p> <p>I. The Reserve Bank of India mandates all the listed companies in India to submit a Business Responsibility and Sustainability Report (BRSR).</p> <p>II. In India, a company submitting a BRSR makes disclosure in the report that are largely non-financial in nature.</p>	<p style="text-align: center;">Aug 2024 Pre & Mains Based</p> <p><u>Sustainability and responsibility</u></p> <ul style="list-style-type: none"> • In 2023, the Securities and Exchange Board of India introduced a framework for reporting actions towards sustainability by corporates. • The revised framework requires companies to account for their value chain's environmental impact, enhancing transparency, combating greenwashing, - and ensuring that sustainability benefits permeate through the value chain. • However, authorities must focus on encouraging companies to pursue sustainability goals jointly and assess cooperation with the objective of a sustainability goal.
Q27	Answerable from Current Affairs Magazine & PTS
<p>Consider the following statements:</p> <p>I. If any question arises as to whether a Member of the House of the People has become subject to disqualification under the 10th Schedule, the President's decision in accordance with the opinion of the Council of Union Ministers shall be final.</p> <p>II. There is no mention of the word 'political party' in the Constitution of India.</p> <p>Which of the statements given above is/are correct?</p> <p>(a) I only (b) II only (c) Both I and II (d) Neither I nor II</p>	<p style="text-align: center;">March 2024 Pre & Mains Based</p> <p><u>What does the Tenth Schedule state?</u></p> <ul style="list-style-type: none"> • The 52nd constitutional amendment introduced the 'anti-defection' law through the Tenth Schedule in 1985. • This Schedule provides that a member of a House of Parliament or State legislature who voluntarily gives up the membership of their political party or <ul style="list-style-type: none"> - votes against the instructions of their party in a House are liable for disqualification from such House. - This instruction with respect to voting is issued by the 'whip' of a party. • The election commission specified that the tenth schedule, with respect to voting against instruction of the party, will not be applicable for a Rajya Sabha election. • Furthermore, political parties cannot issue any 'whip' to its members for such elections. <p style="text-align: center;">Full Test II</p> <p>Explanation:</p> <p>In 1985 the tenth Schedule, popularly known as the anti-defection law, was added to the Constitution. It was added on the backdrop of toppling of multiple state governments after MLAs changed their political loyalties. The law specifies the circumstances under which changing of political parties by MPs/MLAs invites action under the law.</p> <p style="text-align: center;">Oct 2023 Pre & Mains Based and many others</p> <p><u>Speaker's Duties Under the Indian Constitution</u></p> <ul style="list-style-type: none"> • In India, the Lok Sabha and Leg. Assemblies elect a Speaker and Deputy Speaker. • Besides traditional responsibilities, Speakers certify Money Bills and decide on disqualifications under the Tenth Schedule for defection.
Q28	Answerable from Current Affairs Magazine & PTS
<p>The famous female figurine known as "Dancing Girl," found at Mohenjo-daro, is made of:</p> <p>(a) carnelian (b) clay (c) bronze (d) gold</p>	<p style="text-align: center;">Sept 2024 Pre & Mains Based</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>○ Skeletons from non-Cemetery</p> <p>● Other Cemetery Sites</p> </div>  </div> <p><u>Uncanny similarity</u></p> <ul style="list-style-type: none"> • Exactly 100 years ago, on September 20, 1924, an article announced the discovery of about a new Civilization, authored by John Marshall then Director of ASI. • This Bronze Age civilisation is called the Harappan civilisation, named after Harappa, now in Pakistan, which was the first site to be discovered in the area. • Two ASI archaeologists were instrumental in the discovery. Daya Ram Sahni first excavated Harappa in 1921-22, finding seals, painted pottery, and beads. <p style="text-align: center;">January 2025 Pre & Mains Based</p> <p><u>Indus Valley Civilisation (IVC)</u></p> <ul style="list-style-type: none"> • The IVC, also called the Harappan Civilisation, spanned 2,000 sites across 1.5 million sq. km. • It was in the territories of modern-day India, Pakistan, and Afghanistan during the Bronze Age (3000-1500 BCE).

Q29	Answerable from Current Affairs Magazine												
<p>Consider the following statements regarding AI Action Summit held in Grand Palais, Paris in February 2025:</p> <p>I. Co-chaired with India, the event builds on the advances made at the Bletchley Park Summit held in 2023 and the Seoul Summit held in 2024.</p> <p>II. Along with other countries, US and UK also signed the declaration on inclusive and sustainable AI.</p> <p>Which of the statements given above is/are correct?</p> <p>(a) I only (b) II only (c) Both I and II (d) Neither I nor II</p>	<p style="text-align: center;">Feb 2025 Pre & Mains Based</p> <p><u>India, 57 countries call for inclusive and sustainable AI</u> <i>Fifty-eight countries, including India, China, Brazil, France, and Australia, signed a joint statement on “Inclusive and Sustainable Artificial Intelligence for People and the Planet” at the AI Action Summit in Paris, with more signatories possible after the summit ends.</i></p> <ul style="list-style-type: none">• The statement calls for promoting accessibility of AI and ensuring trust and safety while deploying the technology. It was not signed by U.S. and U.K.• India and France are co-chairing the summit.• It calls for making innovation in AI by enabling conditions for its development and growth while avoiding market concentration driving industrial recovery and development, and <p style="text-align: center;">Feb 2025 Pre & Mains Based</p> <p><u>India’s opportunity at the AI Action Summit</u> <i>India accepted France’s invitation to co-chair the AI Action Summit in Paris. It is the third such AI meeting following the U.K. (2023) and South Korea (2024).</i></p> <p><u>Voice of the Global South</u></p> <ul style="list-style-type: none">• The first meeting focussed on the safety of ‘frontier AI models’, the emerging risks of AI, and launched the U.K. AI Safety Institute (AISi).• The second meeting expanded the scope to multilateral collaboration on AI risk management through a network of AISIs with countries/blocs.• In other multilateral fora with leadership roles, India has championed the cause for the Global South.												
Q30	Answerable from Current Affairs Magazine & MAW												
<p>Consider the following statements:</p> <p>Statement I: Scientific studies suggest that a shift is taking place in the Earth’s rotation and axis.</p> <p>Statement II: Solar flares and associated coronal mass ejections bombarded the Earth’s outermost atmosphere with tremendous amount of energy.</p> <p>Statement III: As the Earth’s polar ice melts, the water tends to move towards the equator.</p> <p>Which one of the following is correct in respect of the above statements?</p>	<p style="text-align: center;">Feb 2024 Pre & Mains Based</p> <p><u>ISRO: PAPA detects solar wind impact of coronal mass ejections</u> <u>Indian Space Research Organisation's announcement</u></p> <ul style="list-style-type: none">• ISRO reported that the Plasma Analyser Package for Aditya (PAPA) payload, on board the Aditya-L1, has been operational and performing nominally.• Its advanced sensors have successfully detected the impact of coronal mass ejections (CMEs) including those that occurred during February 10-11, 2024. <p><u>PAPA’s overview</u></p> <ul style="list-style-type: none">• PAPA is an energy and mass analyser specifically designed for in-situ measurements of solar wind electrons and ions in the low energy range. <p style="text-align: center;">March 2025 Pre & Mains Based</p> <ul style="list-style-type: none">• The star also has strong, dynamic magnetic fields crisscrossing its surface, and sudden changes in them give rise to intense explosions called solar flares.• Numerous electrons, protons, and heavy nuclei are spit out of the solar corona — the uppermost layer of the sun’s atmosphere at about 900 km/s.• These particles carry an enormous amount of energy and sometimes rush towards the earth at tremendous speed in an event called a coronal mass ejection.• Their effects on the earth constitute a solar storm, including electric grid failures, loss of telecommunication channels, and damage to the ozone layer.• This is also why the Indian Space Research Organisation launched and is currently operating the Aditya-L1 probe, stationed at about 150 million km from the star. <p style="text-align: center;">Mains Ans Writing M6</p> <table border="1" data-bbox="470 1848 1540 2116"><tr><td data-bbox="470 1848 670 1904">Density's Effect on Currents</td><td data-bbox="670 1848 1540 1904">Differences in Density:</td></tr><tr><td data-bbox="470 1904 670 1960"></td><td data-bbox="670 1904 1540 1960">- Water with high salinity is denser than water with low salinity.</td></tr><tr><td data-bbox="470 1960 670 2016"></td><td data-bbox="670 1960 1540 2016">- Cold water is denser than warm water.</td></tr><tr><td data-bbox="470 2016 670 2072"></td><td data-bbox="670 2016 1540 2072">- Denser water sinks, while lighter water rises.</td></tr><tr><td data-bbox="470 2072 670 2116"></td><td data-bbox="670 2072 1540 2116">Cold-Water Currents: Cold water from the poles sinks and moves towards the equator.</td></tr><tr><td data-bbox="470 2116 670 2161"></td><td data-bbox="670 2116 1540 2161">Warm-Water Currents: Warm water from the equator moves towards the poles to replace the sinking cold water.</td></tr></table>	Density's Effect on Currents	Differences in Density:		- Water with high salinity is denser than water with low salinity.		- Cold water is denser than warm water.		- Denser water sinks, while lighter water rises.		Cold-Water Currents: Cold water from the poles sinks and moves towards the equator.		Warm-Water Currents: Warm water from the equator moves towards the poles to replace the sinking cold water.
Density's Effect on Currents	Differences in Density:												
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	Cold-Water Currents: Cold water from the poles sinks and moves towards the equator.												
	Warm-Water Currents: Warm water from the equator moves towards the poles to replace the sinking cold water.												

Q31

Answerable from Current Affairs Magazine & PTS

Consider the following statements:

- I. No virus can survive in ocean waters.
 II. No virus can infect bacteria.
 III. No virus can change the cellular transcriptional activity in host cells.
 How many of the statements given above are correct?
 (a) Only one
 (b) Only two
 (c) All the three
 (d) None

Revision Test V

A virus is a sub microscopic infectious agent that replicates only inside the living cells of an organism. Disease caused by viruses are Hepatitis A, B and C, Novel Coronavirus (COVID-19), Influenza (Flu), Measles etc.

Statement 1 is correct: The viruses are non-cellular organisms that are characterised by having an inert crystalline structure outside the living cell.

Statement 2 is correct: Due to their structure, they require the host to reproduce or replicate. They, however, reproduce only inside the cells of the host organism, which may be a bacterium, plant or animal. Hence, cannot reproduce outside the living cell. Once they infect a cell, they take over the machinery of the host cell to replicate themselves, killing the host.

Statement 3 is correct: A fully assembled infectious virus is called a virion. The simplest virions consist of two basic components: nucleic acid (single- or double-stranded RNA or DNA) and a protein coat, the capsid.

Aug 2024 Pre & Mains Based

A unique enzyme

- Most viruses can't really affect the genome. However, retroviruses are a group of viruses that can integrate and reshape the genomes of the hosts they infect.
- Retroviruses have an RNA genome; can reverse-transcribe it to DNA and thus insert it into the host's genome.
- The enzyme called reverse transcriptase provides the ability to convert the virus's RNA into a corresponding DNA sequence.

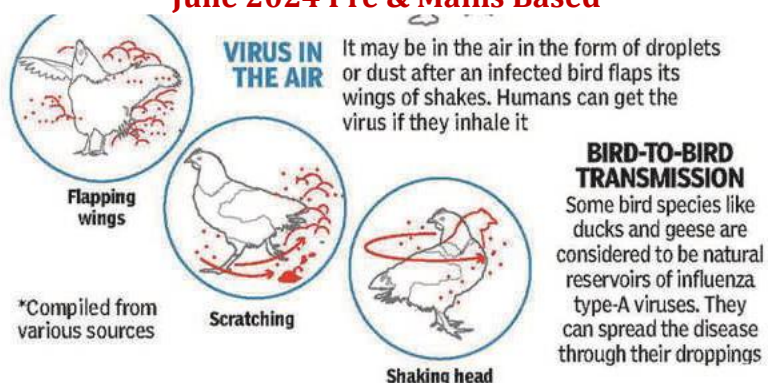
Feb 2024 Pre & Mains Based

Newfound 'obelisks' join viruses, viroids as new unusual life form

Virus

- Virus is a small entity consist of either DNA or RNA as genetic material.
- Genetic material is enclosed by protein coat called capsid.
- Virus may or may not surrounded by outer lipid membrane called envelope.
- Virus infect all types of organisms.

June 2024 Pre & Mains Based



Q32

Answerable from PTS

Consider the following statements:

Statement I:

In January, in the Northern Hemisphere, the isotherms bend equatorward while crossing the landmasses, and poleward while crossing the oceans.

Statement II:

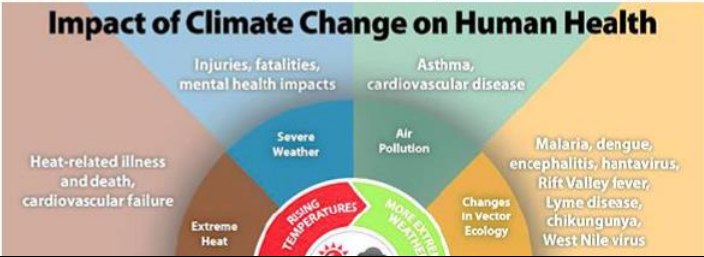
In January, the air over the oceans is warmer than that over the landmasses in the Northern Hemisphere.

Geography II Sectional Test

- In the northern hemisphere, the land surface area is much larger than in the southern hemisphere. Hence, the effects of land mass and the ocean currents are well-pronounced.
- January: In January the isotherms deviate to the north over the ocean and to the south over the continent.
- July: In July the isotherms generally run parallel to the latitude.
- General pattern:** Temperatures are higher near the equator and decrease towards the poles.
- Seasonal variations:** Temperature differences between summer and winter are more pronounced in continental areas.
- Oceanic influence:** Oceans moderate temperature variations, leading to smaller temperature ranges compared to land.
- Continentality:** Large landmasses experience extreme temperature fluctuations due to their slower heating and cooling rates.

Q33	Answerable from PTS
<p>Consider the following pairs: Provision in the Constitution of India. Stated under I. Separation of Judiciary from the Executive in the public services of the State The Directive Principles of the State Policy II. Valuing and preserving the rich heritage of our composite culture. The Fundamental Duties III. Prohibition of employment of children below the age of 14 years in factories. The Fundamental Rights How many of the above pairs are correctly matched? (a) Only one (b) Only two (c) All the three (d) None</p>	<p style="text-align: center;">Polity I & Polity III Sectional Test</p> <p>10. Which of the following parts of the Indian Constitution talks about the separation of the judiciary from the executive in public services? (2 points)</p> <p> <input type="radio"/> Preamble of the Constitution <input type="radio"/> 7th schedule of the Constitution <input type="radio"/> Fundamental Rights <input checked="" type="radio"/> Directive Principles of State Policy </p> <p>Explanation:</p> <p><u>Article 50 of the Indian Constitution states: "The State shall take steps to separate the judiciary from the executive in the public services of the State."</u></p> <p style="text-align: center;">Polity I Sectional Test</p> <p>6. One should value and preserve the heritage of our composite culture– India's culture is one of the richest heritages of the earth. So, it is compulsory for every citizen to protect the heritage and pass it on to future generations.</p> <p>7. One should protect and improve the natural environment including forests, lakes, rivers, wildlife and a citizen should have compassion for living creatures– Under Article 48A this duty is provided as a constitutional provision also. The natural environment is very important and valuable for each and every country. So each and every citizen should make efforts in order to protect it.</p> <p style="text-align: center;">Polity I Sectional Test</p> <p>3. Article 21 – Protection of life and personal liberty. 4. Article 21A – Right to elementary education. 5. Article 22 – Protection against arrest and detention in certain cases. 6. Article 23 – Prohibition of traffic in human beings and forced labour. 7. Article 24 – Prohibition of employment of children in factories etc. 8. Article 25 – Freedom of conscience and free profession, practice and propagation of religion. 9. Article 26 – Freedom to manage religious affairs. 10. Article 27 – Freedom from payment of taxes for promotion of any religion. 11. Article 28 – Freedom from attending religious instruction or worship in certain educational institutions.</p>
Q34	Answerable from PTS
<p>Consider the following statements: I. Capital receipts create a liability or cause a reduction in the assets of the Government. II. Borrowings and disinvestment are capital receipts. III. Interest received on loans creates a liability of the Government. Which of the statements given above are correct? (a) I and II only (b) II and III only (c) I and III only (d) I, II and III</p>	<p style="text-align: center;">Full Test IV & Mar 2024 Daily Quiz</p> <p>The Union Budget, which is presented by the Finance Minister of India, comprises Capital Budget and Revenue Budget. The Capital Budget is further categorized into capital receipts and capital expenditure.</p> <ul style="list-style-type: none"> • Capital receipts are receipts that create liabilities or reduce financial assets. They also refer to incoming cash flows. Capital receipts can be both non-debt and debt receipts. • Capital Receipts include: <ul style="list-style-type: none"> o loans raised by Government from the public called market loans, o borrowings by the Government from Reserve Bank and other parties through the sale of Treasury Bills, o loans received from foreign Governments and bodies, o disinvestment receipts o recoveries of loans from State and Union Territory Governments and other parties. • Collection and Appropriation of Direct Taxes is a part of Revenue Receipts. <ul style="list-style-type: none"> • Tax revenue and Interest earned are classified as revenue receipts. <p>These categories share a key characteristic: they represent recurring income streams for the government. Taxes are levied regularly, and interest is earned on the government's investments. Additionally, neither option creates liabilities for the government. In tax collection, the government isn't obligated to repay the taxpayer. Similarly, with interest earned, the government isn't taking on debt.</p>

<p>Q35</p> <p>Which of the following are the sources of income for the Reserve Bank of India?</p> <p>I. Buying and selling Government bonds II. Buying and selling foreign currency III. Pension fund management IV. Lending to private companies V. Printing and distributing currency notes</p> <p>Select the correct answer using the code given below:</p> <p>(a) I and II only (b) II, III and IV (c) I, III, IV and V (d) I, II and V</p>	<p style="text-align: center;">Answerable from Current Affairs Magazine & PTS</p> <p style="text-align: center;">Economy II Sectional Test</p> <p>OPEN MARKET OPERATIONS(OMOs):</p> <ul style="list-style-type: none"> The RBI uses Open market operations (OMOs) in order to adjust the rupee liquidity conditions in the market on a durable basis. When the Reserve Bank feels that there is excess liquidity in the market, it resorts to the sale of government securities, thereby sucking out the rupee liquidity. Similarly, when the liquidity conditions are tight, the central bank buys securities from the market, thereby releasing liquidity into the market. It's used as a tool to rein in inflation and money supply in the system. However, when liquidity is sucked out, it can lead to a spike in bond yields as the RBI will release more government securities into the market and bond buyers demand more interest rate on these securities. <i>When FPI, FDI increases, inflow of Dollar increases, then rupee will become stronger and exchange rate will not remain stable & exporters will suffer due to stronger rupee.</i> <i>Stronger rupee will be bad for exporters, so RBI should purchase dollars & sell rupees.</i> <i>So, to control the exchange rate volatility and to prevent Rupee from becoming stronger RBI should buy dollars & sell rupees.</i> <p style="text-align: center;">April 2024 Pre & Mains Based</p> <ul style="list-style-type: none"> "RBI... enables individual investors to maintain gilt accounts and invest in government securities." "RBI... introducing a mobile app for the RBI Retail Direct scheme... to buy and sell securities on the go." <p style="text-align: center;">This implies RBI earns from buying and selling government securities.</p> <p style="text-align: center;">May 2024 Pre & Mains Based</p> <p><u>RBI's income rises 17% to ₹2.75 lakh cr., spending falls 56%</u></p> <p><u>Annual report findings</u></p> <ul style="list-style-type: none"> The Reserve Bank of India (RBI) reported a 17% increase in FY24 income to ₹2,75,572.32 crore. Expenditure shrank 56.3% to ₹64,694.33 crore, from ₹1,48,037.04 crore in FY23, the RBI said in its annual report. The sharp drop in spending helped the RBI end the year with a transferable surplus of ₹2,10,873.99 crore, as against ₹87,416.22 crore in the previous year. Gains from foreign exchange transactions amounted to ₹83,615.86 crore, while interest income from foreign securities rose to ₹65,327.93 crore. <p><u>Reasons ascertained</u></p> <ul style="list-style-type: none"> The increase on asset side was due to rise in foreign investments, gold, and loans and advances by 13.9%, 18.26% and 30.05%, respectively. On the liabilities side, the expansion was due to increase in notes issued, deposits and other liabilities by 3.88%, 27% and 92.57%, respectively. Domestic assets constituted 23.31% while foreign currency assets, gold and loans and advances to financial institutions outside India constituted 76.69%.
<p>Q36</p> <p>Fa-hien (Faxian), the Chinese pilgrim, travelled to India during the reign of:</p> <p>(a) Samudragupta (b) Chandragupta II (c) Kumaragupta I (d) Skandagupta</p>	<p style="text-align: center;">Answerable from PTS</p> <p style="text-align: center;">Revision Test II</p> <p>Statement 2 is incorrect: The dowry system was prevalent in Harsha's empire. Widow remarriage was permitted, especially among higher castes. The practice of Dowry and Sati became prevalent.</p> <p>Statement 3 is incorrect: The famous Chinese pilgrim, Fa-Hien visited India during the reign of Chandragupta II (Much before the reign of Harsha). Out of his nine years of stay in India, he spent six in the Gupta Empire. He characterizes the Gupta administration as mild and benevolent. He did not write anything related to Harshvardhan's rule.</p>

<p>Q37</p> <p>Consider the following statements:</p> <p>Statement I: At the 28th United Nations (COP28), India refrained from signing the 'Declaration on Climate and Health'.</p> <p>Statement II: The COP28 Declaration on Climate and Health is a binding declaration; and if signed, it becomes mandatory to decarbonize health sector.</p> <p>Statement III: If India's health sector is decarbonized, the resilience of its health-care system may be compromised.</p>	<p style="text-align: center;">Answerable from Current Affairs Magazine</p> <p style="text-align: center;">Dec 2023 Pre & Mains Based</p> <p><u>India at COP-28</u></p> <ul style="list-style-type: none"> India abstained from the UAE declaration on climate and health, citing potential impacts on healthcare infrastructure growth. India did not sign the Global Methane Pledge due to its focus shift from carbon dioxide to methane, with livelihood implications for small farmers. <p><u>COP-28 UAE Declaration on Climate and Health</u></p> <ul style="list-style-type: none"> It includes dialogue on mitigating emissions, adaptation to climate change, mainstreaming health into climate policies and climate financing for health. It recognises the need for climate mitigation, strengthening research on the linkages between environmental and climatic factors and antimicrobial resistance. It does not mention pollution-related harms or identify 'fossil fuels' as driver of health threats or emphasise the need to end fossil fuel dependence. Fossil fuels are seen as the largest contributor to global climate change. 
<p>Q38</p> <p>Consider the following statements about Raja Ram Mohan Roy:</p> <p>I. He possessed great love and respect for the traditional philosophical systems of the East.</p> <p>II. He desired his countrymen to accept the rational and scientific approach and the principle of human dignity and social equality of all men and women.</p> <p>Which of the statements given above is/are correct?</p> <p>(a) I only (b) II only (c) Both I and II (d) Neither I nor II</p>	<p style="text-align: center;">Answerable from PTS</p> <p style="text-align: center;">History III Sectional Test</p> <p><u>Raja Rammohan Roy's Efforts at Social Reform</u></p> <ul style="list-style-type: none"> Rammohan was a determined crusader against the inhuman practice of sati. He started his anti-sati struggle in 1818 and he cited sacred texts to prove his contention that no religion sanctioned the burning alive of widows, besides appealing to humanity, reason and compassion. He also visited the cremation grounds, organised vigilance groups and filed counter petitions to the government during his struggle against sati. His efforts were rewarded by the Government Regulation in 1829 which declared the practice of sati a crime. As a campaigner for women's rights, Roy condemned the general subjugation of women and opposed prevailing misconceptions which formed the basis of according an inferior social status to women. Roy attacked polygamy and the degraded state of widows and demanded the right of inheritance and property for women. Rammohan Roy did much to disseminate the benefits of modern education to his countrymen. He supported David Hare's efforts to found the Hindu College in 1817, while Roy's English school taught mechanics and Voltaire's philosophy. In 1825, he established a Vedanta college where courses in both Indian learning and Western social and physical sciences were offered. He also helped enrich the Bengali language by compiling a Bengali grammar book and evolving a modern elegant prose style. Rammohan was a gifted linguist. He knew more than a dozen languages including Sanskrit, Persian, Arabic, English, French, Latin, Greek and Hebrew. A knowledge of different languages helped him broaden his range of study. As a bold supporter of freedom of the Press and as a pioneer in Indian journalism, Roy brought out journals in Bengali, Hindi, English, Persian to educate and inform the public and represent their grievances before the government. As a political activist, Roy condemned oppressive practices of Bengali zamindars and demanded fixation of maximum rents. He also demanded abolition of taxes on tax-free lands. He called for a reduction of export duties on Indian goods abroad and abolition of the East India Company's trading rights. He demanded the Indianisation of superior services and separation of the executive from the judiciary. He demanded judicial equality between Indians and Europeans and that trial be held by jury. Rammohan was an internationalist with a vision beyond his times. He stood for cooperation of thought and activity and brotherhood among nations. His understanding of the universal character of the principles of liberty, equality and justice indicated that he well understood the significance of the modern age. He supported the revolutions of Naples and Spanish America and condemned the oppression of Ireland by absentee English landlordism and threatened emigration from the empire if the reform bill was not passed.

Q39	Answerable from Current Affairs Magazine & PTS
<p>Consider the following space missions:</p> <p>I. Axiom-4</p> <p>II. SpaDeX</p> <p>III. Gaganyaan</p> <p>How many of the space missions given above encourage and support micro-gravity research?</p> <p>(a) Only one</p> <p>(b) Only two</p> <p>(c) All three</p> <p>(d) None</p>	<p style="text-align: center;">December 2024 Pre & Mains Based</p> <p><u>ISRO's docking mission on; spacecraft reach right orbit</u></p> <ul style="list-style-type: none"> • The Indian Space Research Organisation (ISRO) successfully launched the Space Docking Experiment (SpaDeX) mission. • The PSLV C60 rocket carrying two small satellites, SDX01 (Chaser) and SDX02 (Target), along with 24 payloads, lifted off from Sriharikota. • About 15 minutes after lift-off, the two small spacecraft weighing about 220 kg each were launched into a 475-km circular orbit as intended. • With the SpaDeX mission, the ISRO aims to exhibit technologies needed for spacecraft rendezvous, docking, and undocking using two small satellites, <ul style="list-style-type: none"> - which have been mastered by only an elite group of spacefaring nations. <p style="text-align: center;">January 2025 Pre & Mains Based</p> <ul style="list-style-type: none"> • They will rendezvous and dock with each other as part of the ISRO's first Space Docking Experiment (SpaDeX). • For Chandrayaan-4, the ISRO will launch the mission's modules in two Launch Vehicle Mark-3 (LVM-3) rockets. • 2025 will be an exciting year as the ISRO will launch four GSLV rockets, three PSLV launches as well as an SSLV launch, said ISRO Chief Somnath. <div data-bbox="630 851 1348 1254"> <p>ISRO's SpaDeX Mission: Pioneering Space Docking Technology</p> <p>Innovative Technologies Enhance India's Space Capabilities</p> <ul style="list-style-type: none"> • First time PSLV assembled in a new facility and transported on a moving platform, reducing lead time between missions • Utilises Laser Range Finder, Rendezvous Sensor and Proximity & Docking Sensor for precise measurements during satellite docking • Features a new processor for relative position and velocity determination, paving the way for future autonomous docking systems • Includes Docking Mechanism Performance Test, Vertical Docking Experiment Laboratory, and Rendezvous Simulation Lab for algorithm validation </div> <p style="text-align: center;">March 2024 Pre & Mains Based and many others (Each month some news about Gaganyaan)</p> <p><u>What will Gaganyaan change for India?</u></p> <p><u>The story so far</u></p> <ul style="list-style-type: none"> • PM Narendra Modi publicised the final shortlist of candidates to be astronauts on board the maiden human spaceflight mission called Gaganyaan of the ISRO. <ul style="list-style-type: none"> - the first crewed flight of the mission is scheduled for 2025. <p><u>What is Gaganyaan?</u></p> <ul style="list-style-type: none"> • Gaganyaan is the name of the ISRO mission to send Indian astronauts to low-earth orbit for a short duration, onboard an Indian launch vehicle. • It will test various technologies required for human spaceflight, which remains the most complicated form of spaceflight and <ul style="list-style-type: none"> - demonstrate India's familiarity with their production, qualification, and use. <p>I. Axiom-4</p> <p>Supporting Text:</p> <p>"During the mission, the Gaganyatri will undertake selected scientific research and technology demonstration experiments on ISS and in space outreach activities."</p> <p>Explanation:</p> <p>Though the document mentions research and experiments on the ISS, it does not explicitly mention microgravity research, but this can be reasonably inferred since the ISS environment is microgravity.</p>

II. SpaDeX

Supporting Text:

"The CROPS payload...is envisioned as a multi-phase platform to develop and evolve ISRO's capabilities for growing and sustaining flora in extraterrestrial environments."

Explanation:

The mention of plant germination and flora in orbit on SpaDeX suggests biological experimentation in a microgravity environment, even though the term "microgravity" is not explicitly used. So, this is a valid but indirect inference.

III. Gaganyaan

Supporting Text:

"During the mission, the Gaganyatri will undertake selected scientific research and technology demonstration experiments on ISS..." — *Aug 2024 Pre & Mains Based*

"Gaganyaan-G1...to mimic, end-to-end, the actual flight and validate critical technologies..."

— *December 2024 Pre & Mains Based*

Vyommitra" Astronaut is designed in such a manner so as to simulate human functions in the Space environment and interact with the Life Support System.-Daily Quiz

Explanation:

While Gaganyaan-G1 is described as uncrewed and technology-testing focused, the Axiom-4 mission associated with Gaganyatris does involve scientific experiments, likely under microgravity.

Q40

Answerable from MAW & PTS

Consider the following statements:

Statement I:

The amount of dust particles in the atmosphere is more in subtropical and temperate areas than in equatorial and polar regions.

Statement II:

Subtropical and temperate areas have less dry winds. 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 explains Statement I
(b) Both Statement I and Statement II are correct but Statement II does not explain Statement I
(c) Statement I is correct but Statement II is not correct
(d) Statement I is not correct but Statement II is correct

Geography II Sectional Test



Dust Particles

- Originate from various sources (sea, land, space).
- Concentrated in lower atmosphere but can reach higher altitudes.
- **More abundant in subtropical and temperate regions than in tropical and polar regions.**
- Act as condensation nuclei for cloud formation.

M8 Mains Ans Writing

Group B: Dry Climates	Subtropical Steppe (BSh): Transition zone between deserts and humid regions; slightly more precipitation than deserts; sparse grassland vegetation	Max: ~40°C, Min: ~10°C	Low to moderate (25-50 cm/year), highly variable	Borders of Sahara, Australian Outback
	Subtropical Desert (BWh): Extreme heat in summer; very little and highly variable rainfall; deserts with sparse vegetation; high diurnal temperature range	Max: ~50°C, Min: ~20°C	Very low (<25 cm/year); occasional short intense showers	Sahara Desert, Arabian Peninsula
	Mid-Latitude Steppe (BSk): Located in continental interiors; moderate rainfall; supports short grasses and shrubs; cold winters	Max: ~30°C, Min: ~-5°C	Moderate (30-60 cm/year); more in summer	Central Asia, Great Plains of North America
	Mid-Latitude Desert (BWk): Harsh climate with extreme temperature ranges; sparse vegetation; very low precipitation	Max: ~35°C, Min: ~-15°C	Very low (<20 cm/year)	Gobi Desert, Patagonian Desert

Q41	Answerable from PTS
<p>With reference to investments, consider the following:</p> <p>I. Bonds</p> <p>II. Hedge Funds</p> <p>III. Stocks</p> <p>IV. Venture Capital</p> <p>How many of the above are treated as Alternative Investment Funds?</p> <p>(a) Only one</p> <p>(b) Only two</p> <p>(c) Only three</p> <p>(d) All the four</p>	<p style="text-align: center;">Full Test II</p> <p>There are 3 categories of AIFs :</p> <ul style="list-style-type: none"> • Category I AIF are those funds that invest in start-ups or social venture funds, infrastructure funds, SME funds, and so on. The government or regulators consider this category of funds as socially viable or economically desirable. • Category II Funds are those that do not leverage or borrow, other than to meet the day-to-day operational requirements. This category typically consists of Private Equity Funds and Debt funds. • Category III funds typically comprised of Hedge Funds that employ diverse or complex trading strategies.
Q42	Answerable from Current Affairs Magazine & PTS
<p>Consider the following statements:</p> <p>Statement I:</p> <p>Circular economy reduces the emissions of greenhouse gases.</p> <p>Statement II:</p> <p>Circular economy reduces the use of raw materials as inputs.</p> <p>Statement III:</p> <p>Circular economy reduces wastage in the production process.</p> <p>Which one of the following is correct in respect of the above statements?</p> <p>(a) Both Statement II and Statement III are correct and both of them explain Statement I</p> <p>(b) Both Statement II and Statement III are correct but only one of them explains Statement I</p> <p>(c) Only one of the Statements II and III is correct and that explains Statement I</p> <p>(d) Neither Statement II nor Statement III is correct</p>	<p style="text-align: center;">Economy II Sectional Test</p> <ul style="list-style-type: none"> • India's rapid economic growth and urbanisation have led to significant challenges, such as resource depletion, environmental degradation, and increased waste generation. • To address these pressing issues, India must transition to a Circular Economy. • This approach promotes the reuse, remanufacturing, and recycling of products and materials to maintain their highest utility and value. • By doing so, it not only reduces environmental impact but also enhances sustainability, economic resilience, and resource security. • The Indian government has taken proactive steps toward this transition, establishing the Circular Economy Cell in NITI Aayog and implementing sector-specific action plans and policies aimed at promoting resource efficiency and sustainable practices. • Initiatives such as the <i>Swachh Bharat Mission, Jal Jeevan Mission, and Vehicle Scrapping Policy</i> underscore India's commitment to the Circular Economy principles, focusing on waste reduction, proper disposal, recycling, and sustainable resource management. • Unlike traditional recycling efforts, a Circular Economy aims to redesign products for longevity, facilitate reuse and remanufacturing, and establish closed-loop systems to minimise waste and resource extraction. <p style="text-align: center;">March 2025 Pre & Mains Based</p> <p><u>India launches multi-nation alliance for collaboration on sustainable development</u></p> <p>India launched the <i>Cities Coalition for Circularity (C-3)</i>, a multi-nation alliance for city-to-city collaboration, knowledge-sharing, and private sector partnerships for sustainable urban development.</p> <p><u>Reuse and recycle</u></p> <ul style="list-style-type: none"> • India follows and strongly advocates the P (Pro-Planet People) approach and highlighted the role of 3R (reduce, reuse and recycle) and circular economy - principles in ensuring sustainable urban development and resource efficiency. • A key Memorandum of Understanding (MoU) for CITIIS 2.0 was also signed at the launch event in Jaipur. • The Regional 3R and Circular Economy Forum in Asia and the Pacific was launched in 2009 to promote sustainable waste management, resource efficiency, and circular economy principles across the region.

Q43	Answerable from Current Affairs Magazine & PTS
<p>With reference to monoclonal antibodies, often mentioned in news, consider the following statements:</p> <p>I. They are man-made proteins.</p> <p>II. They stimulate immunological function due to their ability to bind to specific antigens.</p> <p>III. They are used in treating viral infections like that of Nipah virus.</p> <p>Which of the statements given above are correct?</p> <p>(a) I and II only (b) II and III only (c) I and III only (d) I, II and III</p>	<p style="text-align: center;">June 2024 Pre & Mains Based</p> <p><u>In fight against Nipah, scientists find new way to generate virus-like particles in lab</u></p> <p><u>News context</u></p> <ul style="list-style-type: none"> Scientists at the Institute of Advanced Virology (IAV) have developed a novel way of generating non-infectious Nipah virus-like particles (VLPs) in the laboratory. This method offers a safe and effective alternative platform for developing neutralising antibodies against the NiV in a biosafety level-2 (BSL) laboratory. The IAV has come closer to its mandate for developing monoclonal antibodies and antivirals against the NiV and similar pathogens. <div style="display: flex; justify-content: space-around; align-items: center;"> <div data-bbox="662 465 944 488" style="text-align: center;"> <p><small>Nipah Virus Transmission and Mortality</small></p>  </div> <div data-bbox="1045 459 1484 515" style="text-align: center;"> <p><small>BACKGROUND</small></p> <p><small>* ZOONOTIC VIRUS</small></p> <p><small>- CAN SPREAD FROM PIGS - HUMANS</small></p>  </div> </div> <ul style="list-style-type: none"> Virus neutralisation assays are critical for the development and evaluation of vaccines and immunotherapeutic, and for conducting basic research. These tests, which traditionally require to be done in high-security labs with the infectious organism, can now be done safely in BSL-2 labs in the country. <p><u>More sophisticated</u></p> <ul style="list-style-type: none"> The VLPs are molecules that closely resemble viruses, but are non-infectious. They have long been recognised as effective quantitative platforms for studying viral binding and entry kinetics of the virus. <p style="text-align: center;">Revision Test V</p> <p>A virus is a sub microscopic infectious agent that replicates only inside the living cells of an organism. Disease caused by viruses are Hepatitis A, B and C, Novel Coronavirus (COVID-19), Influenza (Flu), Measles etc.</p> <p>Statement 1 is correct: The viruses are non-cellular organisms that are characterised by having an inert crystalline structure outside the living cell.</p> <p>Statement 2 is correct: Due to their structure, they require the host to reproduce or replicate. They, however, reproduce only inside the cells of the host organism, which may be a bacterium, plant or animal. Hence, cannot reproduce outside the living cell. Once they infect a cell, they take over the machinery of the host cell to replicate themselves, killing the host.</p> <p>Statement 3 is correct: A fully assembled infectious virus is called a virion. The simplest virions consist of two basic components: nucleic acid (single- or double-stranded RNA or DNA) and a protein coat, the capsid.</p>
Q44	Answerable from Current Affairs Magazine
<p>With reference to India's defence, consider the following pairs:</p> <p>Aircraft type Description</p> <p>I. Dornier-228 Maritime patrol aircraft</p> <p>II. IL-76 Supersonic combat aircraft</p> <p>III. C-17 Globemaster III Military transport aircraft</p> <p>How many of the pairs given above are correctly matched?</p>	<p style="text-align: center;">June 2024 Pre & Mains Based</p> <p><u>U.S. event</u></p> <ul style="list-style-type: none"> The Red Flag exercise, hosted by the U.S. Air Force (USAF) from June 4 to 14, concluded at the Eielson Air Force Base, Alaska. <ul style="list-style-type: none"> This was the second edition of Red Flag this year, the exercise is hosted four times a year by the USAF. Apart from the IAF, it saw the participation of the Singapore Air Force, the U.K.'s Royal Air Force, the Royal Netherlands Air Force, and the German Luftwaffe. The IAF deployed eight Rafale fighters, a first at Red Flag, supported by IL-78 mid-air refuellers for the transatlantic ferry, as well as C-17 Globemaster aircraft. <p style="text-align: center;">March 2024 Daily Quiz</p> <p>During the exercise, the Indian Coast Guard helicopter and Dornier aircraft conducted Search & Rescue and Pollution Response demonstrations, showcasing ICG's ability to undertake aerial surveillance and rescue missions. The exercise also included practice to neutralize asymmetric threats, akin to drone attacks on commercial merchant traffic. The exercise also provided a</p>

Q45

Consider the following statements with regard to BRICS:

I. 16th BRICS Summit was held under the Chairship of Russia in Kazan.

II. Indonesia has become a full member of BRICS.

III. The theme of the 16th BRICS Summit was Strengthening Multiculturalism for Just Global Development and Security.

Which of the statements given above is/are correct?

- (a) I and II
- (b) II and III
- (c) I and III
- (d) I only

Answerable from Current Affairs Magazine

Aug 2024 Pre & Mains Based

India, Malaysia upgrade strategic partnership, discuss entry to BRICS

- India and Malaysia decided to upgrade ties to Comprehensive Strategic Partnership, during talks between PM Narendra Modi and Malaysian PM Anwar Ibrahim.
- The two leaders announced the decision to upgrade the 2010 Strategic Partnership, which had been made an “Enhanced Strategic Partnership” in 2015.
- Malaysia is an important partner of India in ASEAN and the Indo-Pacific region and India would also work with Malaysia on its request to join the BRICS grouping.



Dec 2023 Pre & Mains Based

Javier Milei writes to BRICS leaders, rejects invite for Argentina to join the grouping

Argentine President rejects BRICS Membership Invitation

- Argentine President Javier Milei has officially rejected an invitation to join the BRICS grouping of major emerging economies.
- The BRICS bloc, comprising Brazil, Russia, India, China, and South Africa, had announced the admission of six new members,
 - including Argentina, Ethiopia, Iran, Saudi Arabia, Egypt, and the United Arab Emirates, effective from January 1, 2024.
- President Milei sent letters to BRICS leaders formalizing his decision to reject Argentina's membership as it is not considered appropriate time.

Nov 2024 Pre & Mains Based

The BRICS summit boost to India-Iran ties

In news

- At the 16th BRICS Summit hosted by Russia in Kazan (October 22-24, 2024), there were a few meetings on the sidelines which created a buzz.
- One such meeting was between India and Iran, both close civilisational friends and looking to strengthen a stagnating partnership.

