

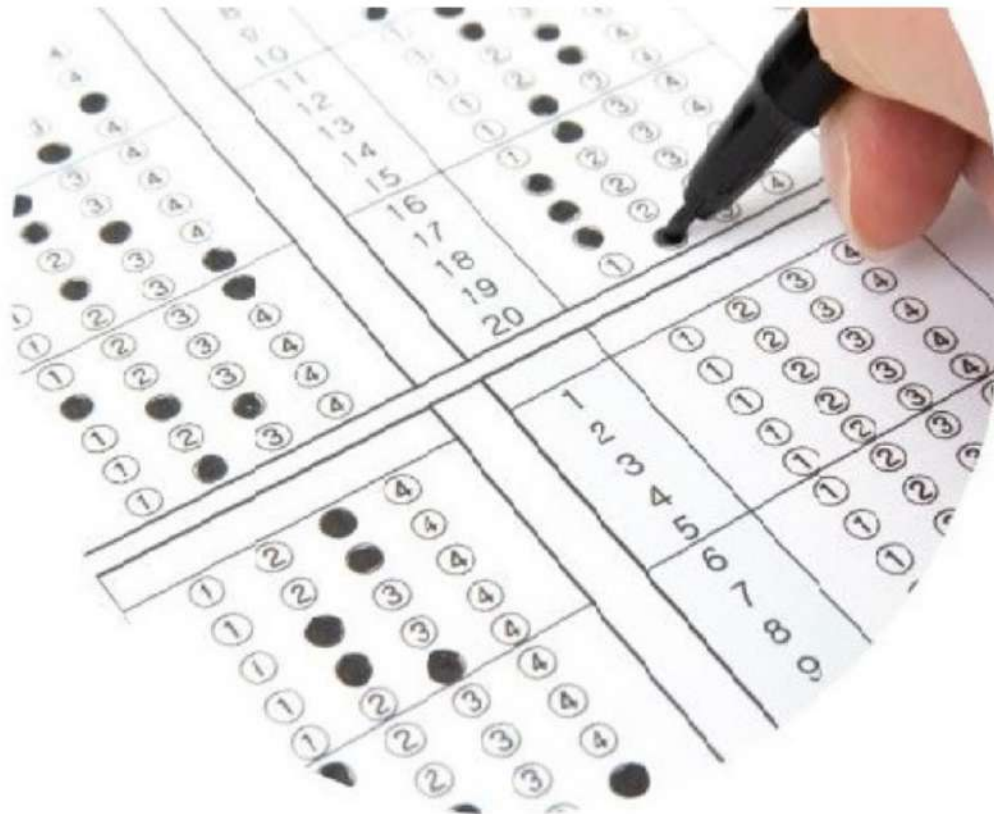


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MONTHLY PRESTORMING

OCTOBER 2024

**A compilation of Prelims MCQs with solutions
from Current Affairs of the month**



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MONTHLY PRESTORMING

October 2024

01-10-2024

1) Consider the following statements with respect to Anna Darpan

1. It is a micro-services-based integrated supply chain management system that aims to streamline and enhance the entire supply chain operations and services.
2. Under the scheme, depot online system has been recently launched by the Food Corporation of India (FCI).
3. FCI shall be responsible for the end-to-end design, development, implementation and maintenance of the ANNA DARPAN system.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to Bharat-Gen

1. It is an open-source platform and development of an ecosystem of generative AI research in the country.
2. It will cater both text and speech, ensuring coverage across India's diverse linguistic landscape.

Which of the above statement(s) is/are correct?

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

3) Operation Chakra, sometimes seen in the news recently, is associated with?

- a. Operation by the Indian Navy to rescue Indian residents trapped by Cyclone.
- b. A multi-city operation to dismantle global cybercrime network.

c. A humanitarian effort sought to send Bangladeshi migrant Muslims from Rohingya.

d. Operation by forest department to resolve animal human conflict.

4) Consider the following statements with respect to Solar Eclipse

1. A solar eclipse is witnessed only during the new moon.
2. A partial solar eclipse is the most common type of solar eclipse.
3. A hybrid solar eclipse can be witnessed when an eclipse shifts between annular and total solar eclipse.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

5) Consider the following pairs:

<i>Terms in News</i>		<i>Countries</i>
1. El Laco	–	Chile
2. Kiruna	–	Sweden
3. Varunavat	–	India
4. Bidkin	–	Germany

How many of the pair(s) given above is/are correctly matched?

- a. Only one
- b. Only two
- c. Only three
- d. All four

Answers

1. b

Anna Darpan

- Anna Darpan is a digital transformation initiative of the existing supply chain management system by the Food Corporation of India (FCI).
- **Objective** – To replace the existing 'Depot Online System' with a new, micro-services-based integrated supply chain management system.
- **Scope** – Design, development, implementation, and maintenance of the entire system.
- **Coforge Limited** – Shall be responsible for the end-to-end design, development, implementation and maintenance of the ANNA DARPAN system. (**Statement 3 is incorrect**)
- **Additional Features** – Centralized analytics platform for data-driven decision making.
- The main objectives of ANNA DARPAN include:
 - Improving efficiency and productivity
 - Creating an interactive and user-friendly UI
 - Enabling data-driven decision making
 - Integrating with internal and external systems
 - Merging existing internal systems
 - Adopting a mobile-first approach

2. c

Bharat-Gen

- Bharat-Gen is India's first government-funded Multimodal Large Language Model initiative.
- It was launched recently (September, 2024).
- **Key Features of Bharat-Gen** – It Focus on creating efficient and inclusive AI in Indian languages.
- Aims to generate high-quality text and multimodal content in various Indian languages.
- Prioritizes India's socio-cultural and linguistic diversity.
- Aligns with the goal of making AI accessible to all citizens.
- Emphasizes data sovereignty and India-centric datasets.

- **IIT Bombay** – It is spearheaded by IIT Bombay under the *National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)*.
- Consortium includes IIT Bombay, IIIT Hyderabad, IIT Mandi, IIT Kanpur, IIT Hyderabad, IIM Indore, and IIT Madras
- **Atmanirbhar Bharat** – The initiative aligns with India's vision of Atmanirbhar Bharat (self-reliant India) and aims to position the country as a global leader in Generative AI.
- **Focus on Indian languages** – It's particularly noteworthy for its focus on Indian languages and cultural contexts, which are often underrepresented in global AI models.

3. b

Operation Chakra-III

- Operation Chakra-III is a crackdown on a major technology enabled crime network at 32 locations.
- It is a multi-city operation to dismantle global cybercrime network.
- It is an operation by **the Central Bureau of Investigation (CBI)**.
- CBI has recently arrested 26 accused persons from Pune, Hyderabad and Visakhapatnam.
- The probe into the cybercrime network is being conducted in close coordination with the United States' Homeland Security Investigations and other foreign law enforcement agencies.
- The CBI's International Operations Division registered a First Information Report (FIR) recently, as part of the ongoing Operation Chakra-III.

4. c

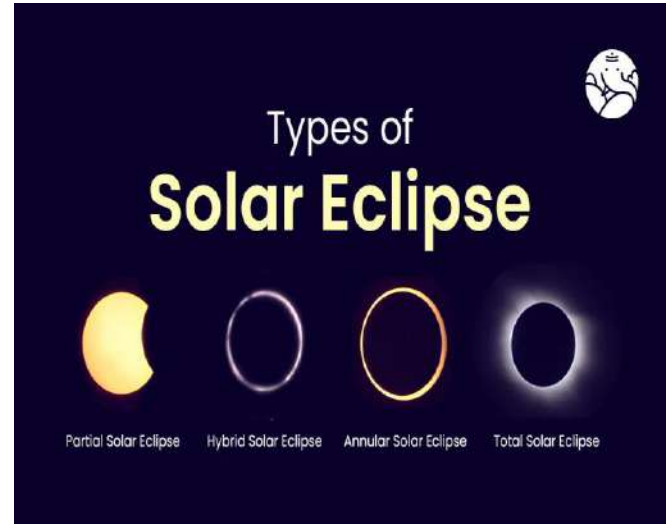
Solar Eclipse

An annular solar eclipse will be visible in parts of South America on October 2, 2024.

- A solar eclipse takes place when the Moon moves passes and positions itself in the middle of the Earth and the Sun.
- The Moon blocks the light of the Sun, either fully or partially, which casts a huge shadow on some parts of the world.
- There are 4 different types of solar eclipses which are:

1. Total solar eclipse
2. Annular solar eclipse
3. Partial solar eclipse
4. Hybrid solar eclipse

- **Total solar eclipse** – When the Moon blocks the Sun entirely, the areas in the centre of the Moon's shadow at the time witness a total solar eclipse.
- The sky darkens and people who are in the path of a total solar eclipse can get a glimpse of the Sun's corona, the outer atmosphere which is usually not visible due to the bright face of the Sun.
- **Annular solar eclipse** – It occurs when the Moon passes in front of the Sun but is at or near the farthest point from Earth.
- In this scenario, the Moon covers the Sun in such a way that only the periphery of the Sun remains visible, looking like a ring of fire.
- **Partial solar eclipse** – A partial solar eclipse takes place when the Moon blocks just a part of the Sun, giving it a crescent shape.
- **Hybrid solar eclipse** – is the rarest type of solar eclipse and is witnessed when an eclipse shifts between annular and total as the shadow of the Moon moves across the globe.
- In this case, some parts of the world see a total solar eclipse, while others observe an annular solar eclipse.
- **Features of solar eclipse** – During both partial and annular eclipses, the regions outside the area covered by the Moon's umbra.
- Moon's umbra is the middle and the darkest part of the lunar shadow will see a partial solar eclipse.
- Partial solar eclipse is the most common type of solar eclipse.
- **Frequency of the solar eclipse** – A solar eclipse is witnessed only during the new moon that is when the Moon and Sun are aligned on the same side of Earth.
- A new moon occurs about 29.5 days because that is how long it takes the Moon to orbit Earth.
- *It takes place only between two to five times annually.*



5. c

El Laco, Kiruna, Varunavat & Bidkin

- **El Laco** – Is an example of an enigmatic type of magma.
- It is situated at **Chile**.
- **Kiruna** – It is an extinct volcano situated in **Sweden**.
- The *largest deposit of rare earth metals in Europe* is located in Kiruna, Sweden.
- **Varunavat** – Is a *mountain* situated at the **Uttarakhand**.
- **Bidkin** – Is an Industrial Area situated at **Maharashtra**.
- Recently Prime Minister, Shri Narendra Modi, has dedicated the Bidkin Industrial Area (BIA) to the marking a significant milestone in India's industrial development.

03-10-2024

1) Consider the following statements with respect to Ayush Medical Value Travel Summit, 2024

1. It aims to strengthen India's position in Medical Value Travel (MVT) by integrating traditional Indian systems of medicine with modern healthcare systems.
2. The summit is being organized by the Ministry of Ayush, Government of India, in collaboration with the Ministry of Tourism.

Which of the above statement(s) is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2

d. Neither 1 nor 2

2) Consider the following statements with respect to Strengthening Teaching-Learning and Results for States (STARS)

1. It aims to provide quality education from preschool to senior secondary levels.
2. It provides self-defence training for girls in government schools from class 6 to 12.
3. It is an initiative by the Department of School Education & Literacy (DoSE&L), Ministry of Education.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

3) Consider the following statements with respect to PM Electric Drive Revolution in Innovative Vehicle Enhancement (PME-DRIVE)

1. It aims to accelerate EV adoption and establish essential charging infrastructure across the country.
2. E-Vouchers for EV customers to avail the demand incentive has been introduced under the scheme.
3. It is an initiative by the Ministry of Heavy Industries.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

4) Consider the following statements with respect to the Prime Minister Internship Scheme

1. It aims to provide internship opportunities to one crore youth in 500 top companies that have spent in the corporate social responsibility (CSR).
2. Federation of Indian Chambers of Commerce & Industry acts as a critical facilitator between the

government and the industry for the effective rollout of the scheme.

3. The students from the top institutes such as IIT or IIM are also included under the scheme.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

5) Ringwoodite, sometimes seen in the news recently, is associated with?

- a. A phenomenon caused by Rotational Raman scattering that fills in Fraunhofer.
- b. A mineral that can store water within its crystal structure.
- c. It is one of the world's largest wooden structures ever constructed.
- d. The most expensive parasol in the world, situated at Japan.

Answers

1. c

Ayush Medical Value Travel Summit, 2024

- Ayush Medical Value Travel Summit, 2024 aims to strengthen India's position in Medical Value Travel (MVT) by integrating traditional Indian systems of medicine with modern healthcare systems.
- **Theme** – Global Synergy in Ayush: Transforming Health and Wellness through Medical Value Travel.
- The summit was held at **Mumbai**.
- The summit is being **organized** by the **Ministry of Ayush** in collaboration with the **Ministry of Tourism**, the Government of **Maharashtra** and key partners.
- **Significance of Ayush** – Ayurveda, Yoga, Unani, Siddha and Homeopath attracts thousands of international tourists annually.
- The focus is on comprehensive health encompasses physical, mental and spiritual well-being, making India a global leader in health tourism.

- Ayush is tackling health issues like diabetes and liver diseases with evidence-based treatments, aiming for accessibility for all.
- In rural India, awareness about Ayush varies from 87% to 99% for all states and UTs except for Arunachal Pradesh (77%), while in Urban India, the awareness is more than 86% across all states and UTs.
- **Economic significance of Ayush** – The size of the Ayush sector grew from USD 3 million in 2014 to USD 18.1 million in 2020 which is an increase of six-fold within 6 years.
- **Various initiatives for Ayush** – The government will soon inaugurate the first Ayush Jan Aushadhi Center to integrate traditional practices into healthcare.
- The global reach of Ayush has significantly expanded, with exports witnessing substantial growth.
- RIES (Research in Information Systems) has been dedicated to research in development economics, has conducted a study on the Forum for Indian Traditional Medicine (FITM).
- RIES is an **autonomous institute under the Ministry of External Affairs**.

2. a

Strengthening Teaching-Learning and Results for States (STARS)

- Strengthening Teaching-Learning and Results for States (STARS) is a two day Knowledge sharing **workshop** that was held at Bhopal, Madhya Pradesh. (**Statement 1 and 2 are incorrect**)
- It is an **initiative by the Department of School Education & Literacy (DoSE&L), Ministry of Education**.
- STARS is a two day workshop that focuses on School-to-Work Transition and Strengthening the Assessment System.
- The workshop emphasized the Ministry of Education's commitment to fostering a robust educational ecosystem that prepares students for the challenges of the future workforce.
- **School-to-Work Transition** – the workshop emphasize the importance of bridging the gap between education and employment.
- The workshop highlights the importance of this workshop and cross-learning which can happen between the states through such platforms.

- It focused on the role of policy frameworks such as National Education Policy 2020, National Curriculum Framework (NCF), and National Credit Framework (NCrF) in school-to-work transitions.
- It also highlight the need to align the curriculum with the industry demands to make school-to-work transition more seamless for young learners.
- **Strengthening Assessment System** – The workshop aids to discuss the current effectiveness and need for improvement in assessment models.

3. c

PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE)

- PM E-DRIVE aims to accelerate EV adoption and establish essential charging infrastructure across the country, promoting cleaner and more sustainable transportation.
- The scheme will play a pivotal role in accelerating EV adoption and building critical charging infrastructure nationwide, contributing to a cleaner and more sustainable future.
- The scheme has a financial outlay of 10,900 crore rupees over a period of two years.
- As part of the scheme, the Ministry of Heavy Industries (MHI) introduced **e-vouchers for EV customers** to avail of demand incentives.
- The e-vouchers streamline the process of accessing incentives, providing a seamless experience for both consumers and manufacturers.
- Eligible Categories under the scheme are:
 1. e-2 Wheelers (e-2Ws)
 2. e-3 Wheelers (e-3Ws) including registered e-rickshaws & e-carts and L5
 3. e-Ambulances
 4. e-Trucks
 5. e-Buses
 6. Charging infra
 7. Upgradation of Testing Agencies



4. a

Prime Minister Internship Scheme

- The PM Internship Scheme aims to provide internship opportunities to one crore youth in 500 top CSR spend companies in the next five years.
- Confederation of Indian Industry (CII) acts as a critical facilitator between the government and the industry, ensuring the scheme's effective rollout. **(Statement 2 is incorrect)**
- **Eligibility criteria** – Applicant must be a permanent resident of India and a youth who is aged between 21 and 24.
- This targets the youth who are recent graduates and are at the beginning of their careers.
- She or he must be unemployed and not engaged in full-time employment.
- **Exclusion** – Graduates of top institutes are excluded, such as the ones who studied at top institutes such as IIT or IIM. **(Statement 3 is incorrect)**
- **Financial assistance** – The interns will be entitled to receive monthly stipend of 5000 rupees as well as one time financial assistance of 6,000 rupees.
- **Employability** – The PM Internship Scheme will enhance youth employability in India by offering them hands-on exposure to real-world business environments.
- **Real-world business environments** – It will enhance youth employability in India by offering them hands-on exposure to real-world business environments.
- **Benefits the industry** – The scheme will also benefit the industry by creating a pipeline of skilled, work-ready youth who can be employed post-internship both in large as well as micro, small and medium enterprise.

5. b

Ringwoodite

Scientists have recently found evidence of huge amounts of water, comparable to several oceans, hidden deep within Earth's mantle beneath the United States.

- Ringwoodite is a mineral that can store water within its crystal structure.
- **Location** – The water is found in the "transition zone" between the upper and lower mantle, at depths of 250 to 410 miles.
- **Water form** – The water is not in a familiar form (liquid, ice, or vapour) but is trapped inside the molecular structure of mantle rock minerals.
- **Formation** – Under extreme pressure and temperature, water molecules split and form hydroxyl radicals (OH) that bind into the mineral's crystal structure.
- **Implications** – This discovery could change our understanding of Earth's water cycle, formation, and composition.
- **Detection method** – The researchers used seismic waves to detect the presence of magma beneath North America, which aligns with findings of partial melt in synthesized ringwoodite under similar conditions.
- **Dehydration melting** – As ringwoodite moves deeper into the lower mantle, it releases water, causing partial melting of rock.

04-10-2024

1) Consider the following statements with respect to the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan

1. An initiative that aims to foster holistic development in tribal villages.
2. The scheme through 25 interventions is implemented by 17-line ministries of India.

Which of the above statement(s) is/are correct?

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

2) Consider the following statements with respect to International Energy Efficiency Hub

1. It is a global platform dedicated to fostering collaboration and promoting energy efficiency worldwide.

2. It is a voluntary collaboration among 16 governments seeking to strengthen their effectiveness in deploying energy efficiency.
3. India is one of the members of the hub and Bureau of Energy Efficiency is designated as the implementing agency for the Hub on behalf of India.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

3) Consider the following statements with respect to Linguistics Expert Committee

1. It comprises of representatives of the Union Ministries of Home, Culture, and four or five linguistic experts at any given time.
2. It is chaired by the Ministry of Home Affairs.
3. The inclusion of languages as classical language will create significant employment opportunities, particularly in academic and research fields.

Select the correct answer using the code given below:

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1, 2 and 3

4) Consider the following statements with respect to Barnard's Star

1. It is a red dwarf which is much smaller and less luminous than sun.
2. It is the closest single star to our solar system.

Which of the above statement(s) is/are correct?

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

5) Consider the following statements with respect to the Honey Badger

1. They are omnivorous mammals that belong to the weasel family.
2. It is protected under Schedule I of the Wildlife (Protection) Act of 1972 and has been accorded 'Least Concern' status in the IUCN red list.
3. They contribute to nutrient cycling by enriching the soil through their diet and waste.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

Answers

1. c

Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (DAJGUA)

Prime Minister recently launched Dharti Aaba Janjatiya Gram Utkarsh Abhiyan from Hazaribagh, Jharkhand on 2nd October 2024, on the birth anniversary of Mahatma Gandhi.

- Dharti Aaba Janjatiya Gram Utkarsh Abhiyan is an initiative that aims to foster *holistic development in tribal villages*, bringing transformative changes to the socio-economic landscape of the region.
- It aims at saturation of more than *63,000 tribal majority villages* in Aspirational Districts.
- It focuses on *25 scheme interventions* in the next 5 years, through coordinated efforts of 17 Ministries.
- It envisions saturation of *critical gaps in social infrastructure*, health, education and livelihood.
- It has been planned based on the learning and success of Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyaan (PM-JANMAN).

2. b

International Energy Efficiency Hub

The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has recently approved the signing of 'Letter of Intent' thus enabling India to join the 'Energy Efficiency Hub'.

- International Energy Efficiency Hub is a Government-to-Government collaboration on energy efficiency.
- The Hub is a **voluntary collaboration** among 16 governments seeking to strengthen their effectiveness in deploying energy efficiency.
- The Hub brings together governments, international organizations, and private sector entities to share knowledge, best practices and innovative solutions.
- As of July, 2024, 16 countries (Argentina, Australia, Brazil, Canada, China, Denmark, European Commission, France, Germany, Japan, Korea, Luxembourg, Russia, Saudi Arabia, United States and United Kingdom) have joined the Hub.
- **India is not a member of the International Energy Efficiency Hub. (Statement 3 is incorrect)**
- Its Secretariat is hosted at the **International Energy Agency (IEA)** to foster coordination with the Agency and with other international organisations, the private sector and other stakeholders.
- The Hub facilitates the sharing of policy best practices in an informal workshop forum to enable knowledge-sharing.
- **Task Groups** – The Hub takes on issues important to its Members through thematic Task Groups.
- **India** – The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has approved the signing of ‘Letter of Intent’ to enable India to join the ‘Energy Efficiency Hub’.
- By joining the Hub, India will gain access to a vast network of experts and resources, enabling it to enhance its domestic energy efficiency initiatives.
- The country's participation in this global platform will help to accelerate the transition to a low-carbon economy and improve energy security.
- India is a member of the International Partnership for Energy Efficiency Cooperation (IPEEC).
- The criteria for bestowing classical status was revised by the Linguistics Experts Committee.
- According to the Union Culture Ministry, the decision to designate the 5 languages as classical was taken in the meeting conducted by the Linguistics Experts Committee, chaired by the Sahitya Akademi.
- **Composition of the committee** – It comprises of representatives of the Union Ministries of Home, Culture and four or five linguistic experts at any given time. **(Statement 1 is correct)**
- It is **chaired by the President of the Sahitya Akademi. (Statement 2 is incorrect)**
- **Classical Languages in India** – India has had 6 classical languages as of now which are:
 1. Tamil
 2. Telugu
 3. Malayalam
 4. Kannada
 5. Sanskrit
 6. Odia
- Tamil was the first language to be given classical status in 2004 followed by Sanskrit in 2005.
- The Union Cabinet has recently approved **classical language status to Marathi, Bengali, Assamese, Pali, and Prakrit.**
- **Significance of Classical Languages** - Once a language is notified as a classical language, the Education Ministry provides certain benefits such as:
 - To promote it which includes *two major annual international awards for scholars of eminence* in the said languages, a Centre of Excellence for studies in classical languages is set up
 - *University Grants Commission* is requested to create, to start with at least in the Central Universities, a certain number of professional chairs for the classical languages so declared.

3. c

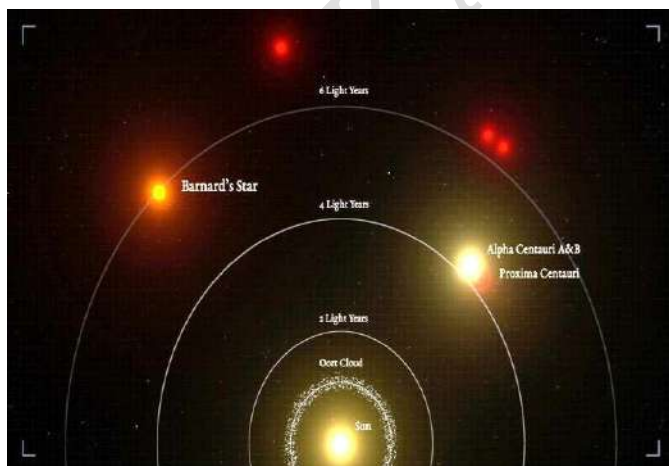
Linguistics Expert Committee

The Union Cabinet has recently approved classical language status to Marathi, Bengali, Assamese, Pali, and Prakrit.

4. c

Barnard b

- **Barnard's Star** – It is a *red dwarf*, the smallest type of regular star and *much smaller and less luminous than our sun*.
- It is at about *6 light years away*, it is the closest single star and orbits with other stars in our solar system.
- It is the closest single star to our solar system.
- It has a mass of about 16% of the Sun and with diameter of about 19% of the Sun.
- The *age is more than twice as old as the Sun* and situated at the Constellation Ophiuchus.
- It is the **closest single star to our solar system**.
- **Barnard b** – It has mass which is approximately 40% of the Earth.
- The diameter is approximately about 75% of the Earth.
- It can orbit the earth in 3 Earth days.
- It is 20 times closer than Mercury is to the Sun and the surface temperature is approximately about 275°F.
- **Significance** – Closest multi-planet system to Earth.
- Potential for future study of nearby, potentially habitable worlds.
- Target for future interstellar missions (Eg : Breakthrough Stars-hot).



5. c

Honey Badger (*Mellivora capensis*)

A honey badger, also known as the Ratel, has been captured on camera for the first time in the Terai East Forest Division (TEFD) of Uttarakhand.

- A honey badger, also known as the Ratel are omnivorous mammals that belong to the *weasel family*.
- These nocturnal creatures are known for their powerful, curved claws, which they use to dig burrows for shelter.
- **Diet** – It is diverse, consisting of small animals, fruit and honey.
- The Ratel is a small carnivore with an appetite for honey.
- **Protection** – It is protected under **Schedule I of the Wildlife (Protection) Act of 1972**.
 - **IUCN Status** – Least Concern (2015 assessment).
 - **CITES Status** – Appendix III.
- **Habitat** – They are terrestrial animals that inhabit a wide variety of habitats, including tropical and subtropical green forests, thorn forests, open woodlands, riparian forests or grasslands, arid steppes, rocky hills and deserts.
- They typically do not live in the driest portions of the Sahara Desert or in the chaparral biomes around the Mediterranean.
- They require habitats with burrows, rock crevices, or other places in which they can shelter.
- **Range** – Broadly distributed across much of Africa and also live on the Arabian Peninsula and the Indian sub-continent.
- It is **believed** to be *absent from the central Sahara Desert and the Mediterranean coast in North Africa*.
- Honey badgers have been recorded in a few other locations in India, such as Bannerghatta National Park (2015) in Karnataka, Chilika Lagoon in Odisha (2019) and Tadoba-Andhari Tiger Reserve in Maharashtra (2016).



05-10-2024

1) Krakatoa, sometimes seen in the news recently, is situated at?

- Indonesia
- Thailand
- India
- Australia

2) Consider the following statements:

- Indian Maritime Centre (IMC) is an apex advisory body for the development of the maritime sector.
- National Maritime Heritage Complex serve as an international tourist destination, showcasing India's rich maritime heritage through advanced technology.
- Maritime State Development Council (MSDC) is a policy think tank designed to bring together maritime stakeholders currently operating in silos.

How many of the statements given above are correct?

- Only one
- Only two
- All three
- None

3) International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), sometimes seen in the news recently, works under the aegis of?

- Ministry of Science and Technology
- Ministry of Steel
- Ministry of Mines
- Ministry of Earth Sciences

4) The organisms "Tricolored Munia, Yellow Bittern and Lesser Whistling Thrush are

- Birds
- Insects
- Reptiles
- Fish

Answers

1. a

Krakatoa

- Krakatoa is a Group of four islands in the Sunda Strait between Sumatra and Java in **Indonesia**.
- It is considered the first 'global disaster' due to telegraph spreading news worldwide.
- It is situated at the Indo-Australian plate subducts under Eurasian plate
- The Area is prone to large earthquakes and tsunamis.
- It has generated tsunamis reaching South Asia, East Africa, and Western Australia.
- Krakatoa remains active and can potentially erupt again.

2. a

Maritime State Development Council (MSDC)

20th Maritime State Development Council (MSDC) was recently concluded in Goa.

- Maritime State Development Council (MSDC) is an **apex advisory body for the development of the maritime sector**.
- It aims to ensure integrated development of Major and non-Major Ports.
- The MSDC was **constituted in May 1997** to assess in consultation with State Governments, the future development of existing and new Minor Ports by the respective Maritime States either directly or through captive users and private participation.
- MSDC also monitors the development of minor ports, captive ports and private ports in the Maritime States with a view to ensure their integrated development with Major Ports.
- MSDC launched the **National Safety in Ports Committee (NSPC)** application on the National Single Window System platform.
- Indian Maritime Centre (IMC)** is a **Policy Think Tank** designed to bring together maritime stakeholders currently operating in silos.
- IMC will foster innovation, knowledge sharing, and strategic planning, driving growth and development across India's maritime sector.
- National Maritime Heritage Complex serve as an international**

tourist destination, showcasing India's rich maritime heritage through advanced technology.

- **Indian International Maritime Dispute Resolution Centre (IIMDRC):**
- IIMDRC is a **specialized platform** that will offer **merit-based and industry-governed solutions** to resolve maritime disputes efficiently.
- It can address the multi-modal, multi-contract, multi-jurisdictional, and multi-national nature of maritime transactions.
- IIMDRC positions India as a global hub for arbitration, aligning with the "Resolve in India" initiative.

3. a

International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Scientists have recently found a low-cost solution called nanosecond laser surface texturing to increase lubrication of the moving parts within the engine can enhance engine performance.

- ARCI was established in 1996-97 that focuses on application-oriented, industry-centric R&D.
- It's an **autonomous Research and Development Centre** that works under aegis of the Department of Science and Technology (DST), **Ministry of Science and Technology**.
- The main campus is situated in **Hyderabad**, covering about 95 acres, with additional operations in Chennai and Gurugram.
- It is Organized into Centres of Excellence (COEs) in various materials-related fields, including:
 - Nanomaterials
 - Ceramics
 - Engineered coatings
 - Fuel cells
 - Carbon materials
 - Sol-gel coatings
 - Laser materials processing
 - Solar energy materials
 - Automotive energy materials

- ARCI develops advanced materials-based technologies and undertakes sponsored projects for government agencies.
- It conducts contract research for Indian and foreign companies.
- It performs basic R&D, often in collaboration with renowned institutes worldwide.
- ARCI Provides testing, production characterization, consultancy, training, and literature/patent searches in areas of core competence.
- Has transferred technologies to over 46 companies and developed about 250 technological solutions for industrial and strategic sectors.
- Emphasizes multi-disciplinary inputs to support targeted development efforts.

4. a

Tricolored Munia, Yellow Bittern and Lesser Whistling Thrush

For the first time, a Biodiversity Survey was conducted at Avalahalli Lake, Yelahanka, involving 25 naturalists and birders from across Bengaluru.

- They identified about 60 bird species, as well as butterflies dragonflies, damselflies and 40 plant species at the survey conducted at Avalahalli Lake, Yelahanka.
- Bird species include the **Lesser Whistling Thrush**, Bronze-winged Jacana, **Yellow Bittern**, rare Cinnamon Bittern, **Tricolored Munia** and Red Avadavat.
- Notable butterfly species include: Grass Yellow, Lime Blue, Apefly, Common Four-ring, Chocolate Pansy, and Castor.
- The very purpose of saving this lake is to support the rich potential of birds and flora.
- The very purpose of saving this lake is to support the rich potential of birds and flora.
- The lake still has scope for improvement.

07-10-2024

1) NEO Surveyor, sometimes seen in the news recently, is an initiative of?

- a. National Aeronautics and Space Administration
- b. Japan Aerospace Exploration Agency
- c. Indian Space Research Organisation
- d. China National Space Administration

2) Consider the following statements with respect to Venture Capital Funds

1. They are pooled investment funds that manage the money of investors who seek private equity stakes in start-ups and small- to medium-sized enterprises.
2. These investments are generally characterized as very low-risk and high-return opportunities.

Which of the above statement(s) is/are correct?

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

3) Consider the following statements with respect to Marburg Virus

1. Marburg is a virus from the same family as Ebola.
2. According to the WHO, it causes a haemorrhagic fever and has an average fatality rate of 100%.
3. It can also spread between humans, through direct contact with the bodily fluids of infected people.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. Neither 1 nor 2

4) Consider the following statements:

1. Prakrit generally refers to a group of closely-related Indo-Aryan languages.
2. Ardhamagadhi language is prominently used by Jain scholars.
3. Pali is the language of the Theravada Buddhist canon.

How many of the statements given above are correct?

- a. Only one
- b. Only two

c. All three

d. None of the above

5) Consider the following statements with respect to Caracal

1. It is an elusive medium-sized species of small wild cats.
2. In India, it is endemic to Western Ghats.
3. It has strong hind legs that allow them to jump 6 feet in the air.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

Answers

1. a

NEO Surveyor

- Near-Earth Object (NEO) Surveyor is the *first space telescope specifically designed to hunt asteroids and comets* that may be potential hazards to Earth.
- It was built on the success of NASA's NEOWISE space telescope.
- It will be the first spacecraft created specifically to find large numbers of asteroids and comets that are potentially hazardous to Earth.
- It scans the solar system and the *sensitive infrared detectors* will track the most elusive near-Earth objects.
- Dark asteroids and comets don't reflect much visible light and they will glow in the infrared spectrum as they're heated by sunlight.
- It will be able to find asteroids that approach Earth from the direction of the Sun, as well as ones both leading and trailing our planet's orbit, where they are typically obscured by the glare of sunlight.
- Objectives of the NEO Surveyor include:
 - Finding near-Earth objects is required by law.
 - To find asteroids and comets that other space missions cannot, filling a critical gap in humanity's ability to detect

potentially hazardous near-Earth objects.

- In addition to planetary defence, scientists will use data from NEO Surveyor for studies of near-Earth objects to learn more about the evolution of the solar system.

2. a

Venture Capital Funds

The Union government has recently stated that it has earmarked Rs 1,000 crore for venture fund to space start-ups, an indication of high priority that the government gives to the space sector.

- Venture capital funds are pooled investment funds that invest in start-ups and small to medium-sized enterprises with high growth potential.
- These investments are characterized as high-risk/high-return opportunities. **(Statement 2 is incorrect)**
- **Accessibility** – Traditionally limited to professional venture capitalists.
- Now more accessible to accredited investors, but still largely out of reach for ordinary investors.
- **Key Characteristics** – Focus on early-stage investments.
- Target companies with high-risk/high-return profiles.
- Take an active role in portfolio companies, often holding board seats.
- **Investment Strategy** – Often make small bets on many start-ups.
- Hope for at least one high-growth success to offset potential losses.
- **Investment Stages:**
 1. Seed capital
 2. Early-stage capital
 3. Expansion-stage financing
- **Fund Operation** – Raise money from outside investors.
- Review business plans to identify potential investments.
- Make investment decisions based on prospectus mandates and investor expectations.

3. b

Marburg Virus

The World Health Organization recently stated that the risk of the outbreak is very high in Rwanda, high across the African region and low globally.

- Marburg is a virus from the same family as Ebola.
- According to the WHO, it causes a haemorrhagic fever and has an **average fatality rate of 50%**, although rates have been as high as 88% in previous outbreaks. **(Statement 2 is incorrect)**
- It was first identified in Marburg, Germany and Belgrade, Serbia in 1967.
- **Symptoms** – Sudden high fever and extreme headache, as well as vomiting and diarrhoea, following by uncontrolled bleeding.
- **Transmission** – Marburg spreads to humans from prolonged exposure to mines or caves where Rousettus fruit bats live.
- It can also spread between humans, through direct contact with the bodily fluids of infected people, or with surfaces or materials contaminated with those fluids, such as blood.
- **Vaccine** – There are **no approved vaccines** or treatments for Marburg.
- The vaccine developed by non-profit organizations including the Sabin Vaccine Institute, which is yet to get approved from WHO.
- The team that developed the AstraZeneca COVID-19 vaccine at Oxford University began a trial of its Marburg candidate this summer in the UK, using similar technology.

4. c

Prakrit & Pali Languages

Pali and Prakrit has been newly designated as Classical Languages.

- Pali and Prakrit are at the root of India's culture and are languages of spirituality, wisdom and philosophy.

Prakrit

- The term 'Prakrit' comes from 'prakriti' meaning 'source' or 'origin'.
- Most scholars agree that this is to do with the Prakrits originating from Sanskrit, the language of the Vedas and later Hindu literature.

- There is no one Prakrit language.
- **Prakrit generally refers to a group of closely-related Indo-Aryan languages**, which may also have other names.
- Their defining feature is that they were much simpler than Sanskrit, and thus the *language used by the masses*.
- Prakrits were “much simpler than Sanskrit both in sound and grammar”.
- *Most pre-Gupta inscriptions such as Ashokan edicts (dated to 3rd Century CE) were written in some form of Prakrit.*
- **Inscriptions and edicts** are meant for the public, rather than for a small group of elite intelligentsia (like Sanskrit texts).
- A number of languages and dialects can be referred to as Prakrit.
- Some notable forms of Prakrits include:
 - **Magadhi** – The official language of the Mauryan court, and the language of the people of Magadha (present-day Bihar).
 - The **Ashokan edicts** were composed in this language.
 - This language would find wide use in Eastern India, and later evolved into modern-day languages such as Bengali, Assamese, Odia, and the Bihari languages.
 - **Ardhamagadhi** – Literally means “half-Magadhi” and was a later variation of the **Magadhi language prominently used by Jain scholars**.
 - Most Prakrit courses today teach Ardhamagadhi.
 - **Shauraseni** – Used in North and Central India.
- Apart from Ardhamagadhi, the language of the Jain agamas, the other language to emerge in this regard is **Pali, the language of the Theravada Buddhist canon**.
- Due to its significance to Buddhism, Pali is the variant of Prakrit that is most studied at present.
- The Pali Canon falls into 3 general categories or *pitaka* (basket).
- Together, it is thus known as *Tipitaka* (“three baskets”), which include:
 1. **Vinaya Pitaka (Discipline Basket)** – It deals with rules or discipline of the Buddhist sangha (monastic order).
 2. **Sutta Pitaka (Sayings Basket)** – The largest basket comprising discourses and sermons of the Buddha himself, as well as some religious poetry.
 3. **Abhidhamma Pitaka** – The basket that further elaborates on Buddhist philosophy.
- After Theravada Buddhism declined in India, Pali survived as an ecclesiastical language in Sri Lanka, Myanmar, Thailand, Laos, and Cambodia, where this Buddhist school continued to prosper.
- Pali has traditionally been identified with Magadhi Prakrit, with the word ‘*pali*’ meaning “lines or series”, a reference to Pali being the language of the series of Buddhist texts.

5. b

Caracal (*Caracal caracal schmitzi*)

To encourage Caracal breeding and conservation, the Gujarat government has recently allocated 10 crore rupees.

- The Caracal or Asiatic caracal (*Caracal caracal schmitzi*) is an elusive medium-sized and locally threatened felid (cat) species.
- Caracals live on rocky hills or grasslands in the Middle East, Africa, and south Asia.
- The animal is one of more than 30 species of small wild cats.
- **Features** – Most caracals grow about three feet long and can weigh over 40 pounds.
- The body of a caracal is built for sneak attacks.

Pali

- Pali is the language of Buddhist canon.
- Pali, being a vernacular languages, were also the language of choice for heterodox religions like Jainism and Buddhism.
- It emerged as a challenge to the rigid social hierarchies and excessive ritualism of the Vedic tradition and sought to make religion more accessible to the masses.

- The animals' **strong hind legs** allow them to jump **6 feet** in the air which is the height of a tall adult human.
- **Range** – Historically, the caracal was found all across Central India and the Indo-Gangetic plains.
- Caracals live on rocky hills or grasslands in the Middle East, Africa, and south Asia.
- In India, the most significant potential habitat for caracals include:
 - Rajasthan
 - Gujarat
 - Madhya Pradesh
 - Haryana
 - Uttar Pradesh
 - Maharashtra
- The most suitable habitat for caracals in Rajasthan, Gujarat and Madhya Pradesh is located in Kutch, the Malwa Plateau, the Aravalli hill range and the Bundelkhand region.
- **It is not endemic to Western Ghats in India. (Statement 2 is incorrect)**
- **Protection** – The species is included in the **Schedule-I category** of the Indian Wildlife (Protection) Act, 1972.
- It is listed under '**least concern**' under the IUCN Red List.
- **Reasons for the decline** – Large-scale hunting, illegal trading and loss of natural habitats are considered significant threats to the species.



08-10-2024

1) Consider the following statements with respect to Kautilya Economic Conclave, 2024

1. It features 11 plenary sessions, 12 interactive sessions and bilateral discussions on contemporary economic and social challenges facing both India and the world.
2. It is organised by the Institute of Economic Growth in partnership with the Department of Economic Affairs and Ministry of Finance.
3. It will focus on themes such as financing the green transition, geo-economic fragmentation and the implications for growth.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to the World Association of Zoos and Aquariums (WAZA)

1. World Association of Zoos and Aquariums (WAZA) is the global alliance of regional associations, national federation's zoos and aquariums.
2. Heini Hediger Award is the highest award for professional excellence awarded by the WAZA.
3. Padmaja Naidu Himalayan Zoological Park is situated at Uttarakhand.

How many of the statements given above are correct?

- a. Only one
- b. Only two



- c. All three
- d. None of the above

3) Which of the following are the Statutory Bodies of the Ministry of Textiles?

- 1. National Jute Board
- 2. Textiles Committee
- 3. Central Silk Board
- 4. Central Wool Development Board
- 5. All India Handicrafts Board

Select the correct answer using the code given below:

- a. 1, 2 and 3
- b. 1, 2 and 4
- c. 1, 3, 4 and 5
- d. 1, 2, 3, 4 and 5

4) Charon, sometimes seen in the news recently, is associated with?

- a. An exotic seaweed species native to Indo-Pacific Ocean.
- b. A campaign to promote Green Shipping.
- c. Largest satellite of a planet.
- d. A ransomware that targets macOS devices.

5) Consider the following statements with respect to Gold

- 1. South Africa is the largest producer of gold.
- 2. Among the noble metals, only gold is less reactive.
- 3. Responsible Gold Mining Principles (RGMPs) was launched by Indian Association for Gold Excellence and Standards (IAGES).

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

Answers

1. c

Kautaliya Economic Conclave, 2024

The 3rd edition of the Kautilya Economic Conclave, 2024 held between October 4-6, 2024, in New Delhi was successfully concluded recently.

- Kautilya Economic Conclave, 2024 features 11 plenary sessions, 12 interactive sessions and bilateral discussions on contemporary economic and social challenges facing both India and the world.
- It is organised by the Institute of Economic Growth in partnership with the Department of Economic Affairs and Ministry of Finance.
- It will focus on themes such as financing the green transition, geo-economic fragmentation and the implications for growth and principles for policy action to preserve resilience among others.
- The conclave focused on "the Indian Era", highlighting India's growing economic influence and leadership.
- Key topics discussed included:
 - Skills development and employment.
 - Climate change and green transition strategies.
 - Industrial policy best practices.
 - Geo-economic fragmentation.
 - Reforming international financial architecture.
 - Artificial intelligence's impact on jobs and the economy.

- The event featured high-profile participants from India and abroad, including economists, policymakers, and representatives from international organizations.
- The conclave highlighted India's evolving role as a leader of the Global South and its ambition to become a developed economy by 2047.

2. b

World Association of Zoos and Aquariums (WAZA)

Padmaja Naidu Himalayan Zoo's Red Panda Program was recently selected as Finalist for 2024 WAZA Conservation Award.

- World Association of Zoos and Aquariums (WAZA) aids to guide, encourage and support the zoos, aquariums and like-minded

organisations of the world in animal care and welfare.

- WAZA is the global alliance of regional associations, national federations, zoos and aquariums, dedicated to the care and conservation of animals and their habitats around the world.
- It promotes cooperation between leading zoos, aquariums, national and regional associations, as well as with leading wildlife experts, academics, and universities.
- **Membership** – The membership consists of nearly 400 leading institutions and organisations around the world.
- WAZA accepts membership applications in 4 categories:
 1. Associations
 2. Institutions
 3. Affiliates
 4. Corporations
- It provides support for species conservation management and husbandry of animals in human care, while encouraging the highest standards in member institutions.
- **Partnership** – WAZA has formed partnerships with leading international conservation organisations, committing its members to tackle global issues such as:
 - The illegal wildlife trade, coral reef restoration, marine litter, sustainable palm oil and climate change.
- **Awards:**
- **Heini Hediger Award** – In 1996, WAZA established its highest award for professional excellence, named the Heini Hediger Award in honour of the Swiss biologist known as the “father of zoo biology”.
- **Only one individual** can be honoured in any given year, and since the award criteria are lofty, it is anticipated that the award might not be given out every year.
- Last recipient of this award is Lee Ehmke, awarded to him in 2023.
- **WAZA Conservation Award Winners** – In 2016, WAZA established its **highest award for institutional** commitment towards conservation, named the WAZA Conservation Award.

- This award is granted to an institution for an **outstanding, comprehensive specific conservation programme** that has clear objectives and excellent conservation outcomes.
- **WAZA Environmental Sustainability Award** – In 2018, WAZA established its **highest award for institutional commitment towards environmental sustainability**, named the WAZA Environmental Sustainability Award.
- This award is granted to an institution for outstanding, comprehensive environmental sustainability initiatives that advances its commitment and efforts towards environmental sustainability.
- **Padmaja Naidu Himalayan Zoological Park** – It is dedicated to conservation of Wildlife.
- It is situated at **Darjeeling, West Bengal. (Statement 3 is incorrect)**
- It started work on captive breeding project of this rare species in the year 1983.
- It was selected as an ideal site for this captive breeding project.
- The captive breeding projects for the species include:
 - Snow leopard
 - Red panda
 - Himalayan salamander
 - Himalayan wolf
 - Pheasants
 - Blue sheep
 - Himalayan Tahr
 - Himalayan Goral
- **Padmaja Naidu Himalayan Zoo's Red Panda Program was selected as Finalist for 2024 WAZA Conservation Award.**
- **Salient features of the zoo** – The zoo is a part of World Association of Zoos and Aquarium (WAZA) and Zoological Information Management System (ZIMS) since 2009.
- The zoo was awarded the “Royal Bank of Scotland Earth Hero Award” as recognition for its efforts towards in-situ and ex-situ conservation, in 2014.
- The park is divided into 3 sections such as:

1. The lesser carnivore section
2. The herbivore section
3. The carnivore section

- In the year 2022, the Central Zoo Authority of India (CZA) ranked PNHZ Park First in all categories among all zoos in the country.

3. a

Statutory Bodies of the Ministry of Textiles

An event to celebrate the world cotton day recently jointly hosted by the Ministry of Textiles, Confederation of Indian Textile Industries (CITI), and Cotton Corporation of India.

- The world cotton day event was jointly hosted by the Ministry of Textiles, Confederation of Indian Textile Industries (CITI), and Cotton Corporation of India.
- United Nations officially recognised '7 October' as World Cotton Day (WCD).
- The theme of World Cotton Day (WCD), 2024 is 'Cotton for Good'.
- **Statutory Bodies** – Under the Ministry of Textiles includes:

1. National Jute Board (NJB)
2. Central Silk Board (CSB)
3. Textiles Committee
4. Commissioner of Payments (COP)
5. National Institute of Fashion Technology (NIFT)

- **Central Wool Development Board is an autonomous body.**

- **All India Handicrafts Board is an advisory body under the ministry.**

- **Autonomous Bodies** – Under the ministry of textiles include:

1. Central Wool Development Board
2. Sardar Vallabhbhai Patel International School of Textiles and Management

- **Advisory Bodies** – Under the Ministry of Textiles include:

1. All India Power-loom Board
2. All India Handloom Board
3. All India Handicrafts Board
4. Cotton Advisory Board

5. Jute Advisory Board

- **Textile Research Associations** – Under the Ministry of Textiles include:

1. Ahmedabad Textile Industry's Research Association (Atira)
2. Bombay Textile Research Association (BTRA)
3. South India Textile Research Association (SITRA)
4. Northern India Textile Research Association (NITRA)
5. Synthetic & Art Silk Mills' Research Association (SASMIRA)
6. Man-Made Textile Research Association (MANTRA)
7. Indian Jute Industries' Research Association (IJIRA)
8. Wool Research Association

4. c

Charon

James Webb telescope for the first time has detected carbon dioxide and hydrogen peroxide, both frozen as solids on the surface of Charon, satellite of Pluto.

- Charon is the largest of Pluto's five moons.
- At half the size of Pluto, Charon is the largest known satellite relative to its parent body.
- The same surfaces of Charon and Pluto always face each other, a phenomenon called *mutual tidal locking*.
- Charon orbits Pluto every 6.4 Earth days.
- Charon neither rises nor sets, but hovers over the same spot on Pluto's surface and the same side of Charon always faces Pluto.
- Charon's surface is mostly grey with reddish-brown regions around its poles composed of organic materials.
- **Recent findings** – James Webb telescope has recently discovered carbon dioxide and hydrogen peroxide on the frozen surface of Charon
- This marks the first time when carbon dioxide is observed on Charon, a spherical body approximately 750 miles in diameter.

5. d

Gold

- Gold is a precious metal famed for its use in jewellery and as a form of investment.
- Its atomic number is 79 and its Latin name is 'aurum', thus its symbol on the periodic table, Au.
- **Features** – Gold doesn't dissolve in strong nitric acid whereas most metals do.
- Among the noble metals, only platinum is less reactive. **(Statement 2 is incorrect)**

Each of the Nobel Prizes include a medal of electrum, an alloy of gold and silver, plated with 24 carat gold.

- Gold also dissolves in some alkaline solutions and in mercury, and is malleable, ductile, corrosion-resistant, and a good conductor of electricity.
- It is commonly used in industry to form connectors in computers.
- South Africa has produced most of the world's gold since the late 19th century, but today **the largest producer is China**. **(Statement 2 is incorrect)**
- The cost of extracting and refining gold depends on where it is found, although gold nuggets are typically found in mountainous areas that also have quartz veins.
- **World Gold Council Standards** – It is a membership organisation that champions the role gold plays as a strategic asset, shaping the future of a responsible and accessible gold supply chain.
- It drive industry progress, shaping policy and setting the principles for a perpetual and sustainable gold market.
- The World Gold Council was **formed in 1987** by some of the world's most forward-thinking mining companies.
- There are 3 core pillars to our mission in serving the gold market and its participants. Which includes:
 - Improving understanding
 - Improving access
 - Improving trust
- The World Gold Council's 32 Members are some of the world's most forward-thinking gold mining companies.

- **Responsible Gold Mining Principles (RGMPs) was launched by the World Gold Council Standards in 2019. (Statement 3 is incorrect)**
- RGMPs is a framework that sets out clear expectations for consumers, investors, and the gold supply chain as to what constitutes responsible gold mining.

09-10-2024

1) Consider the following statements with respect to Major Atmospheric Cherenkov Experiment (MACE) Observatory

1. It is an imaging atmospheric Cerenkov telescope (IACT) that consists of a large-area tessellated light collector.
2. The telescope is indigenously built by Bhabha Atomic Research Centre (BARC) with support from Electronics Corporation of India (ECIL) and other Indian industry partners.
3. It is the highest (in altitude) and second largest Cerenkov telescope in the world.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to National Cooperative Consumer's Federation of India Ltd (NCCF)

1. It is registered under the Multi-State Co-operative Societies Act, 2002.
2. It is a cooperative body under the Ministry of Consumer Affairs, Food and Public Distribution.

Which one of the statements given above is/are **incorrect**?

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

3) Consider the following statements with respect to Artificial Neural Network (ANN)

1. ANNs are collections of nodes designed to mimic neuron networks in animal brains.
2. Transformer, a new form of ANN is a two-part neural network that encodes and then decodes information.
3. Deep learning involves stacking multiple layers of nodes for complex tasks.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

4) Consider the following statements with respect to Trachoma

1. Blindness from trachoma is irreversible in nature which is caused by the bacterium *Chlamydia trachomatis*.
2. The infection is transmitted by direct or indirect transfer of eye and nose discharges of infected people.
3. India is the first country in the South-East Asia Region to eliminate trachoma.

Select the correct answer using the code given below:

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 3 only

5) Consider the following statements with respect to Monocled Cobra

1. It is an elapidae snake that inhabits eastern and north-eastern India.
2. It is an oviparous species with neurotoxicity and regional tissue destruction being chief symptoms of it.

Which one of the statements given above is/are correct?

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

Answers

1. c

Major Atmospheric Cherenkov Experiment (MACE) Observatory

The Major Atmospheric Cherenkov Experiment (MACE) Observatory was recently inaugurated by the Secretary of DAE & Chairman of the Atomic Energy Commission at Hanle, Ladakh.

- Major Atmospheric Cherenkov Experiment Telescope (MACE) is an *imaging atmospheric Cherenkov telescope (IACT)* located near Hanle, Ladakh, India.
- It is the *highest (in altitude)* and *second largest Cherenkov telescope* in the world.
- It is *indigenously built* by Bhabha Atomic Research Centre (BARC) with support from Electronics Corporation of India (ECIL) and other Indian industry partners.
- The telescope is the *second-largest gamma-ray telescope in the world*.
- The MACE Telescope consists of a *large-area tessellated light collector* of 356 m², made up of 356 mirror panels.
- A *high-resolution imaging camera* weighing about 1200 kg, for detection and characterization of the atmospheric Cherenkov events, forms the focal plane instrumentation of the telescope.
- The elevation over azimuth mounted telescope basket structure has two axes movement capability of $\pm 270^\circ$ in azimuth and -26° to $+165^\circ$ in elevation for pointing towards any source in the sky and tracking it.
- The telescope, which weighs about 180 tons, is supported on 6 wheels which move on a 27-metre-diameter track.
- The telescope has an *integrated imaging camera*, which contains 1088 photo multiplier-based pixels and all the signal processing and data acquisition electronics.
- The camera communicates the acquired data to the computer system in the control room over optical fiber.

2. d

National Cooperative Consumer's Federation of India Ltd (NCCF)

NCCF has recently began selling tomatoes at Rs 65 per kg recently amid soaring prices of the kitchen staple ahead of the festival season.

- NCCF was established on 16th October, 1965 to function as the apex body of consumer cooperatives in the country.
- It is registered under the Multi-State Co-operative Societies Act, 2002 and operates through a network of 27 Branch Offices located in different parts of the country.
- NCCF Headquarters is situated in New Delhi and the *management* of NCCF vests in the **Board of Directors**.
- The *ultimate authority of NCCF* vests in the hands of the **General Body**.
- Board of Directors exercises all the powers of NCCF except those reserved for General Body.
- The current sanctioned strength of the Board of Directors is 21.

3. c

Artificial Neural Network (ANN)

- Artificial neural network (ANN) is a *collection of nodes* designed to operate like networks of neurons in animal brains.
- Each node is a site where some input data is processed according to fixed rules to produce an output.
- A connection between nodes allows them to transfer input and output signals to each other.
- Stacking multiple layers of nodes, with each layer performing a specific task with great attention to detail, creates a machine capable of deep learning.
- **Transformers** – A new form of ANN is a *two-part neural network* that encodes and then decodes information.
- The first part is an ‘encoder’ that ingests the input sentence in the source language (e.g. English) and the second is a ‘decoder’ that generates the translated sentence in the target language (Hindi).
- Transformers are also the *bedrock of generative models* that create realistic images and audio.
- Their utility in diverse domains makes transformers a very powerful and universal model.
- **Deep learning** – A subset of machine learning in which *multi-layered neural networks* learn from vast amounts of data.

- Deep learning involves *stacking multiple layers of nodes* for complex tasks.
- **Convolutional neural networks (CNNs)** – Are *deep learning architectures* that are used in various applications.
- The applications include image and video processing, natural language processing (NLP) and recommendation systems.

4. a

Trachoma

World Health Organisation (WHO) has recently declared that the Government of India has eliminated Trachoma as a public health problem.

- Trachoma is a disease of the eye caused by infection with the bacterium *Chlamydia trachomatis*.
- It is caused by an obligate intracellular bacterium called *Chlamydia trachomatis*.
- Blindness from trachoma is **irreversible**.
- **Transmission** – Infection spreads through personal contact (via hands, clothes, bedding or hard surfaces) and by flies that have been in contact with discharge from the eyes or nose of an infected person.
- **Symptoms** – It causes pain and *may permanently damage* the cornea.
- **Public health concern** – It is a *public health problem in 42 countries* and is responsible for the blindness or visual impairment of about 1.9 million people.
- **Prevention and control** – Elimination programmes in endemic countries are being implemented using the WHO-recommended **SAFE strategy**. This consists of:
 - Surgery to treat the blinding stage (trachomatous trichiasis),
 - Antibiotics to clear infection, particularly mass drug administration of the antibiotic azithromycin, which is donated by the manufacturer to elimination programmes, through the International Trachoma Initiative,
 - Facial cleanliness and
 - Environmental improvement, particularly improving access to water and sanitation.

- Most endemic countries have agreed to accelerate the implementation of this strategy to achieve elimination targets.
- **Impacts** – The economic cost in terms of *lost productivity* from blindness and visual impairment is estimated at USD 2.9–5.3 billion annually, increasing to USD 8 billion when trichiasis is included.
- As of June 2022, 125 million people live in trachoma endemic areas and are at risk of trachoma blindness.
- **India** – India has successfully eliminated trachoma, a bacterial infection that affects the eyes, as a public health problem.
- India is the **3rd country** in the South-East Asia Region to eliminate trachoma. (**Statement 3 is incorrect**)
- India's success is due to the strong leadership of its Government and the commitment of ophthalmologists and other cadres of health-care workers.

5. c

Monocled Cobra (*Naja kaouthia*)

According to a new study, Species-Specific and region-specific anti-venoms are needed for improving treatment of monocled cobra bites.

- The monocled cobra (*Naja kaouthia*), also called monocellate cobra is a cobra species.
- The monocled cobra causes the highest fatality due to snake venom poisoning in Thailand.
- **Distribution** – It is widespread across South and Southeast Asia.
- In India, it inhabits eastern and north-eastern India.
- They can adapt to a range of habitats, from natural to anthropogenically impacted environments.
- They prefer habitats associated with water, such as paddy fields, swamps, and mangroves, but can also be found in grasslands, shrublands and forests.
- **Conservation** – It is listed as Least Concern by International Union for Conservation of Nature red list.
- *Naja kaouthia* is listed on CITES Appendix II.
- **Characteristics** – It has an O-shaped, or monocellate hood pattern, *unlike that of the Indian cobra*, which has the "spectacle" pattern

(two circular ocelli connected by a curved line) on the rear of its hood.

- It has a *black spot* on the lower surface of the hood on either side, and one or two black cross-bars on the belly behind it.
- The elongated nuchal ribs enable a cobra to expand the anterior of the neck into a "hood".
- **Threats** – Monocled cobras are harvested for the skin trade, however, collection from the wild is minimal and not likely to cause significant population declines.



10-10-2024

1) Consider the following statements with respect to the United Nations Population Fund (UNFPA)

1. It is the United Nations sexual and reproductive health agency and a subsidiary organ of the UN General Assembly.
2. It is entirely supported by the United Nations regular budget.
3. United Nations Population Award that honours an individual and/or institution is an initiative of it.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to Rice Fortification Initiative

1. Rice fortification involves the addition of Fortified Rice Kernels enriched with

micronutrients such as Iron, Folic Acid and Vitamin B12.

2. It is implemented by the Department of Agriculture & Farmers Welfare.
3. It is centrally a sponsored scheme and a component of Annapurna Scheme.

Select the correct answer using the code given below:

- a. 1 only
- b. 1 and 2 only
- c. 2 and 3 only
- d. 2 only

3) Consider the following statements with respect to Ayurveda

1. Ayurveda is one of the oldest holistic medical systems in the world.
2. Ayush Aushadhi Kendra aims to provide authentic and affordable Ayurvedic medicines to rural areas.

Which of the statements given above is/are correct?

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

4) Consider the following pairs:

Exercise	Countries Involved
1. Malabar	– India and the USA
2. Yudh Abhyas	– India and UK
3. Udara Shakti	– India and Bangladesh

How many of the pair(s) given above is/are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

5) 'ASEAN Plus Three', sometimes seen in the news recently, include which of the following members?

1. China
2. Japan
3. India
4. Nepal
5. Republic of Korea

Select the correct answer using the codes given below:

- a. 1, 2 and 3
- b. 1, 2 and 5
- c. 2, 3 and 5
- d. 3, 4 and 5

Answers

1. b

United Nations Population Fund (UNFPA)

The United Nations Population Fund (UNFPA) has recently recognized India's extraordinary progress in advancing Maternal Health and Family Planning.

- United Nations Population Fund (UNFPA) is the United Nations sexual and reproductive health agency.
- UNFPA is a *subsidiary organ of the UN General Assembly*.
- Its mission is to deliver a world where every pregnancy is wanted, every childbirth is safe and every young person's potential is fulfilled.
- It aids to *promote gender equality and empower women, girls and young people to take control of their bodies and their futures*.
- It leads programmes to *prevent, respond to and mitigate gender-based violence in over 153 countries and territories*.
- It reports to the UNDP/UNFPA Executive Board of 36 UN Member States and receives overall policy guidance from the UN Economic and Social Council (ECOSOC).
- **Executive Board** – It provides intergovernmental support to and supervision of the activities of UNDP, UNFPA and UNOPS.
- It ensures that UNDP, UNFPA and UNOPS remain responsive to the evolving needs of programme countries.
- It supports the work of UNFPA in delivering a world where every pregnancy is wanted, every birth is safe and every young person's potential is fulfilled.

- **Resources and Funding** – All UNFPA funding is voluntary in nature.
- It is entirely supported by voluntary contributions of donor governments, intergovernmental organizations, the private sector and foundations and individuals, **not by the United Nations regular budget. (Statement 2 is incorrect)**
- **United Nations Population Award** – Each year, the Committee for the United Nations Population Award honours an individual and/or institution.
- It is awarded in recognition of outstanding contributions to population and reproductive health questions and to their solutions.
- The Award was established by the General Assembly in 1981, in resolution 36/201, and was first presented in 1983.
- It consists of a *gold medal, a diploma and a monetary prize.*
- The Committee for the United Nations Population Award is comprised of:
 - 10 UN Member States, with United Nations Secretary-General and
 - UNFPA Executive Director serving as ex-officio members.
- **India** – UNFPA has recently Honoured India's Leadership in Maternal Health and Family Planning.
- The programmes implemented by the Ministry of Health and Family Welfare to improve maternal health outcomes toward achieving zero preventable maternal deaths:
 - Surakshit Matritva Aashwasan Yojana (SUMAN),
 - Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) and
 - Midwifery Services Initiative.
- India's monumental efforts are:
 - Reducing the Maternal Mortality Ratio (MMR) by an impressive 70% between 2000 and 2020 and
 - Positioning the country to achieve the Sustainable Development Goal (SDG) target of an MMR below 70 before 2030.
- This remarkable progress has saved the lives of thousands of women across the country,

particularly those from marginalized communities.

- UNFPA has played a key role in expanding the basket of contraceptive choices, including the recent inclusion of Subdermal Implants and injectable Depot Medroxyprogesterone Acetate.

2. a

Rice Fortification Initiative

Cabinet has recently approved continuation of supply of free Fortified Rice under Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) and other welfare schemes from July, 2024 to December, 2028.

- Rice fortification involves the addition of Fortified Rice Kernels (FRK) enriched with micronutrients (Iron, Folic Acid, and Vitamin B 12) as per standards prescribed by FSSAI to regular Rice (Custom Milled Rice).
- The initiative will complement the interventions adopted under the Anaemia Mukh Bharat strategy of the Union Government.
- The rice fortification initiative will continue as a **central sector initiative with 100% funding** by the Union Government. **(Statement 3 is incorrect)**
- It is a part of *Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)* (Food Subsidy), thus providing a unified institutional mechanism for implementation. **(Statement 3 is incorrect)**
- It is implemented by the Cabinet Committee on Economic Affairs (CCEA). **(Statement 2 is incorrect)**
- **Need for the initiative** – Food fortification has been used globally as a *safe and effective measure* to address *anaemia and micronutrient malnutrition* in the vulnerable population.
- Rice being an ideal vehicle for supplying micronutrients in the Indian Context as *65% of India's population consumes rice as a staple food.*
- According to the National Family Health Survey (NFHS-5) conducted between 2019 and 2021, anaemia remains a widespread issue in India, affecting children, women and men across various age groups and income levels.

3. c

Ayurveda

President of India Graced 8th Foundation Day Celebration of All India Institute of Ayurveda, New Delhi recently.

- Ayurveda is one of the oldest holistic medical systems in the world.
- It focuses on establishing harmony between mind, body and spirit.
- It is a very ancient medical system, it is becoming popular in the world at a very fast pace.
- **The initiatives to promote Ayurveda include:**
- **Ayush Aushadhi Pharmacy Programme** – Aims to make quality Ayurvedic medicines accessible to all, enhancing healthcare delivery through Ayurveda.
- **Ayush Aushadhi Kendra** – To provide authentic and affordable Ayurvedic medicines to rural areas.
- **Shashwat Ayush Expo** – The exhibition is focused on nature, environment and waste management.

4. b

Malabar, Yudh Abhyas and Udara Shakti

Exercise Malabar, 2024

- It is the 28th edition of the **multi-national maritime exercise** that was held on October, 2024 at **Visakhapatnam, India**.
- It is a bilateral exercise between **India and the USA**.
- Key participants include:
 1. Eastern Naval Command (India)
 2. U.S. Pacific Fleet
 3. Self Defence Fleet (Japan)
 4. Joint Force Maritime Component Commander (Australia)
- The exercise includes both harbour and sea phases, featuring live weapon firings, complex surface, anti-air and anti-submarine warfare drills, and joint manoeuvres.
- The exercise aligns with India's vision of Security & Growth for All in the Region (SAGAR).

Yudh Abhyas, 2024

- It is the 20th edition of **India-USA Joint Military Exercise** that was held at Mahajan Field Firing Ranges, **Rajasthan of India**.
- Aim of the Joint Exercise is to enhance joint military capability of both sides to undertake **counter terrorism operations** in a sub conventional scenario.
- The exercise will focus on operations in the **semi-desert environment**.
- Tactical drills to be rehearsed during the exercise include joint response to a terrorist action, joint planning and combined field training exercises that simulate real-world counter-terrorism missions.

Udara Shakti, 2024

- It is a bilateral **air force exercise between India and Malaysia** that aims to improve military cooperation, mutual understanding, and operational expertise.
- The 2024 exercise was held in **Kuantan, Malaysia**, and was hosted by the Royal Malaysian Air Force (RMAF).
- Aimed at bolstering operational efficiency, technical experts of both Air Forces engaged in exchange of their maintenance practices.

5. b

ASEAN Plus Three

- ASEAN Plus Three (APT) consist of 10 ASEAN Member States and the People's Republic of China, Japan and the Republic of Korea.
- The APT Cooperation process began in December 1997 and since then has evolved as the main vehicle to promote East Asian Cooperation towards the long-term goal of building an East Asian Community, with ASEAN as the driving force.
- The APT has become one of the most comprehensive cooperation frameworks in the region.
- It continues to be broadened and deepened in a wide range of areas that include:
 - Political-security, trade and investment, finance, energy, tourism, agriculture and forestry, environment, education, health, culture and arts and so on among others.
- The APT also supports the implementation of the ASEAN Community Vision 2025.

14-10-2024 & 13-10-2024

1) Consider the following statements with respect to Animal Quarantine & Certification Service (AQCS)

1. It aids to prevent the ingress of dangerous exotic diseases into the country through imported livestock and livestock products.
2. It was an initiative by the NITI Aayog.
3. In India, live animals including pets can be imported via international airport situated across India.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) India is part/ participants of which of the following?

1. ASEAN Regional Forum
2. Expanded ASEAN Maritime Forum
3. ASEAN Defence Ministers' Meeting Plus
4. East Asia Summit

Select the correct answer using the code given below:

- a. 1, 2 and 3
- b. 2, 3 and 4
- c. 1, 3 and 4
- d. 1, 2, 3 and 4

3) Consider the following statements with respect to Radar

1. It consists of a transmitter and receiver that determine distance, velocity and characteristics of objects.
2. Mission Mausam aids to upgrade meteorological infrastructure.
3. X-band Radar provides higher resolution images with longer range.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three

d. None of the above

4) Consider the following statements with respect to Murine Typhus

1. It is an infectious disease caused by the flea-borne bacteria Rickettsia typhi.
2. It is transmitted to humans through the bites of infected fleas.
3. There is no vaccine available for the treatment of this disease.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

5) Consider the following pairs:

Terms in News	Continents
1. Phata Byung project	– Asia
2. Matsigenka Community	– Africa
3. Miombo Forest	– South America

How many of the pair(s) given above is/are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

Answers

1. a

Animal Quarantine & Certification Service (AQCS)

Union Minister of State for Fisheries, Animal Husbandry and Dairying has recently inaugurated the Animal Quarantine & Certification Service (AQCS) at Cochin International Airport (CIAL) in Kochi, Kerala.

- Animal Quarantine & Certification Service (AQCS) aims to prevent the ingress of dangerous exotic diseases into the country through imported livestock and livestock products.

- It also envisage provision of an Internationally acceptable certification service for the livestock & livestock product exported to other countries from India confirming to the health requirements of the importing country or the health regulations prescribed in the International Zoo Sanitary code.
- **Objectives** – To prevent the ingress of any Exotic Livestock Diseases into India through importation of livestock & livestock products as per the provisions of Livestock Importation Act.
- To provide an internationally accepted certification service for augmenting export and to increase National income.
- To inspect and register the plants/mills exporting the animal by-products.
- **Need for it** – To keep the country free from many exotic diseases and AQCS plays an important part to maintain the country disease freedom.
- **Fourth Five Year Plan (1969-70)** – It is a **central sector scheme** that was initiated during the *Fourth Five Year Plan (1969-70)*. (**statement 2 is incorrect**)
- **Regulation** – Ministry of Fisheries, Animal Husbandry and Dairying regulates the import of livestock and livestock products under the Livestock Importation Act of 1898, amended in 2001.
- The focuses on preventing the introduction of exotic diseases into India.
- **Import of live animals** – At present, live animals, including pets, are imported through 6 major entry points where AQCS stations are located. (**Statement 3 is incorrect**)
- The 6 major entry points are Delhi, Mumbai, Kolkata, Chennai, Bengaluru and Hyderabad.
- East Timor has been granted observer status and is expected to become a full member in 2025.
- **ASEAN Regional Forum** – It aims to foster constructive dialogue and consultation on political and security issues of common interest and concern.
- It makes significant contributions to efforts towards confidence-building and preventive diplomacy in the Asia-Pacific region.
- The current participants in the ARF are:
 - Australia, Bangladesh, Brunei Darussalam, Cambodia, Canada, China, Democratic People's Republic of Korea,
 - European Union, **India**, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Myanmar, New Zealand, Pakistan, Papua New and
 - Guinea, Philippines, Republic of Korea, Russia, Singapore, Sri Lanka, Thailand, Timor-Leste, United States, and Viet Nam.
- **Expanded ASEAN Maritime Forum (EAMF)** – It was established in 2012 as a Track 1.5 Forum with a view to engage the several countries in a dialogue on important maritime issues of common interest.
- The countries include Australia, China, **India**, Japan, New Zealand, Republic of Korea, Russia, and the United States of America.
- **ASEAN Defence Ministers' Meeting Plus** – Is a platform for ASEAN and its 8 Dialogue Partners Australia, China, **India**, Japan, New Zealand, Republic of Korea, Russia and the United States (collectively referred to as the "Plus Countries").

2. d

Association of Southeast Asian Nations (ASEAN)

- ASEAN is an international organization established by the governments of Indonesia, Malaysia, the Philippines, Singapore, and Thailand in 1967.
- It aims to accelerate economic growth and promote peace and security in Southeast Asia.
- Brunei joined in 1984, followed by Vietnam in 1995, Laos and Myanmar in 1997, and Cambodia in 1999.

3. b

SHANKAR IAS ACADEMY

Radar

- Radar stands for "radio detection and ranging".
- It uses radio waves to determine distance, velocity and characteristics of objects.
- It consists of a **transmitter and receiver**.
- **Weather Radar** – Also known as Doppler radar.
- It uses the Doppler Effect to measure cloud movement and rainfall intensity.
- It can monitor weather conditions and anticipate storms.
- **X-band Radar** – It operates in the 8-12 GHz frequency range and provides higher resolution images but has **shorter range**. (**Statement 3 is incorrect**)
- It is useful for monitoring small particles like rain droplets or soil.
- **India's Radar Infrastructure** – IMD started using weather radars in the 1950s.
- It uses both X-band and S-band radars.
- IMD plans to add 56 additional Doppler radars in the coming years
- "**Mission Mausam**" approved to upgrade meteorological infrastructure.
- **NISAR Satellite** – A Joint NASA-ISRO project.
- It will use L-band and S-band radar for high-resolution Earth mapping.
- **Recent Developments** – New X-band radar in Wayanad for landslide warnings.
- Plans to install 10 X-band Doppler radars in northeast States and Himachal Pradesh.

4. c

Murine Typhus

The Kerala state's first case of Murine Typhus was reported recently.

- Murine typhus is an infectious disease caused by the bacteria *Rickettsia typhi*.
- It is transmitted to humans through infected flea bites.
- It is also known as endemic typhus or flea-borne typhus.

- **Transmission** – Spread through contact with infected flea feces.
- Not transmitted person-to-person or person-to-flea.
- It is common in coastal tropical and subtropical regions.
- **Symptoms** – Appear 7-14 days after exposure.
- The symptoms include fever, headaches, body aches, nausea, vomiting.
- Some may develop skin rashes later.
- **Diagnosis and Treatment** – Next Generation Sequencing (NGS) technology used in this case.
- There is **no vaccine** currently available against the disease.
- Antibiotic doxycycline is considered effective and early diagnosis is crucial.
- **Prevention** – Keep pets free of fleas.
- Control rodent populations around households and properly cover food items.
- **Prevalence in India** – Cases reported in the Northeast, Madhya Pradesh, and Kashmir.

5. a

Phata Byung project, Matsiguenka Community & Miombo Forest

- **Phata Byung project** – Is a run-of-the-river hydroelectric project located downstream of Kedarnath in Uttarakhand's Rudrapur district, **India**.
- **Matsiguenka Community** – Are an indigenous people who live in the **Amazon Basin** and the high jungle of south-eastern **Peru**.
- It is made up of several groups, including the Tayakome and Yomibato communities in Manu National Park.
- **Miombo** – Is a tropical and subtropical grasslands, savannas and shrublands biome located in central and southern tropical **Africa**.
- United Nations Food and Agriculture Organization (FAO) and the Italian Agency for Development Cooperation (AICS) have signed two agreements for the implementation of projects aimed at protecting the miombo forest.

- The agreement also facilitates trade in the border region between Mozambique and Zimbabwe.

17-10-2024

1) Consider the following statements with respect to Production Linked Incentive (PLI) Scheme for White Goods

1. It provides a financial incentive to boost domestic manufacturing and attract large investments in the White Goods manufacturing value chain.
2. Incentives are provided to Companies making brown field or green field Investments for manufacturing in target segments in India.
3. The PLI scheme was launched by the Department for Promotion of Industry and Internal Trade (DPIIT).

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) SAMARTHAK, sometimes seen in the news recently, is associated with?

- a. An App to monitor marine pollution.
- b. An insectivorous fish that has a high breeding capacity.
- c. First indigenous multi-purpose vessel.
- d. First indigenous air-Independent Propulsion Technology.

3) Consider the following statements with respect to the Prime Minister Early Career Research Grant (PMECRG)

Statement-I: It is designed with a flexible budget and incorporates progressive initiatives to facilitate ease of research.

Statement-II: It was launched by the Council of Scientific & Industrial Research (CSIR).

Select the correct answer using the codes given below:

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I

c. Statement-I is correct but Statement-II is incorrect

d. Statement-I is incorrect but Statement-II is correct

4) Consider the following statements with respect to World Health Organization (WHO) Youth Council

1. It is a separate legal entity and derives its legal status from WHO.
2. It is an advisory network of stakeholders and not a decision-making body.
3. 'Youth Declaration on Creating Healthy Societies' is an initiative of it.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

Answers

1. c

Production Linked Incentive (PLI) Scheme for White Goods

- Production Linked Incentive (PLI) Scheme for White Goods provides a financial incentive to boost domestic manufacturing and attract large investments in the White Goods manufacturing value chain.
- The PLI scheme was launched by the Department for Promotion of Industry and Internal Trade (DPIIT).
- **Objectives** – It proposes a financial incentive to boost domestic manufacturing and attract large investments in the White Goods manufacturing value chain.
- It include removing sectoral disabilities, creating economies of scale, enhancing exports, creating a robust component ecosystem and employment generation.
- **Eligibility** – Incentive under the Scheme shall be provided to Companies making brown field or green field Investments for manufacturing in target segments in India.

- Eligibility of Companies shall be subject to their meeting the pre-qualification criteria for different target segments which will be defined in the Scheme Guidelines.
- One entity may apply for one target segment only.
- **Target Segments** – Support under the Scheme will be provided to companies/entities engaged in manufacturing of components of Air Conditioners and LED Lights in India as under:
 1. Air conditioners Air Conditioners (Components- High value Intermediates or Low Value Intermediates or sub-assemblies or a combination thereof).
 2. LED Lights.
- **Features** – The Scheme is Fund Limited and even in case of over achievement the total pay-out of incentives would be capped at the amount approved by Cabinet.
- The PLI Scheme extends an incentive of 4% to 6% on incremental sales (net of taxes) over the base year of goods manufactured in India.

2. c

SAMARTHAK

SAMARTHAK, First Ship of Multi-Purpose Vessel was launched recently.

- SAMARTHAK is the First indigenous multi-purpose vessel.
- It was built by L&T, Shipyard for the Indian Navy.
- The ship has been named 'Samarthak' which means 'Supporter' and is synonymous to the multi-dimensional role envisaged from the platform.
- **Features** – It is capable of towing ships.
- It can launch and recover various targets, operate un-crewed autonomous vehicles.
- It can act as a trial platform for various indigenous weapons and sensors under development.

3. c

Prime Minister Early Career Research Grant (PMECRG)

Anusandhan National Research Foundation has recently launched the Prime Minister Early Career Research Grant (PMECRG) to provide progressive initiatives to facilitate ease of research.

- Prime Minister Early Career Research Grant (PMECRG) is designed with a flexible budget and incorporates progressive initiatives to facilitate ease of research.
- It will foster high quality innovative research, enable researchers to expand knowledge boundaries, drive technological progress and contribute to positioning India as Global leader in S&T.
- It can boost the creativity, innovation, and excellence of early career researchers and accelerate India's research-driven aspirations.
- It was launched by the [Anusandhan National Research Foundation \(ANRF\)](#).
- It reflects ANRF's commitment to nurturing young researchers and by investing in early career researchers, it will help seed, grow, and foster a robust culture of research and innovation across India.

4. b

World Health Organization (WHO) Youth Council

The World Health Organization (WHO) Youth Council has recently unveiled its Youth Declaration on Creating Healthy Societies to establish youth as central actors in fostering healthier and safer societies.

- The WHO Youth Council is a WHO network for stakeholders to amplify the voices and experiences of young people, and to harness and expand their expertise, energy and ideas to promote public health.
- The Youth Council is **not a separate legal entity** and derives its legal status from WHO. **(Statement 1 is incorrect)**
- It is administered and housed in WHO.
- **Goal** – To raise the profile of youth contribution to public health at a global, regional, national and local level and to support WHO in its efforts to strengthen youth contributions to public health systems through advocacy actions.
- **Composition** – The council is composed of 23 youth organisations that work to promote public health in different ways at a global and regional level.
- **Governance and structure** – The WHO Youth Council comprises a Steering Committee and Working Groups.
- The WHO Youth Council is an advisory network of stakeholders and **not a decision-making body**.

- **Youth Declaration on Creating Healthy Societies** – It is an initiative by the World Health Organization (WHO) Youth Council.
- It aims to establish youth as central actors in fostering healthier and safer societies.
- It set out **10 calls** to action across **3 priority areas** that require the collective efforts of governments, academia, the private sector, civil society organisations and individuals.
- The 10 calls to action are:
 - Access, Equity, and Inclusion in Education and Technology.
 - Comprehensive Curricula.
 - Quality and Adaptive Education.
 - Youth Engagement and Leadership.
 - Inclusive, Accessible and Prevention-focused Healthcare.
 - Investment in Young People.
 - Brave Spaces for Healthy Environments.
 - Inclusion of Young People
 - Valuing the Young People's Experiences.
 - Greater Support for Youth Organisations.

18-10-2024

1) Consider the following statements with respect to Central Nervous System Tuberculosis (CNS-TB)

1. It is one of the most dangerous forms of TB that affects the brain, often leading to severe complications or death.
2. Blood-brain barrier (BBB) prevents the medicines from entering the brain, limiting their effectiveness.
3. Chitosan, tiny particles made of a natural material are effective in by-passing BBB to deliver TB medicines directly to the brain through the nose.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Pavana Chitra, sometimes seen in the news recently, is associated with?

- a. A digital epigraphy museum set up by the Archaeological survey of India.
- b. An operation to crackdown cyber criminals.
- c. Airport based self-powered indoor air quality monitoring facility.
- d. An indigenously developed Automatic Train Protection (ATP) system.

3) Consider the following statements with respect to Shanghai Cooperation Organisation (SCO)

1. It is a permanent intergovernmental international organization.
2. India is the only SCO member to not endorse China's Belt and Road Initiative.
3. Iran and Belarus are the members of the organisation.

How many of the statements given above are **incorrect**?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

4) The highest statutory decision-making body on technical matters related to drugs in India is?

- a. Drugs Consultative Committee (DCC)
- b. Medical Council of India
- c. Drugs Technical Advisory Board (DTAB)
- d. Indian Pharmacopoeia Commission (IPC)

5) Yeti of the Himalayas and Yowie of the Australian Outback, sometimes seen in the news recently are examples of?

- a. Cryptids
- b. Insular fauna
- c. Oviparous
- d. Chionophiles

Answers

1. c

Central Nervous System Tuberculosis (CNS-TB)

Scientists at Institute of Nano Science and Technology (INST), Mohali has recently found a unique drug delivery method to improve treatment of brain tuberculosis.

- Central Nervous System Tuberculosis (CNS-TB) is one of the most dangerous forms of TB that affects the brain, often leading to severe complications or death.
- **Challenges in treating CNS-TB** – Drugs used to treat TB struggle to reach the brain because of a protective barrier known as the blood-brain barrier (BBB).
- This barrier prevents many medicines from entering the brain, limiting their effectiveness.
- Traditional treatments involve high doses of oral anti-TB drugs, but these often fail to achieve effective concentrations in the cerebrospinal fluid due to the blood-brain barrier (BBB).
- This limitation underscored the need for more effective delivery methods that can target the brain directly.
- **Chitosan** – A tiny particles made of a natural material to deliver TB medicines directly to the brain through the nose, bypassing the BBB.
- These tiny particles, known as nanoparticles, were then made into slightly larger clusters called Nano-aggregates, designed for easy nasal delivery.

Nano-aggregates are colloidal carriers that are made of amphiphilic block copolymers and polymers conjugated with drugs.

- They can hold TB drugs like isoniazid (INH) and rifampicin (RIF).
- The drug delivery technology used was nose-to-brain (N2B) drug delivery, which utilizes the olfactory and trigeminal nerve pathways in the nasal cavity to bypass the BBB.
- By delivering the drug through the nasal route, the Nano-aggregates can transport the drugs directly into the brain, significantly improving drug bioavailability at the infection site.
- Chitosan is known for its mucoadhesive properties, and sticks to the nasal mucosa, which helps the Nano-aggregates stay in place and prolongs the time they can release the drug, enhancing its therapeutic effectiveness.

- It could be applied to treat other brain infections, neurodegenerative diseases (like Alzheimer's and Parkinson's), brain tumours, and epilepsy by enabling efficient drug delivery to the brain.

- **Institute of Nano Science and Technology (INST)** – It is an autonomous institution of the Department of Science and Technology (DST).

- It has been established under the umbrella of NANO MISSION, initiated by DST to boost research and development in the field of Nanoscience and Nanotechnology in India.

- It is situated at the *Mohali Punjab*.

2. c

Pavana Chitra

- Pavana Chitra is India's first self-powered indoor air quality monitor.
- It is situated at Thiruvananthapuram International Airport.
- The off-grid air quality monitor is powered by indigenous indoor solar cells developed by CSIR- National Institute for Interdisciplinary Science and Technology (NIIST).
- It embodies a powerful fusion of technology, tradition and art, presenting an off-grid, self-powered indoor air quality monitor.
- It is crafted from locally available materials and designed to *mimic the natural process of photosynthesis*.

3. a

Shanghai Cooperation Organisation (SCO)

The 2024 Shanghai Cooperation Organisation Summit, also known as the 23rd Meeting of the Council of the Heads of Government, was a diplomatic event that was recently held in Islamabad, Pakistan.

- The Shanghai Cooperation Organization is a *permanent intergovernmental international organization* established on June 15, 2001 in Shanghai (PRC), China.
- **Goals of the SCO** – To strengthen mutual trust, friendship and good-neighbourliness between the Member States.
- To jointly ensure and maintain peace, security and stability in the region.
- To promote a new democratic, fair and rational international political and economic international order.

- **Council of Heads of States (CHS)** – It is the supreme decision-making body of the SCO.
- It meets once a year and decide upon all the important issues of the Organization.
- **2 standing bodies** – The Secretariat in Beijing and the Executive Committee of the Regional Anti-Terrorist Structure (RATS) in Tashkent.
- **9 Member States** – India, *Iran*, Kazakhstan, China, Kyrgyzstan, Pakistan, Russia, Tajikistan and Uzbekistan.
- **3 Observer states** – Afghanistan, *Belarus* and Mongolia. (**Since Belarus is an observer state statement 3 is incorrect**)
- **14 Dialogue Partners** – the countries are:
 - Azerbaijan
 - Armenia
 - Bahrain
 - Egypt
 - Cambodia
 - Qatar
 - Kuwait
 - Maldives
 - Myanmar
 - Nepal
 - United Arab Emirates
 - Saudi Arabia
 - Turkey
 - Sri Lanka
- **Official languages** – Russian and Chinese.
- **China's Belt and Road Initiative** – India is the only SCO member to **not endorse** China's Belt and Road Initiative.

4. c

Drugs Technical Advisory Board (DTAB)

DTAB has recommended the inclusion of all antibiotics in the definition of new drugs in the New Drugs and Clinical Trial (NDCT) Rules, 2019 to arrest the growing incidence of antimicrobial resistance.

- Drugs Technical Advisory Board (DTAB) is the highest statutory decision-making body on technical matters related to drugs in India.

- It aims to advise the Central Government and the State Governments on technical matters arising out of the administration of Drug and Cosmetic Rules 1945.
- It has recently recommended the inclusion of all antibiotics in the definition of new drugs in the New Drugs and Clinical Trial (NDCT) Rules, 2019.
- **Drugs Consultative Committee (DCC)** – DTAB has recommended to DCC to curb the growing antimicrobial resistance which is now recognised as a public health threat globally.
- **New drug** – According to Rule 122 E of the Drug and Cosmetic Rules 1945, a new drug can be one which has not been used in the country and has not been recognised as effective and safe by the licensing authority for the proposed claims.
- It could also be an approved drug with modified or new claims including indications, dosage, and new route of administration.
- **Objectives of DTAB** – To amend the labelling requirements under the Drugs Rules, 1945 and adding a blue strip or box for antimicrobial products.
- It has recommended that no antimicrobials should be sold by the traders to the non-pharmaceutical industries who do not hold requisite licences.

Antimicrobial resistance has been recognised as a serious and growing threat to public health globally.

- **Diseases resistant to antibiotics** – Drug-resistant and difficult to treat urinary tract infections, blood stream infections, pneumonia, and typhoid are among the diseases that are showing resistance to commonly used antibiotics in India.

5. a

Cryptids

- Cryptids are creatures that are unknown, legendary, or extinct and whose present existence is disputed or unsubstantiated.
- Cryptids have been reported on every continent and several cultures.
- **Examples of Cryptids** – Yeti of the Himalayas, Big Foot or the Sasquatch of the Pacific Northwest in North America, the Yowie of the Australian Outback, the Yeren of China and the Monkey Man of Delhi.

- The study of cryptids is known as 'cryptozoology' and debate exists over whether cryptozoology is a legitimate science.
- **Chupacabra** – The legend of the chupacabra originates from the island of Puerto Rico in the Caribbean.
- It means "goat sucker" in Spanish.
- It is described as having grey, scaly skin, dorsal spines, and fangs.
- Chupacabra is known for attacking livestock and allegedly draining their blood and there is a Myth spread across the Americas.

19-10-2024

1) Consider the following statements:

Statement-I: Scandium Nitride (ScN) is a rock-salt semiconductor with high thermal stability, robustness and electronic properties.

Statement-II: Single-crystalline scandium nitride (ScN) can emit, detect and modulate infrared light with high efficiencies.

Select the correct answer using the codes given below:

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

2) Consider the following statements with respect to Inter-Parliamentary Union (IPU)

1. It is the global organization of national parliaments that aids to promote peace through parliamentary diplomacy and dialogue.
2. India is one of the associate member of the union.
3. The Governing Council is the administrative and policy-making body that is empowered to elect the President and Secretary General of the union.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three

d. None of the above

3) Consider the following statements with respect to Malabar Grey Hornbill

1. It is one of the nine species of hornbills that are found in India and endemic to India.
2. This species prefers the higher terrain with dense tree cover.
3. It is listed as Vulnerable under the IUCN Red List of Threatened Species.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

4) Pyrocystis noctiluca, sometimes seen in the news recently, is associated with?

- a. A unicellular phytoplankton species that can float upward in the ocean.
- b. An invasive plant species that causes food shortage for the wildlife population.
- c. An insectivorous fish that has a high breeding capacity.
- d. An emerging multidrug-resistant fungus causing life-threatening outbreaks.

5) Consider the following statements:

1. A marine heatwave is a period of unusually high ocean temperatures and is defined by its duration and intensity.
2. The "twilight zone" of oceans is situated between 200 and 1,000 metres across the ocean.
3. In the deep ocean, atmospheric factors are responsible for temperature changes.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

Answers

1. b

Scandium Nitride (ScN)

- Scandium Nitride (ScN), a **rock-salt semiconductor** with high thermal stability, robustness, and electronic properties.
- It is a transition metal nitride semi-conductor that has emerged as a promising candidate for next-generation electronics due to its properties.
- **Challenges** – Despite its potential, the practical application of ScN in electronic devices has been hindered due to its **relatively lower electron mobility**.
- This key factor influences the speed and efficiency of semiconductor devices and researchers had been curious to unravel why the mobility of the electrons are limited.
- **The factors that limit electron mobility in ScN are** – Ionized-impurity and grain-boundary scatterings significantly reduced mobility.
- Depositing single-crystalline ScN that are devoid of impurities and defects is expected to increase its mobility significantly.
- **Applications:**
 - Thermoelectricity
 - Neuromorphic computing
 - High mobility electron transistors
- **Single-crystalline scandium nitride (ScN)** – Can emit, detect, and modulate infrared light with high efficiencies.
- **Applications:**
 - Infrared sources, emitters, and sensors
 - Electronics
 - Healthcare
 - Defence and security
 - Energy technologies

2. b

Inter-Parliamentary Union (IPU)

Lok Sabha Speaker recently led a Parliamentary Delegation (IPD) to the 149th Inter-Parliamentary Union (IPU) Assembly in Geneva.

- Inter-Parliamentary Union (IPU) is the global organization of national parliaments.
- It facilitates parliamentary diplomacy and empowers parliaments and parliamentarians to promote peace, democracy and sustainable development around the world.
- **Funding** – Financed primarily by our Members out of public funds.
- **Headquarters** – Geneva, Switzerland and offices in New York, United States of America and Vienna, Austria.
- **Members** – 181 Member Parliaments and 15 Associate Members.
- **India is one of the member of it and not an Associate Member of it. (Statement 2 is incorrect)**
- Member include from huge nations like China, India and Indonesia, to the tiny States of Cabo Verde, San Marino and Palau.
- 15 Associate Members are mostly parliaments drawn from groups of nations, or similar bodies.
- They include the Arab Parliament, the European Parliament and other parliamentary organizations in Africa and the Americas.
- **President** – Is the political head of our institution, who directs the activities, chairs full meetings and acts as the representative at global events and gatherings.
- The President serves as head of our Executive Committee.
- **Secretary General** – Act as the Chief Executive of the Organisation, manages the IPU and is accountable to the Governing Council.
- **Assemblies** – Is the IPU's main political body through which the IPU's Member Parliaments adopt parliamentary resolutions on global issues.
- It plays a pivotal role in addressing the issues which threaten peace, democracy and sustainable development, including through its four thematic standing committees.
- **Governing Council** – Is our administrative and policy-making body whose meetings are usually held during our twice-yearly Assemblies.
- The Governing Council elects the President and Secretary General and decides on the mandate and composition of committees, working groups and ad hoc bodies.

- It decides on admitting, readmitting and suspending members and on our activities.
- It oversees our budget and work programme and sets contribution rates.
- It is made up of 3 MPs from each Member Parliament, provided that the delegation includes both men and women.
- **Cremer-Passy Prize** – Being named after the IPU's founders, William Randall Cremer and Frederic Passy.
- It is **awarded every year** to sitting parliamentarians who make an outstanding contribution to the defence and promotion of the IPU's objectives
- It is also awarded to people who contribute to a more united, peaceful, sustainable and equitable world.

3. c

Malabar Grey Hornbill (*Ocyroceros griseus*)

- India is home to 9 species of hornbills out of which 4 are found in Kerala.
- Malabar Grey Hornbill is endemic to India whose existence could be threatened due to rampant and unchecked deforestation, resulting in a decline of suitable nesting and fruit trees.
- **Features** – It is apparently sedentary but will move around locally, especially within deciduous forest parts of the range.
- This species prefers the higher terrain with dense tree cover.
- **Range** – It is found in evergreen forests and plantations.
- It occurs in evergreen and deciduous forests, especially riverine forest and in the hills above 500 m elevation, but also in the lowland.
- **Protection** – It is listed as Vulnerable under the IUCN Red List of Threatened Species.



4. a

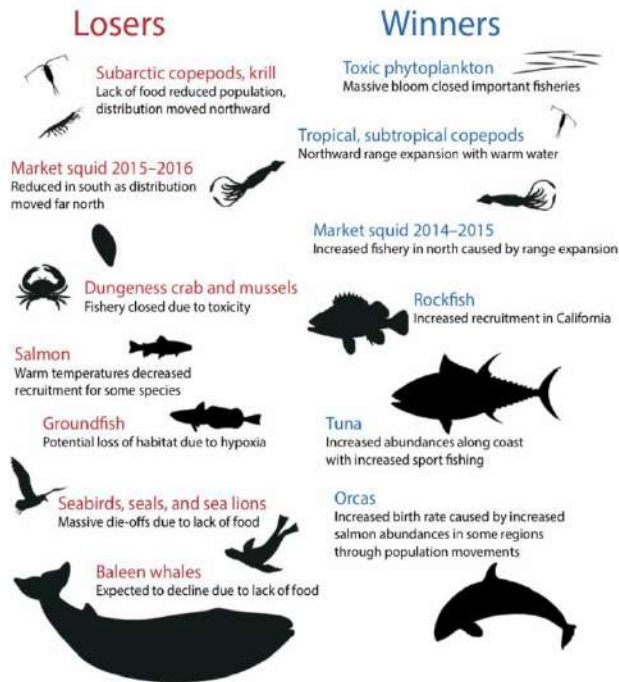
Pyrocystis Noctiluca

- Pyrocystis noctiluca is a single-celled organisms that can travel tens of meters by ballooning to six times the normal size.
- It's one of the most massive migrations on Earth that can float upward in the ocean.
- It can travel from 125 meters deep to 50 meters where there's more sunlight.
- Journey takes days, unlike daily zooplankton migrations and it is a one-time trip in their lifecycle.
- **Migration Mechanism** – Cells inflate by filling with seawater.
- Aquaporin proteins likely filter out dense salt, making the cell less dense than surrounding seawater.
- Process takes about 10 minutes.
- Calcium in seawater may trigger this transformation.
- **Life cycle** – Starts with inflated cells rising and at the end of 7-day cycle, cell divides into two as it sinks.
- New daughter cells then inflate and rise again.
- **Additional benefits of inflation** – Reduced predation risk due to larger size.
- Improved nutrient uptake and photosynthesis efficiency.

5. b

Marine Heat Waves (MHWs)

- A marine heatwave is a period of unusually high ocean temperatures and is defined by its duration and intensity.
- One of the most common ways that scientists measure the ocean's temperature is through sea surface temperature.
- Deviations from average sea surface temperature are referred to as temperature anomalies.
- **Impact of Marine Heat Waves (MHWs)** – Marine heatwaves not necessarily cause harmful algal blooms.



- **Twilight zone of ocean** – Is situated between 200 and 1,000 metres, still has some visibility, but research on the domain is lacking.
- Extreme temperature changes in the temperature of the twilight zone are also a matter of concern, since many fish species and plankton reside here.
- Heat and cold brought by eddies aren't the only threat to the twilight zone but can lead to low oxygen levels in the water and reduced nutrients.
- **Eddy currents** – Are huge loops of swirling current, sometimes hundreds of kilometres across and reaching down over 1,000 metres.
- In Deep Ocean, **atmospheric factors are not responsible for temperature changes** but instead eddy currents play a major role in it. **(Statement 3 is incorrect)**
- They can carry warm or cold water across long distances.
- Eddy currents are acting to magnify the warming rates of marine heatwaves and the cooling rate of the cold spells.
- Warmer oceans overall are leading to stronger eddy currents.

21-10-2024 & 20-10-2024

1) Consider the following statements with respect to Amylase

1. All people have a single amylase gene on each copy of chromosome-1.

2. Chimpanzees make amylase in their saliva and they carry only a single gene for the enzyme.
3. Hunter-gatherers gained any evolutionary advantage from having extra amylase genes.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to Sakura Science Exchange Program

1. It invites talented young foreign human resources for short-term visits to India.
2. It is an initiative of Department of School Education & Literacy, Ministry of Education.

Which of the statements given above is/are **incorrect**?

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

3) Consider the following statements with respect to INDIAB

1. It is a nationwide survey on Diabetes.
2. It was conducted by the Indian Council of Medical Research.

Which of the statements given above is/are correct?

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

4) Consider the following statements with respect to Exercise NASEEM AL BHR

1. It is a bilateral military exercise between India and Oman.
2. The exercise was held at Umroi, Meghalaya.

Which of the statements given above is/are correct?

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

5) Consider the following pairs:

Rivers	Continents
1. Parana River	– Africa
2. Murray-Darling River	– Australia
3. Mackenzie River	– North America
4. Klein River	– South America

How many of the pair(s) given above is/are correctly matched?

- a. Only one
- b. Only two
- c. Only three
- d. All of the above

Answers

1. a

Amylase

- Amylase is an enzyme in human saliva that breaks down starch.
- It has been crucial for human evolution and adaptation to changing food supplies.
- Two recent studies, published in Science and Nature, have revealed that humans acquired more amylase genes in two major waves:
- Several hundred thousand years ago, possibly in response to the invention of fire and cooking.
- About 12,000 years ago, after the agricultural revolution.
- Human amylase gene copies vary widely:
- *Some people have a single gene on each copy of chromosome 1.*
- **Most people have multiple copies, up to 11 in some cases. (Statement 2 is incorrect)**
- *This is in contrast to chimpanzees, which have only one copy.*

- The first increase in amylase genes likely coincided with the control of fire, which allowed humans to cook and consume starch-rich plants more easily.
- The second wave occurred with the advent of agriculture, as societies began domesticating starch-rich crops like wheat, barley, and potatoes.
- The studies found **no evidence** that **hunter-gatherers gained any evolutionary advantage from having extra amylase genes. (Statement 3 is incorrect)**
- The studies found that people with more amylase genes were more likely to survive and reproduce in agricultural societies.
- In Peru, where potatoes were domesticated over 5,000 years ago, there was a rapid increase in extra amylase gene copies in recent millennia.
- **Omer Gokcumen, who led the Science study, speculates that:**
- People with fewer amylase genes may be more vulnerable to diseases like diabetes, especially given modern starch-heavy diets.
- More amylase might prompt increased insulin production, potentially leading to better sugar absorption from starch.
- These findings could potentially lead to amylase-based treatments for certain diseases in the future.

2. c

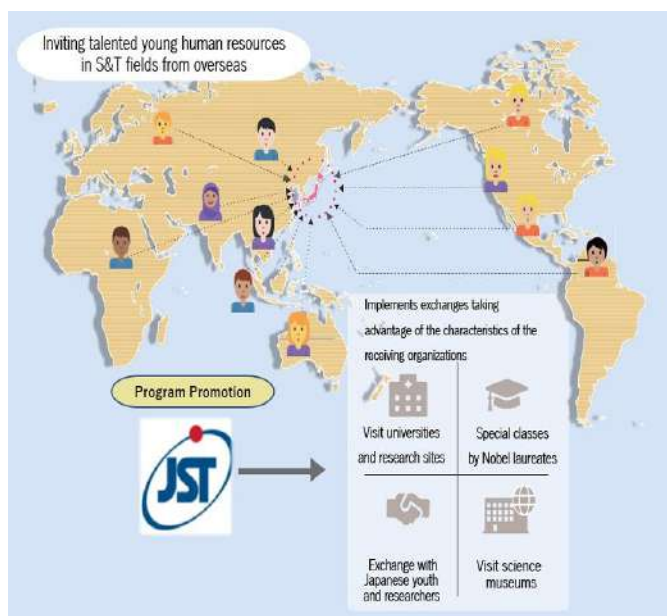
Sakura Science Exchange Program

Recently the Department of School Education & Literacy, Ministry of Education has sent 20 students from India to participate in Sakura Programme 2024.

- Sakura Science Exchange Program invites talented young foreign human resources for short-term visits to **Japan**, giving them the opportunity to experience both Japan's cutting-edge science and technology and culture.
- It was started in 2014 by **Japan Science and Technology Agency (JST)**.
- Exchange plans prepared by Japanese receiving organizations and overseas sending organizations are publicly offered and adopted.
- The Sakura Science Program's objectives include:

- To support the development of talented human resources from overseas who have the potential to contribute to innovation in science and technology.
- To accelerate the international brain cycle.
- To promote continuous collaboration, cooperation and interaction between Japanese educational and research institutes and those overseas.
- To strengthen good relationship between Japan and other countries and regions can encourage diplomacy in science and technology.
- **Eligible persons** – Students, researchers and others engaged in science and technology who are 40 years old and under.
- **Host Organizations** – Educational and research institutes throughout Japan, companies, local governments, various organizations, and others.
- **Sending Organizations** – An organization that dispatches invitees and plans and implements exchange programs in cooperation with the host organization.

- Key findings for Jammu region:
 - Overall diabetes prevalence: 18.9%
 - Urban areas: 26.5%
 - Rural areas: 14.5%
 - These rates are higher than the national average.
 - Prediabetes affects 10.8% of the population.
 - Hypertension prevalence: 27.1%
 - Generalized obesity: 41.7%
 - Abdominal obesity: 62.7%
- **Measures** – The concern over rising diabetes cases and called for increased awareness to prevent and control the disease.
- The importance of preserving the health of youth, calling them "architects of Viksit Bharat" (Developed India).
- The government is setting up about 1.5 lakh (150,000) Health and Wellness Centres across India, focusing on prevention and control of Non-Communicable Diseases (NCDs) including diabetes.
- To promote preventive healthcare, including traditional medicine and yoga.



3. c

INDIAB

- INDIAB is first of its kind, largest nationwide study on diabetes.
- The study surveyed 1,520 participants across urban and rural areas in Jammu.
- The survey was conducted by the *Indian Council of Medical Research*.

4. d

Exercise NASEEM AL BAHR

- Exercise NASEEM AL BAHR is a bilateral **naval exercise** between **Indian Navy** Royal Navy of **Oman**.
- It was held at **off Goa's coast** in the Indian Ocean region.
- The exercise was conducted in two phases and as part of harbour activities, personnel from both Navies engaged in professional interactions, including Subject Matter Expert Exchanges and planning conferences.
- In addition, sports fixtures and social engagements were also held.
- The exercise included gun firings at surface inflatable targets, close-range anti-aircraft firings, maritime manoeuvres, and Replenishment at Sea Approaches (RASAPS).
- The Chetak helicopter embarked on-board INS Trikanth undertook cross-deck landings and

vertical replenishment with the Omani naval ship, RNOV Al Seeb.

5. b

Parana River, Murray-Darling River, Mackenzie River & Klein River

- **Parana River** – of **South America** is the second longest river after the Amazon in South Africa.
- It rises on the plateau of southeast-central Brazil and flows generally south to the point where, after a course of 4,880 km, it joins the Uruguay River.
- **Murray-Darling River** – Is in **Australia's** south-east.
- The basin is a system of interconnected rivers and lakes
- **Mackenzie River** – Is a major river system in the drainage pattern of north-western **North America**.
- Its *basin is the largest in Canada*, and it is exceeded on the continent only by the Mississippi-Missouri system.
- **The Klein River** – Originates as the Hartebees River, 300 metres above mean average sea level on the northern slopes of the Kleinriver Mountain range.
- It is one of the smallest rivers in **Africa**.

22-10-2024

1) Consider the following statements with respect to Public Land Protection Cell (PLPC)

1. These cells receive complaints on encroachments of rural common lands and resolve such disputes and restore the resources to the gram sabha.
2. It aids in reducing the financial burden of the citizens by allowing them to access legal recourse at a much cheaper cost.
3. They are headed by the district collector.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to Satellite Spectrum

1. Unlike terrestrial spectrum, satellite spectrum has no national territorial limits.
2. It is internationally coordinated by the International Telecommunication Union.
3. The spectrum is non-exclusive and can be shared by multiple satellite operators in the same geographical area.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

3) Which of the following places are situated in the union territory of Ladakh?

1. Depsang Plains
2. Demchok Region
3. Galwan Valley
4. Pangong Tso
5. Daulat Beg Oldie

Select the correct answer using the code given below:

- a. Only two
- b. Only three
- c. Only four
- d. All five

4) *Caenorhabditis Elegans*, sometimes seen in the news recently, is associated with?

- a. A free-living transparent nematode that lives in temperate soil environments.
- b. An amphibian that has the ability to retain juvenile or larval traits as adults.
- c. An exotic seaweed species native to Indo-Pacific Ocean.
- d. A substance extracted from seaweeds for thickening or emulsifying agent in food products.

5) Consider the following statements:

1. Egypt is the first African country to officially declare 'malaria-free' by the World Health Organization (WHO).
2. India is not malaria free, but it has made significant progress in reducing the burden of malaria.

Which of the statements given above is/are correct?

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

Answers

1. c

Public Land Protection Cell (PLPC)

- **Common lands** are natural resources that are used collectively by a community, such as forests, pastures, ponds and 'wastelands'.
 - **Significance of common lands** – They act as a resource base for non-cash, non-market economies that provides fodder, fuelwood, water, oils, fish and medicinal herbs.
 - A wide variety of fruits and vegetables to the local communities.
 - Various studies estimate that common lands contribute between 12 and 23% to rural household incomes.
 - They also capture carbon, act as repositories of biodiversity, and relics of indigenous knowledge.
 - **Issues** – India's common lands have been steadily declining.
 - Grazing lands alone faced a 31% loss in total area between 2005 and 2015.
 - The pressures from rapid industrialisation, over-utilisation, and more perceivable 'productive' land uses like agriculture, infrastructure and extraction are driving the change in the landscape.
 - India's clean energy transition is the latest addition to the mix.
 - Common lands are also vulnerable to encroachments and private expropriation as tenure is less likely to be legally recognised in common lands than in private lands.
- Fuzzy boundaries that lead to costly and incomplete enforcement and overlapping land and property laws compound this issue.
 - **Measures** – In the case titled *Jaggal Singh & Ors vs State of Punjab & Ors*, the court recognised the socio-economic importance of common lands and directed state governments to prepare schemes for speedy removal of encroachments.
 - The lands were then to be restored to the gram panchayat for the common use of the village.
 - It also served as an inflection point for lower courts to develop jurisprudence over common lands in the country.
 - **Only in two states** – Common lands cover 36% and 37% of the total land area of Rajasthan and Madhya Pradesh respectively.
 - To ensure dignity, security and livelihoods for millions of rural people.
 - Since the state courts have been inundated with public interest litigations over their encroachments.
 - In *Jaggal Singh judgement*, the Rajasthan High Court in 2019 and the Madhya Pradesh High Court in 2021 directed the respective state governments to establish permanent institutions known as public land protection cells (PLPCs).
 - **Public Land Protection Cell (PLPC)** – These cells receive complaints on encroachments of rural common lands, follow the due process of law to resolve such disputes and restore the resources to the gram sabha or gram panchayat.
 - PLPCs have been constituted in each district of the **two states** (Rajasthan and Madhya Pradesh) and are headed by the district collector.
 - These institutions are a welcome intervention when more than two-thirds of India's court litigations relate to land or property and most land conflicts relate to common lands.
 - At a PLPC, communities can defend their common lands by making a direct representation and avoid navigating through the complex land legislations.
 - This **reduces** the need to engage professional legal assistance or pay **court fees** and thus allows a larger section of the population to access legal recourse at a much cheaper cost.
 - By institutionalising an alternative mechanism for dispute resolution, lengthy and costly court

battles can be avoided and the judicial workload can be lowered.

- At present, *the high courts only entertain cases where PLPCs do not intervene*, which assumes the role of a watchdog allows the judicial processes to monitor conduct and ensure accountability of these cells.

Land is a subject that comes under the purview of the states

- Common lands are legally classified as a subset of 'government lands', unless the ownership of a governmental department (such as the forest department) is already established.
- To achieve responsive governance of common resources, the effectiveness of a top-down rule of law approach, which puts encroachments at the centre stage, needs to be evaluated.

2. c

Spectrum for Satellite Communication (SATCOM)

- Satellite spectrum refers to a special range of radio frequencies used by satellites to communicate, enabling high-speed internet access even in remote areas where ground-based networks are less reliable.
- It operates between 1.5 and 51.5 gigahertz (GHz) and this spectrum is essential for delivering fast broadband services.
- Spectrum for SATCOM is part of the first schedule of The Telecommunications Act, 2023 ("Assignment of spectrum through administrative process").
- Under Section 4(4) of the Act, telecom spectrum shall be assigned through auction "except for entries listed in the First Schedule for which assignment shall be done by administrative process".
- "Administrative process" under the Act "means assignment of spectrum without holding an auction", and "auction" means a bid process for assignment of spectrum".
- Unlike terrestrial spectrum, satellite spectrum has **no national territorial limits**.
- It's **internationally coordinated by the ITU (International Telecommunication Union)**.
- The spectrum is non-exclusive and can be shared by multiple satellite operators in the same geographical area.

- **Administrative Allocation vs. Auction** – Most countries prefer administrative allocation over auctions.

- India has recently clarified it will use administrative allocation under The Telecommunications Act, 2023.

- **The reasons for Auctions being less suitable** – The international nature of satellite spectrum makes national auctions impractical.

- The spectrum is shared rather than exclusive.

- Technical coordination needs to happen at an international level

- **Benefits** – SATCPM services use an array of satellites in orbit to provide connectivity on the ground.

- They do not require wires to transmit data, and are an alternative to ground-based communication, called terrestrial networks, such as cable, fibre, or digital subscriber line (DSL).

- Wider coverage and a more resilient network.

- **Potential market in India** – Expected to grow from 2.3 Billion USD to 20 Billion USD by 2028.

- Could serve 290.4 Million users which are currently unconnected households in India.

3. d

India China Border Agreement

- The India-China border agreement is a significant step towards resolving the military standoff along the Line of Actual Control (LAC) in eastern Ladakh.

- The key points of the agreement include:

- **Restoration of patrolling rights** – India and China have agreed to restore patrolling rights to each other in the Depsang Plains and Demchok region.

- This means that Indian troops can patrol up to patrolling point (PP) 10 to 13 in the Depsang Plains, and in Charding Nullah of Demchok.

- **No changes at other friction points** – The situation at the other friction points in Galwan Valley and Pangong Tso, where disengagement of troops was achieved two years ago with the creation of buffer zones will remain the same.

- **Patrolling coordination** – Patrolling in the agreed areas will be carried out along the LAC

as it was perceived before 2020, at a frequency of twice a month.

- The two sides will exchange patrol programs and coordinate to avoid any clashes.
- **Confidence-building measures** – India and China will continue with confidence-building measures to reduce the trust deficit, including CO/Commander level meetings on a monthly basis.
- **Hope for diplomatic ties** – The agreement has rekindled hopes of early restoration of diplomatic and bilateral political ties.
- The Depsang Plains and Charding Nullah are significant areas because they were previously inaccessible to Indian troops due to Chinese restrictions.
- The agreement to restore patrolling rights in these areas is a major breakthrough.
- Overall, the India-China border agreement is a positive development that could lead to further de-escalation and de-militarization along the LAC.
- The places situated in the union territory of Ladakh are:
 1. Depsang Plains
 2. Demchok Region
 3. Galwan Valley
 4. Pangong Tso
 5. Daulat Beg Oldie



4. a

Caenorhabditis Elegans

- *Caenorhabditis elegans* is a *microscopic roundworm* that has revolutionized biological research.
- This 1 mm-long organism has become one of the most important model organisms in scientific history, leading to multiple Nobel Prize-winning discoveries.
- **Characteristics:**
 - Free-living nematode (roundworm)
 - Length: Approximately 1 millimeter
 - Lifecycle – 3-5 days from egg to adult
 - Transparent body
 - Primarily hermaphroditic with rare males
- **Historical Significance** – First multicellular organism to have:
 - Complete genome sequenced
 - Entire neural wiring mapped
 - Cell lineage traced from fertilized egg to adult
- **Nobel Prize Contributions:**
- **Nobel Prize in Physiology/Medicine, 2002** – Discoveries in genetic regulation and understanding organ development and cell death
- **Nobel Prize, 2006** – RNA interference discovery and gene silencing by double-stranded RNA.
- **Nobel Prize in Chemistry, 2008** – Green Fluorescent Protein (GFP) research and development of vital research tools.
- **Scientific Importance:**
- **Genome Features:**
 - 97 million base pairs.
 - Approximately 20,000 genes.
 - 40% genes have human homologs.
 - 12 linear chromosomes.
- **Research Applications:**
 - Aging research
 - Neurobiology
 - Disease modelling

- Drug screening
- **Recent Discoveries:**
- **Transgenerational Learning:**
 - Drug screening
 - Can inherit learned behaviours up to 4 generations
 - Involves small RNA (sRNA) mechanisms
 - Relevant to understanding epigenetic inheritance
- **Neurological Studies:**
 - Complete neural map (connectome)
 - 302 neurons
 - Approximately 7000 synaptic connections
 - Model for neural circuit studies
- **Medical Applications**
- **Disease Research**
 - Alzheimer's disease
 - Parkinson's disease
 - Cancer
 - Aging processes
 - Developmental disorders
- **Drug Development**
 - Rapid screening of compounds
 - Testing drug effects
 - Understanding drug resistance
- **Shared Characteristics with Humans**
- **Biological Processes**
 - Cell division
 - Cell death (apoptosis)
 - Neural signalling
 - Aging mechanisms
- **Genetic Similarities**
 - Many conserved genes
 - Similar protein functions

- Comparable cellular pathways

5. c

Malaria

Egypt recently became the 2nd country in 2024 to be declared 'malaria-free'.

- Malaria is a life-threatening disease caused by a parasite that is spread to humans by the bite of infected mosquitoes.
- Malaria is as old as Egyptian civilization itself, but the disease that plagued the pharaohs now belongs to its history and not its future.
- Egypt was officially declared 'malaria-free' by the World Health Organization (WHO) recently.
- Egypt is the 5th African nation to receive 'malaria-free' certification from the World Health Organization, bringing the total number of certified **malaria-free countries and territories to 44**.
- In 2024, the country became the second country in the world, following **Cabo Verde**, to be officially declared malaria-free this year.
- Egypt is the 3rd country within the WHO Eastern Mediterranean Region to receive malaria-free certification, achieving this milestone in the region after 14 years.
- India is not malaria free, but it has made significant progress in reducing the burden of malaria.
- WHO declares a nation as a 'malaria-free' upon receiving valid proof that the Anopheles mosquito-borne native malaria transmission chain has been broken for at least the previous three years on a national level
- A country must also demonstrate the capacity to prevent the re-establishment of transmission.
- In June 2024, the WHO confirmed that there was no local transmission of malaria in Egypt, with all identified cases being imported from endemic countries.
- **Measures taken by Egypt** – Egypt's robust surveillance system was instrumental in early case detection, facilitated by collaboration with relevant stakeholders.
- In 2016, Egypt established a *High Committee for Integrated Vector Management* to enhance coordination among ministries in fighting vector-borne diseases.

- To prevent malaria's return, Egypt maintains strict surveillance, cross-border partnerships, and robust vector control.
- Egypt provides free access to essential health services for migrants, regardless of their legal status.

23-10-2024

1) Consider the following statements with respect to Confirmed Candidate Species (CCS)

1. CCS is a taxonomic unit that has been identified through research as likely being a distinct species, but hasn't yet received formal scientific description and naming.
2. Northern King Cobra can be found in Pakistan and China.

Which of the statements given above is/are correct?

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

2) Consider the following statements with respect to Candy Leaf

1. Candy Leaf is a plant recognized for its natural non-caloric sweetening characteristics.
2. It has therapeutic properties for diseases like endocrine, metabolic, immune and cardiovascular diseases, because of its effect on cellular signalling systems.

Which of the statements given above is/are correct?

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

3) Consider the following statements with respect to Schizophrenia

1. It is one of the most serious of all psychiatric disorders.
2. It has life-changing consequences, including social isolation, stigma, and diminished prospects of finding a partner.

3. Cobenfy is the first antipsychotic drug to treat schizophrenia by targeting cholinergic receptors instead of dopamine receptors

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

4) Consider the following statements:

1. Geoengineering refers to any large-scale attempt to alter the Earth's natural climate system to counter the adverse impacts of global warming.
2. Under Direct Air Capture (DAC) methods, carbon dioxide is sucked out through large "artificial trees" from ambient air and directed towards storage sites or utilisation.

Which of the statements given above is/are correct?

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

5) *Anguiculus dicaprioi*, sometimes seen in the news recently, is associated with?

- a. A species of Bamboo which can be used as reusable straw.
- b. A species of snake in the Western Himalayas.
- c. A Nano compound that has ability to trace counterfeit currency.
- d. A species of dancing frogs.

Answers

1. c

Confirmed Candidate Species (CSS)

- A Confirmed Candidate Species is a taxonomic unit that has been identified through research as likely being a distinct species, but hasn't yet received formal scientific description and naming.
- These are organisms that *show clear evidence of being separate species based on multiple lines of evidence*, such as genetic analysis,

morphological differences, or ecological distinctions.

- The journey from discovery to formal species typically follows **3 stages**:
 1. Unconfirmed Candidate Species (UCS)
 2. Confirmed Candidate Species (CCS)
 3. Formal Species Description
- **Unconfirmed Candidate Species (UCS)** – Initial detection of possible new species and based on preliminary evidence.
- The species requires further investigation.
- **Confirmed Candidate Species (CCS)** – Strong evidence supports species distinction.
- Multiple lines of evidence corroborate separation and ready for formal description.
- Given temporary identification codes.
- **Formal Species Description** – Official scientific name assigned and detailed description published.
- Type specimens designated and added to formal taxonomic records
- **Importance in Modern Taxonomy** – The CCS concept is particularly valuable because it:
 - Helps manage the "taxonomic impediment" (the gap between species discovery and formal description).
 - Allows researchers to discuss and study distinct organisms before formal naming.
 - Facilitates conservation efforts for unique populations.
 - Provides a framework for systematic species investigation.
- **Real-World Example** – The recent reclassification of king cobras provides an excellent example of how CCS works in practice:
 - In 2021, researchers identified four geographically separate lineages as CCS.
- These candidate species showed distinct characteristics based on:
 - Geographic distribution
 - Morphological differences

- Genetic analysis

- By 2024, these CCS were formally described as **four distinct species**, which include:
 0. Northern King Cobra (*Ophiophagus hannah*)
 1. Sunda King Cobra (*Ophiophagus bungarus*)
 2. Western Ghats King Cobra (*Ophiophagus kaalinga*)
 3. Luzon King Cobra (*Ophiophagus salvatana*)
- **Northern King Cobra (*Ophiophagus hannah*)** – Original species named by Cantor in 1836.
- **Range** – Pakistan to China, including northern India, Nepal, Bhutan, Tibet, and Indo-China.
- **Type locality** – Near Kolkata, India.
- **Sunda King Cobra (*Ophiophagus bungarus*)** – Found south of the Kra isthmus.
 - **Range** – Southern Thailand, Malaysia, Singapore, Indonesia (Sumatra, Borneo, Java, Bali) and southern Philippines.
- **Western Ghats King Cobra (*Ophiophagus kaalinga*)** – A new endemic species.
 - **Range** – Western Ghats of India (Tamil Nadu to Maharashtra).
 - Named for its dark coloration ("kaalinga" in Kannada).
 - Found in mid-elevation rainforests (500-900m) up to 1800m.
- **Luzon King Cobra (*Ophiophagus salvatana*)** – Endemic to Luzon island, Philippines.
 - Named after the Tagalog word for king cobra
- **Conservation Impact** – Especially crucial for endemic species (Western Ghats and Luzon).
- Helps focus conservation efforts on specific populations.
- Addresses threats like habitat destruction and poaching.
- **Medical Significance** – Could improve snakebite treatment.

- May lead to better understanding of venom variations.
- Important for developing region-specific anti-venom.

2. c

Candy Leaf (Stevia rebaudiana (Bertoni) Bertoni)

According to a new study, Candy Leaf has therapeutic properties due to its effect on cellular signalling systems.

- Candy Leaf (Stevia rebaudiana (Bertoni) Bertoni) a *plant recognized for its natural non-caloric sweetening characteristics.*
- It also has *therapeutic properties for diseases* like endocrine, metabolic, immune and cardiovascular diseases, because of its *effect on cellular signalling systems.*
- *Assam exports Stevia worldwide* and the North Eastern Council also highlighted stevia cultivation's potential to help the northeast Indian economy due to high demand and use.
- Stevia suppresses Protein Kinase C (PKC) phosphorylation, which alters downstream pathways that cause inflammation, a significant cause of endocrine metabolic and cardiovascular issues.
- This study shows Stevia's promise in this field for the first time.
- The study also found that active stevia molecules strongly interact with AMPK, highlighting the need for additional research.

3. c

Schizophrenia

The U.S. Food and Drug Administration (FDA) has recently approved a drug called Cobenfy to treat schizophrenia.

- Schizophrenia is a *chronic brain disorder*, being one of the most serious of all psychiatric disorders.
- It has life-changing consequences, including social isolation, stigma, and diminished prospects of finding a partner.
- **Symptoms** – Delusions, hallucinations, disorganized speech, trouble with thinking and lack of motivation.
- **Causes** – It is not a single cause has been identified for the schizophrenia.

- It is thought that an interaction between genes and a range of environmental factors may cause schizophrenia.
- Psychosocial factors may also affect the onset and course of schizophrenia.
- *Heavy use of cannabis* is associated with an elevated risk of the disorder.
- **Disease Impact** – It affects 1% of population lifetime prevalence and reduces life expectancy by 13-15 years.
- *5% suicide rate* and more common in men.
- Typically develops in late adolescence/early adulthood.
- **Treatment** – With treatment most symptoms of schizophrenia will greatly improve and the likelihood of a recurrence can be diminished.
- **Cobenfy** – The U.S. Food and Drug Administration (FDA) has recently approved a drug called **Cobenfy to treat schizophrenia.**
- It is a combination of xanomeline and trospium chloride that has a novel mechanism of action that steers clear of older drugs' side-effects, too.
- It has side-effects of its own, of course.

4. c

Geoengineering

A new study has argued that spraying millions of tonnes of diamond dust in the Earth's upper atmosphere every year could help cool down the Earth and combat global warming.

- Geoengineering refers to any large-scale attempt to alter the Earth's natural climate system to counter the adverse impacts of global warming.
- The **examples** of geoengineering include:
- Spraying millions of tonnes of diamond dust in the Earth's upper atmosphere every year could help cool down the Earth and combat global warming.
- Several other compounds, such as sulphur, calcium, aluminium, and silicon, have been suggested previously for doing the same job.
- The installation of space-based mirrors has also been proposed.
- **Solar Radiation Management (SRM)**, in which materials are proposed to be deployed in Space

to reflect incoming solar rays and prevent them from reaching Earth.

Solar geoengineering refers to proposed approaches to cool the Earth by reflecting solar radiation back to space.

- Carbon Dioxide Removal (CDR) technologies include *Carbon Capture and Sequestration (CCS)* which offer quick-fix solutions for reducing emissions or temperatures, they are not particularly viable.
- The only method being tried out in practice is CCS.
- Carbon dioxide emitted, from industry or power plants, is “captured” at source and deposited deep below the Earth’s surface in suitable geological formations for long-term storage.
- Since carbon dioxide is not released into the atmosphere, overall emissions are reduced.
- Another option involves the captured carbon being used as an input for other industrial processes (known as Carbon Capture and Utilisation or CCU).
- In **Carbon Capture**, Utilisation and Storage (CCUS), some carbon dioxide is utilised and the rest is stored underground.
- Under *Direct Air Capture (DAC) methods*, carbon dioxide is sucked out through large “artificial trees” from ambient air and directed towards storage sites or utilisation.
- Since these methods can potentially eliminate carbon dioxide accumulated over the years, the benefits are larger compared to CCS.

5. b

Anguiculus Dicaprio

A new snake species recently found in Western Himalayas is named after Hollywood star Leonardo DiCaprio

- Anguiculus dicaprio Di or Caprio’s Himalayan snake is a colubrid snake that has been named after DiCaprio (Hollywood Actor) for his efforts to create awareness about biodiversity loss.
- Anguiculus dicaprio is a member of the Colubridae, the largest family of snakes on the planet with 304 genera and 1,938 species.
- They account for almost 2/3rd of all living snakes in the world.
- Features – Dozens of teeth is “small sized”, growing to around 22 inches.

- It has a “broad collar with small dark brown spots”, a “robust skull”, and a “steeply domed snout”.
- They live at heights of around 6,000 feet above sea level.
- **Range** – Found in Chamba, Kullu and Shimla in *Himachal Pradesh*, Nainital in **Uttarakhand** and Chitwan National Park in **Nepal**.
- The snake resembled **Liopeltis rappi**, a species known to be found in the eastern Himalayas.

24-10-2024

1) Consider the following statements with respect to 'Shadow Fleet' in the context of International Shipping

1. It exclusively refers to vessels involved in illegal trade of sanctioned goods.
2. The practice of changing flags of convenience (FoCs) is primarily associated with shadow fleets.
3. Classification societies like Indian Register of Shipping (IRS) are legally prohibited from certifying such vessels.

Select the correct answer using the code given below:

- a. 1 only
- b. 2 only
- c. 2 and 3 only
- d. None of the above

2) Consider the following statements:

1. Right to Information Act, 2005 mandates timely response to citizen requests for government information.
2. India's first Right to Information (RTI) museum is being established in Beawar, Rajasthan.
3. RTI Portal Gateway is an initiative by Ministry of Personnel, Public Grievances and Pensions.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

3) Consider the following statements:

Statement-I: A dry port provides a logistics facility away from a seaport or airport for cargo handling, storage and transportation.

Statement-II: Inland container depot (ICD) acts as a bridge between sea/air ports and inland regions, facilitating efficient movement of goods.

Select the correct answer using the codes given below:

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement-II is incorrect
- Statement-I is incorrect but Statement-II is correct

4) Colopus arkavathi, sometimes seen in the news recently, belong to?

- Spider species
- Frog species
- Butterfly species
- Bird species

5) Consider the following statements:

- Both antelopes and deer are hoofed animals but they belong to different families.
- Antelopes have antlers that grow and shed each year, while deer have horns that are permanent.
- Antelopes are more diverse and found in Africa and Asia, while deer are found worldwide.

How many of the statements given above are correct?

- Only one
- Only two
- All three
- None of the above

Answers

1. d

Shadow Fleet

- The term 'shadow fleet' is a media term for vessels trading with sanctioned countries through **legal and complex ownership structures**.
- Merchant ships** – Greece owns the largest share (20%) of global merchant shipping fleet.
- China has surpassed Japan to become the second-largest owner of merchant ships.
- Most ships are built and repaired in China, Japan and South Korea.
- Marine insurance and shipping regulations** - Are primarily controlled from European countries.
- An insurance type called Protection and Indemnity (P&I) covers loss of life and damage to property. These P&I insurance firms form 'clubs' to pool the risk.
- Flag states** – Ships are registered in particular nations called flag states as they fly that country's flag.
- Flag states were meant to indicate the origins of the ship.
- Flags of Convenience (FoCs) – FoCs are a **general shipping practice not exclusive to shadowfleets**.
- Classification societies** – Can legally certify vessels based on safety parameters regardless of ownership.
- Certify ship structures and machinery for safety of life at sea and marine pollution, facilitating insurance cover for these.
- Indian Register of Shipping (IRClass)** – Is an international ship classification society providing ship **classification and certification** as well as technical inspection services.
- In recent times the IRS (Indian Register of Shipping) saw more ships coming for safety certificates.
- This made some people suspect India was helping Russia avoid sanctions.
- Western countries are claiming India is helping Russia bypass sanctions through shipping practices.

2. c

Right to Information Museum

The foundation stone for a people's Right to Information museum was recently laid at Beawar of Rajasthan, the birthplace of the RTI movement.

- The Right to Information (RTI) is an act of the Indian Parliament that gives citizens the right to access information held by public authorities.
- The RTI Act of 2005 replaced the Freedom of Information Act of 2000.
- Right to Information Act, 2005 mandates timely response to citizen requests for government information.
- RTI Portal Gateway is an initiative by Ministry of Personnel, Public Grievances and Pensions.
- **Right to Information Museum** – It is situated in the Beawar, Rajasthan (birthplace of RTI movement).
- **Museum's Purpose:**
 - Document RTI movement's history.
 - Resource center for rights-based movements.
 - Archive for MKSS documents and materials.
 - Central repository for related film footage.
- **Historical Significance of Beawar** – In 1996, 40-day dharna by Mazdoor Kisan Shakti Sangathan (MKSS) demanding RTI law.
- It led to Rajasthan RTI Act, 2000 and National RTI Act, 2005.
- In 2016, RTI memorial established at Chang Gate.
- In June 2023, Stone slab with Constitution's Preamble laid for museum.

3. b

Dry Port

Bihar Industry minister Nitish Mishra recently inaugurated the state's first dry port at Bihta, a town near state capital Patna.

- A dry port, also known as inland container depot (ICD), provides a logistics facility away from a seaport or airport for cargo handling, storage and transportation.
- ICD acts as a bridge between sea/air ports and inland regions, facilitating efficient movement of goods.

- **Features** – It is connected by railways to gateway ports of Kolkata and Haldia in West Bengal, Visakhapatnam in Andhra Pradesh, Nhava Sheva in Maharashtra, Mundra in Gujarat, among others.
- It can *handle customs clearance procedures*, reducing congestion at seaports/airports.
- It caters the entire eastern India, ICD Bihta can help neighbouring states of Jharkhand, Uttar Pradesh and Odisha.

Inland Container Depot, Tughlakabad situated at Delhi is India's biggest dry port.

- **Public-Private Partnership (PPP)** – It is being run in a Public-Private Partnership (PPP) mode by Pristine Magadh Infrastructure Private Limited and the state industry department.
- **Export to Russia** – The first consignment exported from the dry port was of leather shoes, which were sent to Russia.
- **Need for ICD** – Bihar exports items mainly agro-based, garments and leather products that are manufactured in diverse locations.
- To streamline cargo handling and transportation, lowering transportation costs, and securing storage and handling.
- Bihar is a major producer of fruits and vegetables such as potato, tomato, banana, litchi and makhana (fox nuts).
- It also has significant export capacities of maize (with 11 of 38 Bihar districts focussing on maize production), sponge iron, packed food, waste paper, newsprint, rice and meat.

4. a

Colopsus Arkavathi

- Colopsus Arkavathi is a new **jumping spider species** that was recently discovered near the Arkavathi River in the foothills of Nandi Hills, **Karnataka**.

The Arkavathi River originates at Nandi hills in Chikkaballapura district of Karnataka. It is a tributary of the Kaveri.

- The species belongs to the rare Genus Colopsus, under the larger Salticidae family.
- Only 2 species were previously identified in India from this genus.
- These spiders live on the ground and they like to stay in areas with short grass and fallen leaves.

- They've been found in several places in South India.

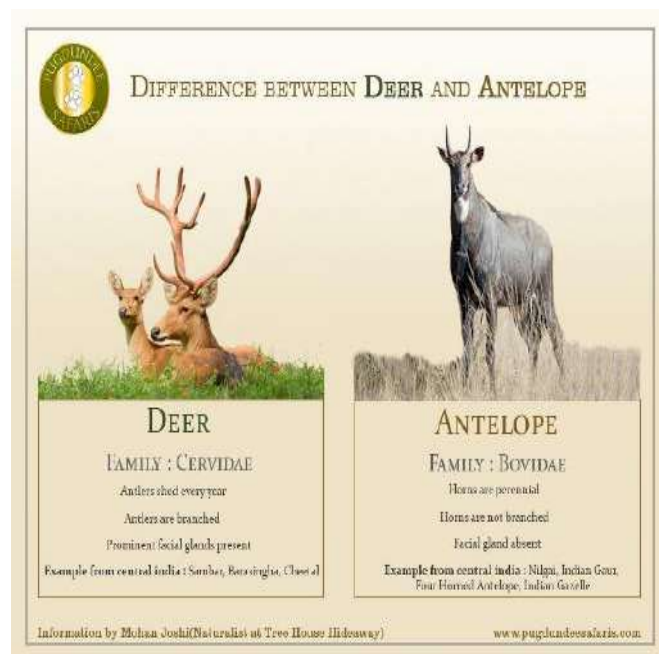


5. b

Antelope and Deer

- **Antelope** – Is any hoofed mammals belonging to the family Bovidae (order Artiodactyla).
- Antelopes account for over 2/3rd of the approximately 135 species of hollow-horned ruminants (cud chewers) in the family Bovidae, which also includes cattle, sheep, and goats.
- Antelopes have adapted to many different ecological niches and so vary in their size, shape, locomotion, diet, social organization, and antipredator strategy.
- **Deer** – Are in the Cervidae family, while antelopes belong to the Bovidae family, which also includes animals like cattle and goats.
- **Taxonomy** – Both antelopes and deer are hoofed animals (called "artiodactyls"), but they belong to different families.

Threats	Facing challenges due to hunting, habitat loss, and competition with livestock.	Similar to Antelope that include hunting, habitat loss, and competition with livestock.
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25-10-2024

1) Consider the following statements with respect to Environmental Ship Index (ESI)

1. The ESI evaluates the amount of nitrogen oxide, sulphur oxide that is released by a ship.
2. Harit Shrey scheme offers port fee discounts based on ESI ratings of commercial ships.
3. Visakhapatnam Port is India's first port to introduce Green Ship Incentives through the ESI.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to Meteorites

1. Meteorites are rocks that are still in space and its range in size from dust grains to small asteroids.
2. Stony meteorites are the most common types of meteorite.

Characteristics	Antelope	Deer
Horns and Antlers	Male deer have antlers , which are branches that they shed and regrow year .	Antelopes have permanent horns that don't shed, and they are usually smooth and unbranched.
Habitats	Most antelopes live in Africa and Asia, thriving in various habitats like woodlands, savannahs, and even deserts.	Deer are found worldwide, with significant populations in North America, Europe, Asia, and South America.
Number of Species	<ul style="list-style-type: none"> • 91 species of antelope worldwide. • India has 6 species. 	<ul style="list-style-type: none"> • There are 43 species of deer. • India has 12 types of Deer Species.

3. The largest meteorite found on Earth is the Hoba meteorite discovered in Namibia in 1920.

Select the correct answer using the code given below:

- a. 1 only
b. 1 and 2 only
c. 2 and 3 only
d. 1, 2 and 3

3) Consider the following statements with respect to Foundation for Science, Innovation and Development (FSID)

1. It was set up as Society for Innovation and Development in 1991 being promoted by Indian Institute of Science (IISc).
2. It act as a single window of interaction between IISc and the external world for various types of collaboration.

Which of the statements given above is/are correct?

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

4) Consider the following statements with respect to Giant Salmon Carp

1. It is a species of freshwater fish in the family Cyprinidae and the single species in the monotypic genus *Aaptosyax*.
2. It is endemic to India.

Which of the statements given above is/are correct?

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

5) Consider the following statements with respect to Great Eared Nightjar

1. It is a nocturnal bird that is active at dusk and night.

2. It is native to Southeast Asia's dense forests and has unusual habit of incubating its eggs on the forest floor.

3. It is classified as Least Concern in the IUCN red list.

How many of the statements given above are correct?

- a. Only one
b. Only two
c. All three
d. None of the above

Answers

1. b

Environmental Ship Index (ESI)

Mormugao port recently became India's pioneering port to implement Green Ship Incentives under the ESI.

- Environmental Ship Index (ESI) identifies seagoing ships that perform better in reducing air emissions than required by the current emission standards of the International Maritime Organization.
- The ESI **evaluates** the amount of **nitrogen oxide (NOX), sulphur oxide (SOX)** that is released by a ship and includes a reporting scheme on the greenhouse gas emission of the ship.
- The ESI is a good indication of the environmental performance of ocean-going vessels and will assist in identifying cleaner ships in a general way.
- All stakeholders in maritime transport can use the ESI as a means to improve their environmental performance and as an instrument to reach their sustainability goals.

Environmental Ship Index (ESI) is one of the projects within World Port Sustainability Program (WPSP), founded by International Association of Ports and Harbours in 2018.

The World Ports Sustainability Program aims to enhance and coordinate future sustainability efforts of ports worldwide and foster international cooperation with partners in the supply chain.

- **Mormugao Port – Is India's first port to introduce Green Ship Incentives through the ESI, aligning with global efforts to reduce air emissions in shipping. (Statement 3 is incorrect)**

- Mormugao Port Authority has gained global recognition by being listed as an incentive provider on the Environment Ship Index (ESI) portal, acknowledged by the International Association of Ports and Harbours (IAPH).
- This achievement highlights the port's commitment to promoting environmentally friendly practices for seagoing vessels.
- Mormugao stands out in Asia alongside Japan and Oman, which also offer similar incentives.
- **Harit Shrey** – Is a scheme that was launched in October 2023 that **offers port fee discounts** based on ESI ratings of commercial ships.
- The “Harit Shrey” initiative has provided benefits to numerous vessels, encouraging eco-friendly practices.

2. c

Meteorites

- **Meteoroids** – These rocks still are in space. Meteoroids range in size from dust grains to small asteroids.
- **Meteors** – When meteoroids enter Earth's atmosphere (or that of another planet, like Mars) at high speed and burn up, the fireballs or “shooting stars” are called meteors.
- **Meteorites** – When a meteoroid survives a trip through the atmosphere and hits the ground, it's called a meteorite.

The largest meteorite found on Earth is the Hoba meteorite discovered in Namibia in 1920.

- Only when a fireball reaches Earth's surface is it called a meteorite.
- *Asteroids are the primary sources of meteorites.*
- Most asteroids reside in a dense belt between Mars and Jupiter.
- They are commonly designated as **3 types**:
 1. Stony meteorites
 2. Iron meteorites
 3. Stony-iron meteorites
- **Stony meteorites** are made up of minerals that contain silicates—material made of silicon and oxygen.
- They also contain some metal—nickel and iron.
- There are 2 major types of stony meteorites:

1. Chondrites

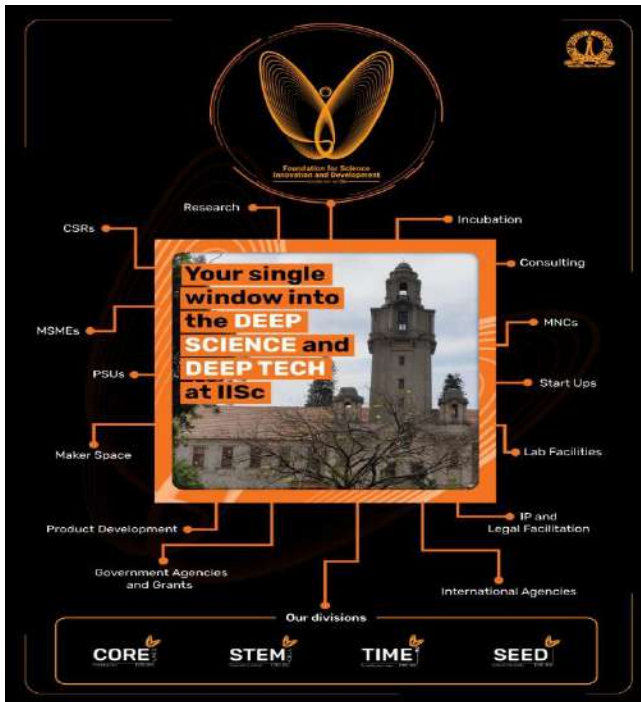
2. Achondrites

- The most common meteorites are the chondrites, which have round objects inside that appear to have formed as melt droplets.
- **Chondrites comprise 85% of all meteorites found on Earth.**
- Ordinary chondrites are then divided into 3 broad classes such as H, L and LL, based on the iron content of the meteorites.
- The distribution of iron and magnesium in the major minerals olivine and pyroxene.
- These silicate minerals are the mineral building blocks of our Solar System and are common on Earth, being present in basalt.
- **Carbonaceous chondrites** are a distinct group.
- They contain high amounts of water in clay minerals, and organic materials such as amino acids.
- Chondrites have never been melted and are direct samples of the dust that originally formed the solar system.

3. c

Foundation for Science, Innovation and Development (FSID)

- The origins of FSID go back to 1991 when SID (Society for Innovation and Development) was set up in close collaboration with IISc within its sylvan, historic campus.
- At inception, its mission was to use the incredible repository of knowledge, world class infrastructure and talent present within IISc to help business enterprises and thereby the economy and the nation at large.
- Foundation for Science Innovation and Development (FSID) was incorporated on 8th August 2020 as a Section 8 Company under the Companies Act, 2013.
- It acts a single window of access for all stakeholders to the deep science and deep tech knowledge within IISc.
- It provides a 360 degree set of offerings that facilitates the delivery of its objectives.
- FSID is promoted by Indian Institute of Science and was incorporated to further this original mission.



4. a

Giant Salm on Carp

Giant Salmon Carp is a huge fish in the Mekong River thought to be extinct has been spotted three times in recent years.

- The giant salmon carp is a predatory fish can grow up to 4 feet in length, and has a conspicuous knob at the tip of its lower jaw.
- A striking patch of yellow surrounds its large eyes.
- It is a species of freshwater fish in the family Cyprinidae and the single species in the monotypic genus Aaptosyax.
- **IUCN Red List Status** – Critically Endangered (CR).
- Giant salmon carp is a powerful reminder of the rich biodiversity still present in the Mekong River.
- **It is not endemic to India.**
- Significance – The Mekong is like a "fish superhighway".
- It produces over 2 million tons of fish yearly, worth more than \$10 billion.
- It supports about 40 million people who depend on its fish
- Of its 1,100 plus fish species, 25% are found nowhere else on Earth.

- **Threats** – Habitat degradation, overfishing and dam construction have caused widespread harm to the river and its species.
- Climate change poses a new and growing threat, as the region faces more prolonged drought and more severe floods.
- To address these issues, scientists are calling for a comprehensive, multi-faceted conservation strategy.

5. c

Great Eared Nightjar (*Lyncornis macrotis*)

- The Great Eared Nightjar is one of the most mesmerizing creatures, due to its striking resemblance with a mythical dragon, especially when perched.
- The name 'nightjar' comes from the bird's nocturnal habits and the fact that its calls are often described as jarring.
- They belong to a small group of eared nightjars within the larger nightjar family Caprimulgida.
- **Appearance** – They have large, forward-facing eyes, big head and intricate patterning of brown, black and grey on its feathers.
- **Features** – Nightjars are well known for their silent flight, which is due to the structure of their feathers.
- Since they are nocturnal, they fly at dusk or dawn to search for food.
- They lay the eggs directly on the forest floor.
- **Range** – They can be found from parts of India and Sri Lanka to the Malay Peninsula, the Philippines, and Indonesia.
- It is native to Southeast Asia's dense forests.
- **IUCN** – The bird is currently classified as "**Least Concern**" by the International Union for Conservation of Nature (IUCN) Red List.



26-10-2024

1) Consider the following statements with respect to India's Cloud Chamber

1. It is designed specifically to study convection properties of monsoon clouds.
2. It is being established at Indian Institute of Tropical Meteorology, Pune.
3. It is part of the Cloud Aerosol Interaction and Precipitation Enhancement Experiment (CAIPEEX) programme.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to Global Ecosystems Atlas

1. The Global Ecosystems Atlas aims to change how we understand and protect the natural systems that are important for life on Earth.
2. It is developed by the United Nations Environment Programme.
3. It is the first of its kind to focus on mapping and monitoring ecosystems around the world.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

3) Consider the following statements with respect to Pandemic Fund Project

1. It is one of the specific projects funded under the G20 Pandemic Fund.
2. It pools resources from governments, foundations and the private sector.
3. The fund prioritizes low- and middle-income countries, which are often disproportionately affected by pandemics.

Select the correct answer using the code given below:

- a. 1 only

b. 1 and 2 only

c. 2 and 3 only

d. 1, 2 and 3

4) Which of the following are true with respect to the term 'UNNATI'

1. To establish India-specific growth and development standards for children, addressing limitations of existing WHO benchmarks.
2. To promote economic growth and industrialization in the northeast of India.
3. To train participants in assembling, integrating and testing nanosatellites.

Select the correct answer using the code given below:

- a. 1 only
- b. 1 and 2 only
- c. 2 and 3 only
- d. 1, 2 and 3

5) Consider the following statements with respect to Digital Connectivity Rating (DCRA)

1. Only government entities can be accredited as a Digital Connectivity Rating Agency.
2. The rating will be based on the quality of digital connectivity and scores awarded to the assessed properties.
3. Digital Connectivity Rating Agency will be regulated by Telecom Regulatory Authority of India (TRAI).

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

Answers

1. b

India's Cloud Chamber

- Mission Mausam aims to improve weather forecasting in the country and also 'manage' certain weather events, and on demand,

enhance or suppress rainfall, hail, fog and, later, lightning strikes.

- It was launched by the government on September 2024.
- To know more about Mission Mausam [click here](#)
- **Cloud Chamber** – Towards the end of 2024, India is establishing a first-of-its-kind *cloud chamber at the Indian Institute of Tropical Meteorology (IITM), Pune*.
- A cloud chamber resembles a closed cylindrical or tubular drum, inside which water vapour, aerosols and so are injected. Under the desired humidity and temperature inside this chamber, a cloud can develop.
- The Pune facility will allow scientists to study the seed particles that form cloud droplets or ice particles in a sustained manner.
- Many countries have basic cloud chambers, which have limited functionalities and scope to perform specific studies.
- With Mission Mausam, however, India is building a cloud chamber with convection properties, as required to study Indian monsoon clouds.
- India's Cloud Chamber is part of Mission Mausam.
- Globally, there are only a handful of convective cloud chambers.
- **Objective** – To gain a *better understanding of cloud physics under conditions commonly affecting Indian weather systems*.
- This knowledge can be used for strategic planning of weather modification.
- **Need for it** – To study Cloud physics that basically involves:
 - the study of cloud behaviour during normal and extreme conditions,
 - Intra-particle interactions inside a cloud,
 - The formation of rain droplets and ice particles,
 - The influence of moisture added into the atmosphere due to cyclones or low pressure systems and
 - Interactions between different cloud layers, among others.

- **Uses** – Scientists will have the flexibility to tailor physical and atmospheric parameters to suit environmental requirements that influence the Indian weather and climate.
- **Plans for the near future** – Over the next 18-24 months, the Indian team will mainly focus on developing complex and highly advanced instrumentation and probes that will be deployed when the chamber is ready.
- **Cloud Aerosol Interaction and Precipitation Enhancement Experiment (CAIPEEX) programme** – Is an *experiment for cloud seeding* which was conducted in four phases lasting more than a decade.

2. b

Global Ecosystems Atlas

The Global Ecosystems Atlas was recently launched at the 16th Conference of Parties (COP16) of the United Nations Convention on Biological Diversity (CBD) to protect the environment.

- Global Ecosystems Atlas aims to change how we understand and protect the natural systems that are important for life on Earth.
- This tool, **developed by the Group on Earth Observations (GEO), (Statement 2 is not true)**
- It is the first of its kind to focus on mapping and monitoring ecosystems around the world.
- It was launched at the 16th Conference of Parties (COP16) to the United Nations Convention on Biological Diversity (CBD).
- **Features** – The Atlas is like a super-smart environmental tracking system.
- *It uses satellite images, artificial intelligence, and information collected by scientists on the ground* to create detailed maps of nature around the world.
- It is particularly important for addressing major global issues such as loss of biodiversity, climate change and land degradation.
- It's the first time where one can see and understand all these different environments together using the atlas.
- It provides important information about the health and risks facing various ecosystems, which can help governments, businesses, financial institutions and local communities make better decisions for sustainable management.
- **It can be accessed by anyone.**

- Additionally, development banks and financial institutions can utilise the Atlas to inform investments and ensure that projects align with sustainability goals.
- **Working mechanism** – The Atlas combines maps from different countries and fills in missing information using advanced technology.
- It's like taking puzzle pieces from different boxes and making them fit together perfectly.
- This helps us see the bigger picture of how Earth's environments are connected.

3. d

Pandemic Fund Project

The Ministry of Fisheries, Animal Husbandry and Dairying has recently launched the Pandemic Fund Project on "Animal Health Security Strengthening in India for Pandemic Preparedness and Response".

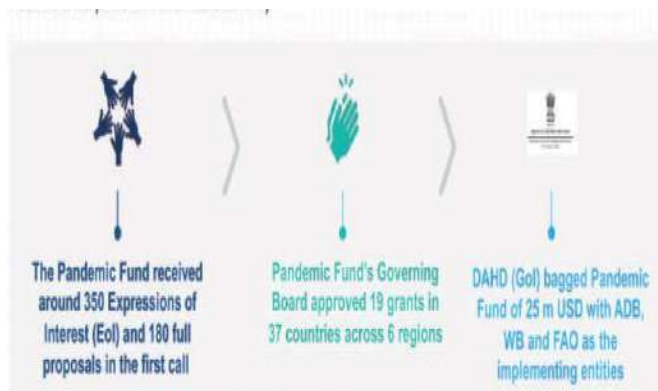
- The Pandemic Fund is a global financing mechanism hosted by the World Bank.
- It pools resources from governments, foundations, and the private sector to finance critical investments in pandemic prevention, preparedness, and response.
- The fund prioritizes low- and middle-income countries, which are often disproportionately affected by pandemics.
- Pandemic Fund Project aims to enhance the country's capacity to prevent, detect, and respond to animal health threats.
- Pandemic Fund Project is *one of the specific projects funded under the G20 Pandemic Fund*.
- **Animal Health Security Strengthening in India for Pandemic Preparedness and Response** – Pandemic Fund Project on “Animal Health Security Strengthening in India for Pandemic Preparedness and Response”.
- It is an initiative by the **Ministry of Fisheries, Animal Husbandry and Dairying**.
- The Animal Health Security Strengthening for Pandemic Preparedness and Response Project is a comprehensive initiative aimed at bolstering India's animal health system.
- It focuses on key areas like surveillance, laboratory infrastructure, human capacity building, and institutional strengthening, the project seeks to mitigate the risk of zoonotic diseases and contribute to overall public health.

- **Key objectives of the project:**
- **Enhance disease surveillance** – Implement advanced surveillance systems, including genomic and environmental surveillance, to detect and track animal diseases early.
- **Upgrade laboratory infrastructure** – Expand and modernize laboratories to facilitate rapid diagnosis and research.
- **Strengthen interoperable data systems** – Develop robust data systems to enable efficient data sharing and analysis for informed decision-making.
- **Build capacity for data analytics** – Improve the ability to analyze data for risk assessment and communication.
- **Enhance health security for transboundary animal diseases** – Strengthen measures to prevent the spread of diseases across borders.
- **Foster regional cooperation** – Collaborate with neighbouring countries to improve regional animal health security.

G20 Pandemic Fund

- G20 Pandemic Fund is a global fund established to finance critical investments to strengthen pandemic prevention, preparedness, and response capacities, primarily in low- and middle-income countries.
- It is a multilateral financing mechanism **hosted by the World Bank**.
- is being implemented through 3 implementing entities:
 1. Asian Development Bank (ADB)
 2. World Bank
 3. Food and Agriculture Organization (FAO)
- The expected completion date of the Implementation of the Pandemic Fund Grant's activities is August 2026.
- The major interventions under the project include:
 - Strengthening and integrating disease surveillance and early warning systems, upgrading and expanding the laboratory network,
 - Improving the interoperable data systems,

- building capacity for data analytics and risk communication, and strengthening health security for transboundary animal diseases
- India's role in regional cooperation through cross-border collaboration.
- The impact of the project would be to reduce the risk that a pathogen will emerge from animals (domesticated and wildlife) and be transmitted to the human population, endangering the health, nutritional security, and livelihoods of vulnerable populations.



4. d

UNNATI Initiative (Upgrading Norms for Nutrition, Growth, and Development Assessment of Indian Children)

- The UNNATI Initiative (Upgrading Norms for Nutrition, Growth, and Development Assessment of Indian Children) was recently launched by the Indian Council of Medical Research.
- It aims to establish India-specific growth and development standards for children, addressing limitations of existing WHO benchmarks.
- **Uttar Poorva Transformative Industrialization Scheme (UNNATI)** – A scheme to promote economic growth and industrialization in the northeast of India.
 - The scheme aims to improve infrastructure, facilitate skill development, and create jobs.
- **UNNATI (UNISpace Nanosatellite Assembly & Training by ISRO)** – A program by the Indian Space Research Organisation (ISRO) to train participants in assembling, integrating, and testing nanosatellites.
- The program is conducted at ISRO's U.R. Rao Satellite Centre (URSC) in Bengaluru.

- **Unnati Yojana** – A program in Karnataka to support entrepreneurship for startups, especially in the SC/ST community.
- The program provides financial support of up to Rs 50 lakhs to winning entrepreneurs.

5. b

Digital Connectivity Rating Agency (DCRA)

The Telecom Regulatory Authority of India (TRAI) has recently Regulations namely "Rating of Properties for Digital Connectivity Regulations, 2024".

- **Aim** – To address the issue of quality of digital connectivity inside buildings.
- To create an ecosystem for co-creations of Digital Connectivity Infrastructure (DCI) as a part of any development activity.
- **Need** – Despite significant coverage of 4G (LTE) network and rollout of 5G network, availability of more spectrum bands, the coverage and quality of digital connectivity inside buildings remains a major issue.
- In India, there are 927.56 million wireless internet subscribers having wired connectivity in their homes or offices.
- **Telecom Regulatory Authority of India (TRAI)** – Shall be the regulatory body for the Digital Connectivity Rating Agency.
- **Salient features** – It includes setting up of a rating platform, an information technology system and associated applications.
- **Any entity fulfilling the eligibility criteria** intending to commence activity as **Digital Connectivity Rating Agency (DCRA)** shall be empanelled.
- Property manager, who intends to apply for the rating of his/her property of minimum specified size, shall register on the rating platform.
- Model Building Bye Laws (MBBL) issued by Ministry of Housing and Urban Affairs (MoHUA) shall be referred to in cases where MBBL of State or Union Territory do not have provisions for digital connectivity infrastructure.
- DCRA shall evaluate the property and assign scores, on the rating platform, against each rating criteria and sub-criteria.
- The DCRA shall disclose the fee to be charged and other terms and conditions, if any, to the property manager and get their acceptance before commencement of any rating activity.

- For the purpose of rating, the properties are classified as:
 - Residential Properties
 - Government Properties
 - Commercial Establishments
 - Other private or public areas
 - Stadiums or Sports Arenas or spaces of frequent gathering
 - Transport corridors
- Star Ratings will be ranging from **1 star to 5 star** based on the **quality of digital connectivity and scores awarded** to the properties.

28-10-2024 & 27-10-2024

1) Consider the following statements with respect to the Coral Triangle

1. It is crucial for global coral reef conservation, hosting over 76% of the world's coral species and 37% of reef fish species.
2. It is a vital marine region spanning six countries that include Indonesia, Malaysia, the Philippines, Papua New Guinea, Solomon Islands and Timor-Leste.
3. India is one of the founding members of the International Coral Reef Initiative (ICRI).

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) Consider the following statements with respect to National Education Society for Tribal Students (NESTS)

1. It aims to establish, endow, maintain, control and manage the Eklavya Model Residential Schools for the betterment of Tribal Students.
2. It is an autonomous organization has been set up under the Ministry of Tribal Affairs.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only

- c. Both 1 and 2
- d. Neither 1 nor 2

3) Consider the following statements with respect to Atlantic Meridional Overturning Circulation (AMOC)

1. The AMOC is a system of ocean currents that circulates water within the Atlantic Ocean.
2. The circulation process begin as warm water near the surface moves towards the poles, where it cools and forms sea ice.
3. The collapse of the AMOC could be responsible for moving heat around the planet.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

4) *Hypsibius henanensis*, sometimes seen in the news recently is associated with?

- a. A short-lived weed renowned for its nutritional value.
- b. Fossilized tree resin that is valued for its natural beauty.
- c. A species of tardigrades that can withstand high levels of radiation.
- d. Nearest nebula to the Milky Way galaxy.

Answers

1. b

Coral Triangle

A report recently released at the 16th Conference of Parties (COP16) to the Convention on Biological Diversity highlights the fossil fuel threats and impacts on biodiversity and communities at Coral Triangle.

- The Coral Triangle is often referred to as the 'Amazon of the seas', is a huge marine area spanning over 10 million square kilometres.
- It is a vital marine region spanning **6 countries** that include:

1. Indonesia
2. Malaysia

3. the Philippines
4. Papua New Guinea
5. Solomon Islands
6. Timor-Leste

- **Significance** – This region is home to 76% of the world's coral species and supports more than 120 million people who rely on its resources for their livelihoods.
- The Coral Triangle is the **most diverse and biologically complex marine ecosystem on the planet**.
- **Issues** – More than 100 offshore oil and gas blocks are currently in operation in the Coral Triangle, covering over 120,000 square kilometres, which is about 1% of the Triangle.
- There is growing liquefied natural gas (LNG) infrastructure in Southeast Asia.
- Fossil fuel expansion threatens the region's biodiversity in several ways that include:
 - Noise pollution from shipping and exploration activities harms marine life, especially species like whales and dolphins that rely on sound for communication, navigation, and finding food.
 - The impact of oil spills and fossil fuel infrastructure goes beyond environmental damage by possessing serious threats to local communities.
 - Countries that rely on fossil fuels often end up in long-term debt, as many have seen rising government debt due to borrowing money for resource exploitation.

International Coral Reef Initiative (ICRI)

- The International Coral Reef Initiative (ICRI) is a global partnership between Nations and organizations which strives to preserve coral reefs and related ecosystems around the world.
- It is an **informal group** whose **decisions are not binding** on its members.
- **Members** – ICRI Members include a mix of governments, non-governmental organisations and international organisations.
- The Initiative was **founded in 1994** by **8 governments**.
- Founding Members include:
 1. Australia
 2. France

3. Japan
4. Jamaica
5. the Philippines
6. Sweden
7. The United Kingdom
8. The United States of America

- At present, ICRI has over 102 members, including 45 countries custodians of 75% of the world's coral reefs.
- India is *one of the members of the ICRI* but **not a founding member of it**. (**Statement 3 is incorrect**)

2. c

National Education Society for Tribal Students (NESTS)

National Education Society for Tribal Students (NESTS) recently successfully organized a workshop on "Building Quality Infrastructure for Tribal Education" Akashvani Bhawan, New Delhi.

- National Education Society for Tribal Students (NESTS) aims to establish, endow, maintain, control and manage the Eklavya Model Residential Schools for the betterment of Tribal Students.
- It also manages the Eklavya Model Day Boarding Schools (EMDBS) and Centre of Excellence for Sports for the betterment of Tribal Students.
- NESTS is an **autonomous organization has been set up under the Ministry of Tribal Affairs**.
- **Objectives of NESTS include:**
 - To provide quality modern education including a strong component of inculcation of values, awareness of the environment, adventure activities.
 - To provide quality modern physical education to the talented tribal children predominantly from the rural areas without regard to their family's socio-economic condition.
 - To provide facilities, at a suitable stage, for instruction through a common medium all over the country.
 - Offer a common core-curriculum of ensuring comparability in standards and to facilitate and understanding of the common and composite heritage of tribal people.

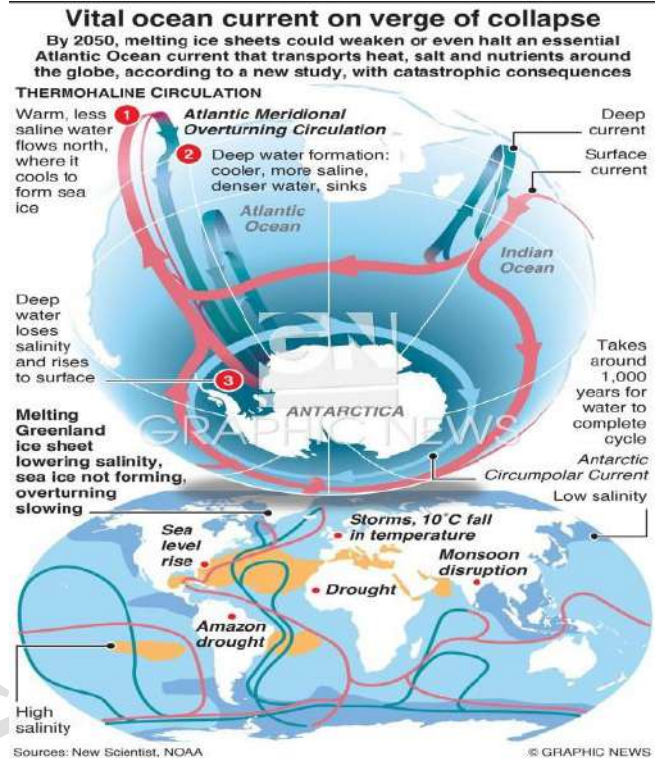
- To progressively bring students from one part of the country to another in each school to promote national integration and enrich the social content.
- To serve as a focal point for improvement in quality of school education through training of teachers in live situations and sharing of experience and facilities.
- To provide opportunities to students for extra-curricular activities moving towards Centre of Excellence in sports etc.
- To facilitate students developing pride in national culture, preserving and cherishing tribal heritage, tribal culture, music, dance and other arts.
- To help students acquire skills particularly those oriented to employment including self-employment.
- To strive to achieve best academic standards, excellence in sports and extra-curricular activities.

3. c

Atlantic Meridional Overturning Circulation (AMOC)

- The ocean's water is constantly circulated by currents.
- Tidal currents occur close to shore and are influenced by the sun and moon.
- Surface currents are influenced by the wind.
- **Atlantic Meridional Overturning Circulation (AMOC)** - Is a system of ocean currents that circulates water within the Atlantic Ocean, bringing warm water north and cold water south.
- The circulation process begins as warm water near the surface moves towards the poles (such as the Gulf Stream in the North Atlantic), where it cools and forms sea ice.
- As this sea ice forms, salt is left behind in the ocean water.
- Due to the large amount of salt in the water, it becomes denser, sinks down and is carried southwards in the depths below.
- Eventually this water gets pulled back up towards the surface and warms up in a process called **upwelling**, completing the cycle.
- The collapse of the AMOC could be responsible for moving heat around the planet.

- A collapse of the ocean-current system *would increase cooling of the Northern Hemisphere, raise Atlantic sea levels, drop precipitation over Europe and North America and shift monsoons in South America and Africa.*



4. c

Hypsibius Henanensis

- *Hypsibius henanensis* a newly discovered species of tardigrades that can withstand high levels of radiation.
- **Tardigrades** – Are *near-microscopic animals* that can survive freezing temperatures, crushing pressures and even the vacuum of space.
- **Tardigrades**, often called water bears or moss piglets, are tiny aquatic animals.
- **Habitat** – They live in water, from oceans to drops of water on plants.
- They can live high in the mountains and deep in the ocean.
- **Diet** – Tardigrades mostly eat plants and algae.
- Some species eat other, smaller creatures, like microscopic worms and tiny, wheel-shaped animals called rotifers.
- **Features** – They curl up into dried-up balls that can survive boiling water, freezing cold and outer space.

- This is called a tun state.
- They may survive up to a century in their tun state.
- Outside their tun state, they live between 3 months and 2.5 years.



29-10-2024

1) Consider the following statements with respect to North Atlantic Right Whale

1. Right whales are baleen whales that feeds on copepods.
2. The population of it has been declining in the recent years.
3. It is classified as critically endangered in the Red List of the International Union for Conservation of Nature.

How many of the statements given above are correct?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

2) The Global Tree Assessment is an initiative led by?

- a. Botanic Gardens Conservation International and the IUCN Species Survival Commission Global Tree Specialist Group.
- b. Global Green Growth Institute and United Nations Environment Programme.
- c. Wildlife Conservation Society and United Nations Environment Programme.
- d. United Nations Environment Programme and Global Environment Facility.

3) Microcystin, sometimes seen in the news recently, is associated with?

- a. A toxin from bacteria that can make animals and people sick.
- b. Variant of ransomware.
- c. An indigenous developed technology for early detection of cancer.
- d. A species of perennial tropical grass native to the African grasslands.

4) Consider the following statements:

1. The limit for the expenditure of Elections in India is set by the Election Commission (EC).
2. In India, there are no limits on the expenditure of political parties during elections.
3. S.S Tarapore Committee is associated with State funding of elections.

Select the correct answer using the code given below:

- a. 1 only
- b. 1 and 2 only
- c. 2 and 3 only
- d. 1, 2 and 3

5) Consider the following pairs:

<i>Terms in News</i>	<i>Countries</i>
1. Orvakal	– India
2. Mawdiangdiang	– Iran
3. Cano Cabra	– Colombia

How many of the pair(s) given above is/are correctly matched?

- a. Only one
- b. Only two
- c. All three
- d. None of the above

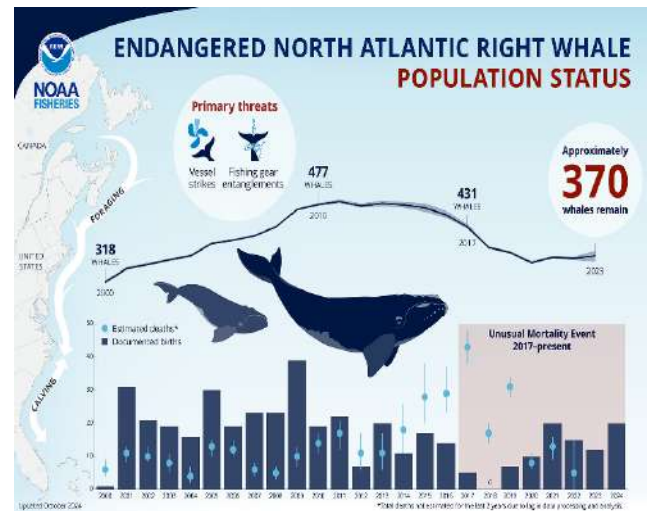
Answers

1. b

North Atlantic Right Whale (NARW)

- Right whales are baleen whales that feeds on copepods (tiny crustaceans) by straining huge volumes of ocean water through their baleen plates, which act like a sieve.
- According to the most recent estimate from the North Atlantic Right Whale Consortium, NARW has continued its **slow increase** from a low of 358 individuals in 2020. (**Statement 2 is incorrect**)
- The population of NARW is one of the world's most endangered large whale specie that remains significantly smaller than it was a decade ago.
- **Features** – They have stocky black bodies with no dorsal fins, and their blow spouts are shaped like a “V.”
- Their heads have knobby white patches of rough skin, called **callosities**, which appear white because of whale lice (cyamids) covering their otherwise black skin.
- Right whales can probably live for at least 70 years, but data on their average lifespan is limited since scientific monitoring of the species is fairly recent.
- **Range** – North Atlantic right whales **primarily occur in Atlantic coastal waters** on the continental shelf, although they also are known to travel far offshore, over deep water.
- **Two other species of right whales** – The North Pacific right whale, which is found in the North Pacific Ocean, and the Southern right whale, which is found in the southern hemisphere.
- **Conservation** – It is classified as critically endangered in the Red List of the International Union for Conservation of Nature.
- They have been listed as endangered under the Endangered Species Act since 1970.
- **Threats** – They have experienced an ongoing Unusual Mortality Event since 2017, which includes sub-lethally injured or ill, seriously injured, and dead right whales.
- Additionally, research demonstrates that only about 1/3 of right whale deaths are documented.
- Other threats include entanglement in fishing gear, vessel strikes, climate change, which may alter their migratory patterns and feeding area.
- The impacts of ocean noise also affect their ability to communicate, find food and navigate.

- **North Atlantic Right Whale Consortium** – Is a longstanding collaboration between scientists, conservationists, marine industry members and others.



2. a

Global Tree Assessment

According the updated report of the Global Tree Assessment, More than a third of the world's trees face extinction.

- The Global Tree Assessment is an initiative assessing the conservation status assessments for all the world's tree species available on the IUCN Red List.
- It is led by **Botanic Gardens Conservation International (BGCI) and the IUCN Species Survival Commission Global Tree Specialist Group**.
- It is a collaborative global initiative linking taxonomic, geographical, ecological and conservation information in support of biodiversity conservation policy and action.
- As of now, the Global Tree Assessment is the **largest global project**, resulting in IUCN Red List assessments of nearly 50,000 tree species carried out by more than 1,000 tree experts.
- In fact, over a quarter of all assessments on the updated IUCN Red List are now tree assessments.
- IUCN Red List assessments are important to be able to direct resources to take conservation action on species that urgently need it.
- **Highlights of the report** – The primary threats to trees globally are land clearing for agriculture, logging, pests, and diseases, which are especially prevalent in temperate regions.

- Iconic species like *magnolias*, *oaks*, *maples*, and *ebonies* are among the **most endangered**, reflecting a global biodiversity crisis impacting entire ecosystems.
- **Botanic Gardens Conservation International (BGCI)** – Is a membership organisation, representing botanic gardens in more than 100 countries around the world.
- It is an independent UK charity established in 1987 to link the botanic gardens of the world in a global network for plant conservation.
- **IUCN Species Survival Commission Global Tree Specialist Group (GTSG)** – It is a global network of experts who, working in their own regions and institutions, all contribute to the conservation of globally threatened trees.
- The aims of the GTSG are to conserve tree species globally, by sharing knowledge and catalyse action to halt declines, restore populations and prevent extinctions.
- The GTSG is one of over 120 IUCN/SSC Specialist Groups and Red List Authorities.

3. a

Microcystin

- The microcystin is a toxin from algal blooms that can make animals and people sick when they come into contact with infected water.
- It can lead to:
 - Liver disease
 - Gut disease
 - Lung disease
 - Asthma (noted as showing "significant" inflammation increase)
- A recent research which was held at the **Lake Erie**, is located on the **border of the United States and Canada**.
- The most interesting new finding relates to aerosolization of the toxins, which can occur through:
 - Waves hitting rocks.
 - Boat activity.
 - Personal watercraft movement.
- **Aerosolization** is the process of dispersing a substance into the air as an aerosol, which is a mixture of liquid or gas and extremely small particles.

4. b

Expenditure of Elections

- The limit for the expenditure of Elections in India are set, from time to time, by the Election Commission (EC).
- The election expenditure limit for candidates is *Rs 95 lakh per Lok Sabha constituency in larger States* and *Rs 75 lakh in smaller States*.
- The election expenditure limit for the Legislative Assemblies is *Rs 40 lakh* and *Rs 28 lakh* for larger and smaller States respectively.
- **There are no limits on the expenditure of political parties during elections.**
- The **Indrajit Gupta Committee (1998)** and the **Law Commission report (1999)** have advocated for **State funding of elections**.

S.S Tarapore Committee is associated with Capital Account Convertibility (CAC).

- **Challenges** – Elections across the world democracies have become very *expensive*.
- Such increased expenditure that is met primarily through *large donations* creates an unholy nexus between the elected representatives and donors who seek favours.
- This acts as an *entry barrier into electoral politics* for many well-meaning citizens.
- In India, candidates from all major political parties breach the election expenditure limits by a wide margin.

5. b

Orvakal, Mawdiangdiang and Cano Cabra

- **Orvakal** – It is situated in the Kurnool district of Andhra Pradesh.
- The central government has recently approved *Rs 2,786 crore* to develop infrastructure in the **Orvakal Mega Industrial Hub**.
- **Mawdiangdiang** – Is a Village in Myllem Block in East Khasi Hills District of **Meghalaya State**, India.
- Meghalaya CM has proposed *Rs 2,500 crore* budget for new administrative city in Mawdiangdiang.
- The city will include everything from road connectivity, water supply and infrastructure.
- **Cano Cabra** – Is a village In **Colombia**.

- Cocaine has sustained the small, remote Colombian village of Cano Cabra.

SHANKAR IAS ACADEMY