

ForumIAS

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## Prelims Marathon

April, 2022

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*HISTORY*  
*ECONOMICS*  
*POLITY*  
*SCIENCE AND TECHNOLOGY*  
*GEOGRAPHY AND ENVIRONMENT*

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## *History/ Art and Culture*

**Q.1) Which of the following pair is/are not correctly matched?**

<b>Temple</b>	<b>Place</b>
1. Chennakeshava Temple	Somanathapura
2. Hoysaleshwara Temple	Halebid
3. Keshava Temple	Belur

**Select the correct answer using the codes given below:**

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

**ANS: C**

**Explanation: About the Sacred Ensembles of Hoysala:**

- The Sacred Ensembles of Hoysala Sacred Ensembles of Hoysala were built in the 12th-13th century. They are represented here by the three components of Belur, Halebid and Somnathpur.
- The Hoysala temples have a basic Dravidian morphology though they reflect other influences including that of Central India's Bhumiya mode, northern and western India's Nagara traditions, and Karnataka Dravida modes of the Kalyani Chalukyas.
- The Hoysala architect made selections of features from other temple styles, which they further modified with their own particular innovations. This resulted in a new Hoysala Temple form.

**Chennakeshava Temple – Belur**

- Chennakeshava Temple is also referred to as Vijayanarayana Temple of Belur. It is a 12th-century Hindu temple in Karnataka.
- The temple was commissioned by King Vishnuvardhana in 1117 CE, on the banks of the Yagachi River in Belur also called Velapura, an early Hoysala empire capital.
- The temple is devoted to Vishnu.
- The richly sculptured exterior of the temple narrates scenes from the life of Vishnu and his reincarnations and the epics, Ramayana and Mahabharata. However, some of the representations of Shiva are also included.

**Hoysaleshwara Temple-**

- Halebid Hoysaleswara temple also referred simply as the Halebidu temple is a 12th-century Hindu temple dedicated to Shiva.
- The temple was built in 1121 CE during the reign of the Hoysala King, Vishnuvardhana Hoysaleshwara.
- The temple is most well-known for the more than 240 wall sculptures that run all along the outer wall.

**Keshava Temple**

- Somanathapura Keshava Temple is a Vaishnava temple on the banks of River Kaveri at Somanathapura, Karnataka.
- The temple was consecrated in 1258 CE by Somanatha Danda nayaka, a general of the Hoysala King Narasimha III.

**Source:** EPIC February 2022

**Q.2) Statue of Equality has been unveiled in which of the following state?**

- a) Gujarat
- b) Telangana
- c) Manipur
- d) Tamil Nadu

**ANS: B**

**Explanation: About the Statue of Equality:**

- The Prime Minister has unveiled the Statue of Equality in Hyderabad, Telangana.
- Statue of Equality is a 216-foot-tall statue dedicated to 11th-century social reformer and saint, Ramanujacharya. The statue will be in a sitting position.
- It is composed of 'panchaloha', a combination of five metals comprising gold, silver, copper, brass, and zinc. The statue will be the second-highest sitting statue in the world [the tallest is the Great Buddha in Thailand at 302 ft].

**Source:** EPIC February 2022

**Q.3) Sri Ramanujacharya was the chief proponent of which of the following philosophy?**

- a) Vishistadvaita
- b) Advaita
- c) Vedanta
- d) Advaita Dvaita

**ANS: A**

**Explanation: About Ramanujacharya:**

- Sri Ramanujacharya was born in 1017 in Sri Perumbudur, Tamil Nadu. He was one of the most important exponents of the Sri Vaishnavism tradition within Hinduism.
- He is famous as the chief proponent of Vishishtadvaita sub-school of Vedānta. He was also referred to as Ilaya Perumal, which means the radiant one.
- He worked tirelessly against casteism and social hierarchies, proclaiming that all living beings had the right to realization.
- He also enacted several reforms in temple administration e.g., at one time the entire administration in the Srirangam temple in Tiruchirappalli was controlled by a specific caste. He included persons from different castes in the temple administration. A number of responsibilities were given to women also.
- He wrote nine works that came to be known as the Navratnas including three major commentaries, the Vedartha-Sangraha, the Sribhasya and the Bhagavadgita-bhasya aimed at providing philosophical foundation for devotional worship.

**About Vishistadvaita**

- Vishishtadvaita is a non-dualistic school of Vedanta philosophy. It is non-dualism of the qualified whole, in which Brahman alone is seen as the supreme reality, but is characterized by multiplicity.
- It can be described as qualified monism or qualified non-dualism or attributive monism. It is a school of Vedanta philosophy that believes in all diversity subsuming to an underlying unity.

**Source:** EPIC February 2022

**Q.4) Statue of Equality is dedicated to whom among the following?**

- a) Sardar Vallabhbhai Patel
- b) Thiruvalluvar
- c) Sri Ramanujacharya
- d) BR Ambedkar

**ANS: C**

**Explanation: About the Statue of Equality:**

- Statue of Equality is a 216-foot-tall statue dedicated to 11th-century social reformer and saint, Ramanujacharya. The statue will be in a sitting position.
- It is composed of 'panchaloha', a combination of five metals comprising gold, silver, copper, brass, and zinc. The statue will be the second-highest sitting statue in the world [the tallest is the Great Buddha in Thailand at 302 ft].

**Source:** EPIC February 2022

**Q.5) Which of the following statement about Guru Ravidas is/are correct?**

1. He is considered as a spiritual guru of the Meera Bai.
2. His poems are included in the 'Panch Vani' text of the Dadupanthi tradition.

**Select the correct answer using the codes given below:**

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

**ANS: C**

**Explanation: About Guru Ravidas:**

- Guru Ravidas was a mystic poet-saint of the Bhakti Movement from the 15th and 16th centuries. He founded the Ravidassia religion.
- He is believed to be a disciple of the bhakti saint-poet Ramananda and contemporary to the bhakti saint-poet Kabir.
- He is also considered as a spiritual guru of the Meera Bai.
- His idea of 'Begampura' was considered as his moral and intellectual achievement. Begampura was a city conceived by him. In that city, there will be no sorrow, no caste and class.
- The Panch Vani text of the Dadupanthi tradition within Hinduism also includes numerous poems of Guru Ravidas.

**Source:** EPIC February 2022

**Q.6) Who among the following provided safe passage to Bhagat Singh after the killing of John Saunders and much more during her revolutionary days?**

- a) Durgawati Devi
- b) Gulab Kaur
- c) Durgabai Deshmuk
- d) Snehlata Varma

**ANS: A**

**Explanation:**

**PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022**

<b>Women Freedom Fighters</b>	<b>Contribution to Freedom Movement</b>
<b>Rani Abakka</b>	She was the Queen of Ullal, Karnataka. She fought and defeated the mighty Portuguese in the 16th century.
<b>Velu Nachiyar</b>	She was the Queen of Sivaganga and was the first Indian queen to wage war against the British East India Company.
<b>Matangini Hazra</b>	She was a brave freedom fighter from Bengal, who laid down her life while agitating against the British.
<b>Gulab Kaur</b>	She was a freedom fighter who abandoned her own hopes and dreams of a life abroad to fight for and mobilise the Indian people against the British Raj.
<b>Chakali Ilamma</b>	She was a revolutionary woman who fought against the injustice of zamindars during the Telangana rebellion in the mid-1940s.
<b>Subhadra Kumari Chauhan</b>	One of the greatest Hindi poets, who was also a prominent figure in the freedom movement.
<b>Durgawati Devi</b>	Brave woman who provided safe passage to Bhagat Singh after the killing of John Saunders and much more during her revolutionary days.
<b>Sucheta Kripalani</b>	A prominent freedom fighter who became the independent India's first woman Chief Minister of UP Government.
<b>Accamma Cherian</b>	She is an inspirational leader of the freedom movement in Travancore, Kerala. She was given the name 'Jhansi Rani of Travancore' by Mahatma Gandhi.
<b>Aruna Asaf Ali</b>	She was an inspirational freedom fighter who is perhaps best remembered for hoisting the Indian National flag in Mumbai during the Quit India Movement in 1942.
<b>Durgabai Deshmuk</b>	She was a dedicated worker for the cause of emancipation of women in Andhra Pradesh and was also an eminent freedom fighter and member of the Constituent Assembly.
<b>Rani Gaidinliu</b>	Naga spiritual and political leader, she led an armed uprising against the British in Manipur, Nagaland and Assam.
<b>Usha Mehta</b>	She was a freedom fighter from a very young age, who is remembered for organising an underground radio station during the Quit India Movement of 1942.
<b>Parbati Giri</b>	She was one of Odisha's most prominent women freedom fighters who was called the Mother Teresa of Western Odisha for her work in the upliftment of her people.
<b>Tarkeshwari Sinha</b>	She was a prominent freedom fighter during the Quit India Movement, she went on to become an eminent politician in the early decades of independent India.
<b>Snehlata Varma</b>	She was a freedom fighter and tireless worker for the education and upliftment of women in Mewar, Rajasthan.
<b>Tileshwari Baruah</b>	She was one of India's youngest martyrs, she was shot at the age of 12 by the British, during the Quit India Movement, when she and some freedom fighters tried to unfurl the Tricolour atop a police station.
<b>Jhalkari Bai</b>	She was a woman soldier who grew to become one of the key advisors to the Rani of Jhansi and a prominent figure in the First War of Indian Independence, 1857.

**Source:** EPIC February 2022

**Q.7) Consider the following statements about Amar Jawan Jyoti:**

1. It was inaugurated in 1968.
2. It was established to mark India-China war of 1965.

**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

**ANS: D**

**Explanation: About Amar Jawan Jyoti:**

- Amar Jawan Jyoti (the flame of the immortal soldier), was inaugurated in 1972. It was located underneath the India Gate in Delhi. It was established to mark India's victory over Pakistan in the 1971 War, which resulted in the creation of Bangladesh.
- The key elements of the Amar Jawan Jyoti included a black marble plinth, a cenotaph, which acted as a tomb of the unknown soldier.
- The plinth had an inverted L1A1 self-loading rifle with a bayonet, on top of which was a soldier's war helmet.
- The installation had four urns on it, with four burners. These burners were called the eternal flame, and it was never allowed to be extinguished.

**Source:** EPIC February 2022

**Q.8) Consider the following statements about India Gate:**

1. The India Gate was built by the British after the World War II (WWII).
2. The India Gate was designed by Sir Edwin Lutyens and was unveiled by Lord Irwin.

**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

**ANS: B**

**Explanation: About India Gate:**

- The India Gate was built by the British after the World War I (WWI). It was earlier known as the All India War Memorial. The India Gate was designed by Sir Edwin Lutyens and was unveiled by Lord Irwin in 1931.
- It was erected as a memorial to around 90,000 Indian soldiers of the British Indian Army, who had died in several wars and campaigns till then including the WWI. Names of more than 13,000 dead soldiers are mentioned on the memorial commemorating them.
- As it was a memorial for the Indian soldiers martyred in wars, the Amar Jawan Jyoti was established underneath it by the government in 1972.

**Source:** EPIC February 2022

**Q.9) Which of the following statements about National War Memorial is correct?**

- a) The Tyag Chakra, the circle of sacrifice, has circular concentric walls of honour based on the Chakravyuh.
- b) The Veerta Chakra, the circle of bravery, has an obelisk, and the eternal flame.
- c) The Amar Chakra, the circle of immortality, is marked by a row of trees, each of which represents soldiers, who protect the country.
- d) The Raksha Chakra or the circle of protection, has a covered gallery with six bronze crafted murals depicting the battles and actions of our Armed Forces.

**ANS: A**

**Explanation: About the National War Memorial:**

- The National War Memorial was inaugurated in February 2019, in an area of around 40 acres. It was built to commemorate all the soldiers who have laid down their lives in the various battles, wars, operations and conflicts of Independent India.
- The architecture of the memorial is based on four concentric circles.
- Largest is the Raksha Chakra or the circle of protection which is marked by a row of trees, each of which represent soldiers, who protect the country.
- The Tyag Chakra, the circle of sacrifice, has circular concentric walls of honour based on the Chakravyuh. The walls have independent granite tablets for each of the soldiers who have died for the country since Independence (26,466 names as of January 2022). A tablet is added every time a soldier is killed in the line of duty.
- The Veerta Chakra, the circle of bravery, has a covered gallery with six bronze crafted murals depicting the battles and actions of our Armed Forces.
- The final is the Amar Chakra, the circle of immortality, which has an obelisk, and the eternal flame. The flame from the Amar Jawan Jyoti at the India Gate has been merged with this flame, which has been kept burning since 2019 when the memorial was unveiled. The flame is a symbol of the immortality of the spirit of the fallen soldiers.
- Busts of the 21 soldiers who have been conferred with the highest gallantry award of the country, Param Vir Chakra, are also installed at the memorial.

**Source:** EPIC February 2022

**Q.10) Consider the following statements about Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958:**

1. As per the Act, the 100-metre radius of protected monuments is prohibited areas and the next 300-metre radius is regulated areas.
2. The act provides for the preservation and protection of all historic monuments that have been declared to be of national importance by the AMASR Act.

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

**ANS: C**

**Explanation: About the AMASR Act:**

- AMASR Act provides for the preservation of ancient and historical monuments, archaeological sites, remains of national importance, for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects.

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- The act provides for the preservation and protection of all historic monuments that have been declared to be of national importance by the Ancient and Historical Monuments and Archaeological Sites and Remains (Declaration of National Importance) Act, 1951 and by section 126 of the States Reorganization Act, 1956.
- The AMASR Act, 1958, was amended in 2010 to declare the 100-metre radius of protected monuments as prohibited areas and the next 300-metre radius as regulated areas.
- However, according to a recent Parliamentary Standing Committee report there seems to be no specific reason for this classification.

### **Proposed Changes:**

- The proposed amendment will seek to bring a change in Section 20A of the Act which deals with declaration of prohibited areas and carrying out public works in prohibited areas. Expert monument committees would decide the prohibited area around a monument.
- These areas could be as wide as 500 meters for some sites like the Taj Mahal. The amendment to this provision would enable the ASI to hold the relevant authorities liable in case of illegal buildings at a protected site and thus help in curbing the menace of encroachment.

**Source:** EPIC February 2022



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## *Scheme/ Programs/ Institutions*

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**Q.1) Consider the following statements about Council of Europe:**

1. It was founded in 1949 by the Treaty of London.
2. The Council can make binding laws.

**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

**ANS: A**

**Explanation: About Council of Europe:**

- The Council of Europe was founded in 1949 by the Treaty of London. It is an international organization founded in the wake of World War II to uphold human rights, democracy and the Rule of law in Europe.
- The council is distinct from the European Union (EU). It includes 47 member states (27 of which are EU members). The Council cannot make binding laws, but it does have the power to enforce select international agreements reached by European states.
- The Council is also an official United Nations Observer. The Council of Europe has suspended Russia from its rights of representation in the Council.

**Source:** EPIC March 2022

**Q.2) Which of the following statement about Munich Security Conference is/are not correct?**

1. It is an annual conference on international security that takes place in Munich, Germany.
2. It was started post WWII in 1945.

**Select the correct answer using the codes given below:**

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

**ANS: B**

**Explanation: About Munich Security Conference:**

- It is an annual conference on international security that takes place in Munich, Germany.
- It was started in 1963. Its motto is Peace through dialogue. It is the world's largest gathering of its kind.
- The conference publishes the Munich Security Report, an annual report of relevant figures, maps, and research on crucial security challenges.
- India's External Affairs Minister addressed this year's conference and cautioned against Debt-Trap Diplomacy.

**Source:** EPIC March 2022

**PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022**

**Q.3) Consider the following statements about Sustainable Cities India Program:**

1. World Bank and the National Institute of Urban Affairs (NIUA) have signed a MoU to collaborate on a jointly designed 'Sustainable Cities India program'.
2. It aims to enable cities to decarbonize in a systematic and sustainable way that will reduce emissions and deliver resilient and equitable urban ecosystems.

**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

**ANS: B**

**Explanation: About Sustainable Cities India Program:**

- The World Economic Forum (WEF) and the National Institute of Urban Affairs (NIUA) have signed an MoU to collaborate on a jointly designed 'Sustainable Cities India program'.
- The aim is to enable cities to decarbonize in a systematic and sustainable way that will reduce emissions and deliver resilient and equitable urban ecosystems.
- The NIUA will adapt the WEF's City Sprint process and Toolbox of Solutions for decarbonization in the context of five to seven Indian cities across two years.

**Source:** EPIC March 2022

**Q.4) Boltzmann Medal, recently seen in news is given in which of the following field?**

- a) Physics
- b) Literature
- c) Mathematics
- d) Medicine

**ANS: A**

**Explanation: About Boltzmann Medal:**

- Boltzmann Medal was initiated in 1975. It is awarded by the Commission on Statistical Physics (C3) of the International Union of Pure and Applied Physics.
- The award is given to physicists that obtain new results concerning statistical mechanics. The award is given only once to a person and on the condition that that person has not won the Nobel Prize so far.
- It has been named after Austrian Physicist Ludwig Boltzmann who gave statistical explanation of the second law of thermodynamics.
- Physicist Professor Deepak Dhar has become the first Indian to be awarded the Boltzmann Medal. He shares the medal with John J Hoefield of Princeton University.

**Source:** EPIC March 2022

**Q.5) International Intellectual Property Index, recently seen in news is released by which of the following institutions?**

- a) WIPO
- b) World Bank
- c) US Chambers of Commerce
- d) WTO

**ANS: C**

**Explanation: About International Intellectual Property Index, 2022:**

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- The Index is compiled and published annually by the US Chambers of Commerce. The index benchmarks the IP framework in 55 global economies.
- The index ranks countries based on 50 unique indicators.
- These indicators are divided across nine categories of protection:
  - Patents;
  - Copyrights;
  - Trademarks;
  - Design rights;
  - Trade secrets;
  - Commercialization of IP assets;
  - Enforcement;
  - Systemic efficiency;
  - Membership and ratification of international treaties.
- India has been ranked 43 out of 55 countries in the Index. The United States topped the index, followed by the UK, Germany, Sweden and France.

**Source:** EPIC March 2022

**Q.6) Consider the following statements about Aroma Mission:**

1. The Aroma Mission was launched by the Ministry of agriculture and Farmer welfare.
2. It aims to bring transformative change in the aroma sector through desired interventions in the areas of agriculture, processing and product development.

**Which of the statements given above is/are not correct?**

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

**ANS: A**

**Explanation: About Aroma Mission:**

- The Aroma Mission was launched by the Council of Scientific and Industrial Research (CSIR).
- Its aim is to bring transformative change in the aroma sector through desired interventions in the areas of agriculture, processing and product development for fuelling the growth of aroma industry and rural employment.

**Source:** EPIC March 2022

**Q.7) Government of India and few states have signed up for a project with World Bank, named REWARD Project. Which are the related states in REWARD Project?**

- a) Karnataka and Odisha
- b) Odisha and Telangana
- c) Gujarat and Karnataka
- d) Gujarat and Telangana

**ANS: A**

**Explanation: About REWARD Project:**

- The Government of India, State Governments of Karnataka and Odisha and the World Bank have signed a \$115 million REWARD Project.
- REWARD stands for Rejuvenating Watersheds for Agricultural Resilience through Innovative Development Programme.

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- Its aim is to help national and state institutions adopt improved watershed management practices to help increase farmers' resilience to climate change, promote higher productivity and better incomes.
- The Government of India has committed to restoring 26 million hectares of degraded land by 2030.

**Source:** EPIC March 2022

### **Q.8) Which of the following statements about UPI123Pay is/are correct?**

1. Ministry of Finance has launched new UPI service for feature phones called UPI123Pay.
2. It is a three-step offline method to initiate and execute transactions that will work on simple feature phones.

**Select the correct answer using the codes given below:**

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

**ANS: B**

**Explanation: About UPI123Pay:**

- Reserve Bank of India has launched new UPI service for feature phones called UPI123Pay.
- It is a three-step offline method to initiate and execute transactions that will work on simple feature phones. It has all features for undertaking transactions except scan and pay.
- The service does not need an internet connection for transactions. There are 4 options to make payments without internet connectivity: Interactive Voice Response (IVR), Missed Call facility, Proximity sound-based payment and App for feature phones.

**Source:** EPIC March 2022

### **Q.9) Consider the following statements about Digisaathi:**

1. Digisaathi has been set up by the National Payments Corporation of India (NPCI).
2. It will use AI technology to answer any questions related to all types of digital transactions.

**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

**ANS: C**

**Explanation: About Digisaathi:**

- Digisaathi has been set up by the National Payments Corporation of India (NPCI).
- It is a 24 x 7 helpline for providing information on digital payment products and services.
- It will use AI technology to answer any questions related to all types of digital transactions. Currently, it is available in English and Hindi language.

**Source:** EPIC March 2022

### **Q.10) Consider the following statements about Devayatanam, a Conference on Indian Temple Architecture:**

1. The conference has been organized by the Archaeological Survey of India (ASI).

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2. The aim of the conference is to deliberate upon the philosophical, religious, social, economic, technical, scientific, art and architectural aspects of the temples.

**Which of the statements given above is/are not correct?**

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

**ANS: D**

**Explanation: About Devayatanam: Conference on Indian Temple Architecture**

- The Union Minister for Culture inaugurated a conference on the journey of Indian Temple Architecture, 'Devayatanam'.
- The conference has been organized by the Archaeological Survey of India (ASI) of Ministry of Culture.
- The aim of the conference is to deliberate upon the philosophical, religious, social, economic, technical, scientific, art and architectural aspects of the temples and to initiate a dialogue on the evolution and development of the various styles of temple architecture such as the Nagara, Vesara, Dravida, Kalinga and others.

**Source:** EPIC March 2022

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## *Science and Technology*

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**Q.1) Consider the following statements about HANSA-NG:**

1. It is India's first indigenous Flying Trainer aircraft.
2. It has been developed by India and Israel.

**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

**ANS: A**

**Explanation: About HANSA-NG:**

- HANSA-NG aircraft has successfully completed the sea level trials at Puducherry. It is India's first indigenous Flying Trainer aircraft.
- It has been developed by CSIR-National Aerospace Laboratories, Bangalore.
- The aircraft is designed to meet the Indian flying club needs, and it is an ideal aircraft for Commercial Pilot Licensing(CPL) due to its low cost and low fuel consumption.

**Source:** EPIC March 2022

**Q.2) Consider the following statements about Rashtriya Raksha University:**

1. It is a Central University located in Guwahati, Assam.
2. It has a specialization in National and Internal Security.

**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

**ANS: B**

**Explanation: About Rashtriya Raksha University:**

- Rashtriya Raksha University is a Central University located in Gandhinagar, Gujarat. It has a specialization in National and Internal Security.
- It was established by the Government of Gujarat in 2009.
- The university has been upgraded as an Institute of National Importance through RRU Act 2020.

**Source:** EPIC March 2022

**Q.3) Which of the following statement about Seawater Rice is/are correct?**

1. It is salt-tolerant rice that can be grown in salty soil near the sea.
2. Indian Scientists have developed a variety of rice known as the 'Seawater Rice'.

**Select the correct answer using the codes given below:**

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

**ANS: A**

**Explanation: About Seawater Rice:**

- Chinese Scientists have developed a variety of rice known as the 'Seawater Rice'. It is salt-tolerant rice that can be grown in salty soil near the sea. This rice was created by over-expressing a gene from selected wild rice that's more resistant to saline and alkali.
- To make use of widespread salty soil (>100 million hectares), farmers in China traditionally dilute their fields with large amounts of freshwater.
- But this method requires vast amounts of water and often doesn't improve yields enough.
- The development of 'Seawater Rice' could help China withstand soil saltiness and also ensure food security that's been threatened by rising sea levels, increasing grain demand and supply chain disruptions.

**Source:** EPIC March 2022

**Q.4) Hermetic Wiper Malware, recently seen in news is used against which of the following country?**

- a) Russia
- b) Ukraine
- c) Belarus
- d) USA

**ANS: B**

**Explanation: About Hermetic Wiper Malware Attack in Ukraine:**

- Hundreds of computers in Ukraine have been attacked by malware Hermetic Wiper.
- It is a data-wiper malware which erases all data on a device making it irretrievable.
- The malware is also capable of attacking data recovery tools and the rebooting systems, making it difficult for the device to reboot into its operating system, essentially making it inoperable.

**Source:** EPIC March 2022

**Q.5) Consider the following statements about AI Research SuperCluster (RSC):**

1. It has been developed by Japan.
2. It has been claimed that this will be the fastest supercomputer in the world once fully built by mid-2022.

**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

**ANS: B**

**Explanation: About AI Research SuperCluster (RSC):**

- It is an AI Supercomputer being built by Facebook-parent Meta.
- The company has claimed that this will be the fastest supercomputer in the world once fully built by mid-2022.
- It can perform tasks like translating text between languages and help identify potentially harmful content on Meta's platform.

**Source:** EPIC March 2022

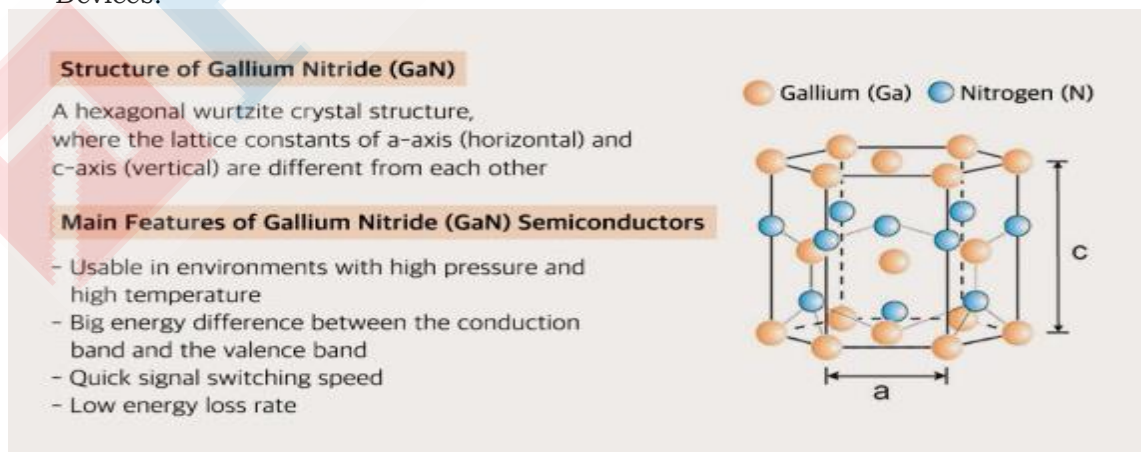
**Q.6) Which of the following statement about Gallium Nitride is/are not correct?**

- a) Gallium Nitride (GaN) is a very soft, mechanically instable wide bandgap semiconductor.
- b) Ita has Wurtzite crystal structure.
- c) It has high heat capacity, sensitivity to ionizing radiation is low, faster-switching speed, higher thermal conductivity and lower on-resistance.
- d) It has wide ranging applications like LEDs and lasers, Transistors and Integrated Circuits.

**ANS: A**

**Explanation: About Gallium Nitride:**

- Gallium Nitride (GaN) is a very hard, mechanically stable wide bandgap semiconductor. The compound is a very hard material that has a Wurtzite crystal structure.
- It has high heat capacity; sensitivity to ionizing radiation is low, faster-switching speed, higher thermal conductivity and lower on-resistance.
- It has wide ranging applications like LEDs and lasers, Transistors and Integrated Circuits, Solar Cell Arrays for Satellites, Nanotubes and nanowires in electronics, and 5G Devices.



Source: EPIC March 2022



**Q.7) Consider the following statements about Bhasha Sangam App:**

1. It is a mobile application developed by the Ministry of Culture in collaboration with MyGov India.
2. Using the app, people can learn 100+ sentences of daily use in as many as 22 scheduled Indian languages.

**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

**ANS: B**

**Explanation: About Bhasha Sangam App:**

- It is a mobile application developed by the Ministry of Education in collaboration with MyGov India.
- Its aim is to foster the spirit of Ek Bharat Shreshtha Bharat by enabling people across India to learn different languages of India and come closer to their culture.
- Using the app, people can learn 100+ sentences of daily use in as many as 22 scheduled Indian languages.

**Source:** EPIC March 2022

**Q.8) Which of the following statement about Purple Revolution is/are correct?**

1. It was launched by the Union Ministry of Science & Technology through the CSIR's Aroma Mission.
2. Its aim is to increase lavender cultivation in J&K.

**Select the correct answer using the codes given below:**

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

**ANS: C**

**Explanation: About Purple Revolution:**

- Purple or Lavender Revolution was launched by the Union Ministry of Science & Technology through the CSIR's Aroma Mission in collaboration with the Indian Institute of Integrative Medicine, Jammu.
- Its aim is to increase lavender cultivation in J&K. Under the mission, first-time farmers were given free lavender saplings, while those who had cultivated lavender before were charged INR 5-6 per sapling.

**Source:** EPIC March 2022

**Q.9) Consider the following statements about Kavach System:**

1. Kavach is an indigenously developed Automatic Train Protection (ATP) System for the Indian Railways.
2. It has been developed by the Research Design and Standards Organisation of the Ministry of Railways in collaboration with Indian industry.

**Which of the statements given above is/are not correct?**

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

**ANS: D**

**Explanation: About Kavach:**

- Kavach is an indigenously developed Automatic Train Protection (ATP) System for the Indian Railways.
- It is designed to bring a train to a halt automatically when it notices another train on the same line within a prescribed distance.
- It has been developed by the Research Design and Standards Organisation of the Ministry of Railways in collaboration with Indian industry.

**Features of Kavach**

- Prevents trains from passing the signal at Danger (Red) and avoiding collisions.
- Activates the train braking system automatically if the driver fails to control the train as per the speed restrictions.
- Continuous update of Movement Authority with the display of signal aspects in Driver Machine Interface (DMI)/Loco Pilot operation cum Indication Panel
- Auto Whistling while approaching Level Crossing Gates
- SoS Messages during emergency situations
- Centralised live monitoring of Train movements through Network Monitor System.

**Significance of Kavach**

- Kavach is one of the cheapest, Safety Integrity Level 4 (SIL-4) certified technologies with the probability of an error being 1 in 10,000 years.
- It opens avenues of export of this indigenous technology for Railways.
- It helps the Railways to achieve the goal of “zero accidents”.

**Source:** EPIC March 2022

**Q.10) Consider the following statements about Synthetic Biology:**

1. It refers to the science of using genetic sequencing, editing, and modification to create unnatural organisms or organic molecules that can function in living systems.
2. The approvals for Biotechnology crops come from the Genetic Engineering Appraisal Committee (GEAC) under the Ministry of agriculture and Farmer welfare.

**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

**ANS: A**

**Explanation: About Synthetic Biology:**

- Synthetic biology refers to the science of using genetic sequencing, editing, and modification to create unnatural organisms or organic molecules that can function in living systems.

**Applications of Synthetic biology**

- Synthetic biology enables scientists to design and synthesise new sequences of DNA from scratch.
- It has applications in various fields. It can help in:
  - Developing synthetic organisms for vaccination;
  - Creating natural products in a lab such as vanillin, extracted from vanilla seeds, can be grown in yeasts with additional plant genomes;
  - Use of gene editing systems such as CRISPR will allow defective genes in animals, plants and even people to be silenced, or changed, and control biological outcomes;
  - Pharmaceutical industry: Synthetic biology can be used to make natural compounds such as artemisinin used for the treatment of malaria and Car T cell therapy for cancer treatment;
  - **In the fashion industry:** Some companies are exploring the possibility of dyeing jeans without producing hazardous waste using synthetic biology;
  - In Agriculture: Companies using synthetic biology to deliver fixed nitrogen to plants instead of using fertilisers, engineering microbes to create food additives or brew proteins.

**Status of Synthetic biology in India**

- As part of the 12th Five-Year Plan, India had set up a task force on systems biology and synthetic biology research in 2011.
- This body underlined the potential benefits from synthetic biotechnology in biofuels, bioremediation, biosensors, food and health and made a strong case for a push for the technology and highlighted that India could be a world leader as a protector and supporter of “open source biological platforms”.
- The Government had proposed Biotechnology Regulatory Authority of India Bill in 2013. The Bill mooted the creation of an independent regulator to adjudicate research around genetic engineering that could have also encompassed synthetic biology.
- But the Bill has been pending since then. Currently, the approvals for Biotechnology crops come from the Genetic Engineering Appraisal Committee (GEAC) under the Ministry of Environment, Forest and Climate Change and Review Committee on Genetic Manipulation (RCGM) under the Department of Biotechnology.

**Source:** EPIC March 2022

## *Location/IR/ Geography*

**Q.1) Montreux Convention governs which of the following strait?**

- a) Bosphorus Strait
- b) Bab al-Mandab Strait
- c) Dardanelles Straits
- d) Both (a) and (c)

**ANS: D**

**Explanation: About the Montreux Convention:**

- Montreux Convention is an international agreement governing the Bosphorus and Dardanelles Straits in Turkey.
- The convention was signed in 1936 at the Montreux Palace in Switzerland. The convention gives Turkey certain control over the passage of warships from the Dardanelles and Bosphorus Straits.



**Source:** EPIC March 2022

**Q.2) Sea of Marmara connects which of the following two water bodies?**

- a) Black Sea and Aegean Sea
- b) Aegean Sea and Ionian Sea
- c) Black sea and Ionian sea
- d) Black Sea and Adriatic Sea

**ANS: A**

**Explanation: About Sea of Marmara:**

- The Bosphorus and Dardanelles straits connect the Aegean Sea and the Black Sea via the Sea of Marmara. It is the only passage through which the Black Sea ports can access the Mediterranean and beyond.
- Over three million barrels of oil, about 3% of the daily global supply, mostly produced in Russia, Azerbaijan, and Kazakhstan, pass through this waterway every day.



Source: EPIC March 2022

**Q.3) Consider the following statements about Greater Maldives Ridge:**

1. Greater Maldives Ridge (GMR) is located in the western Indian Ocean, southwest of India.
2. The ridge is seismic which means that it is associated with earthquake activities.

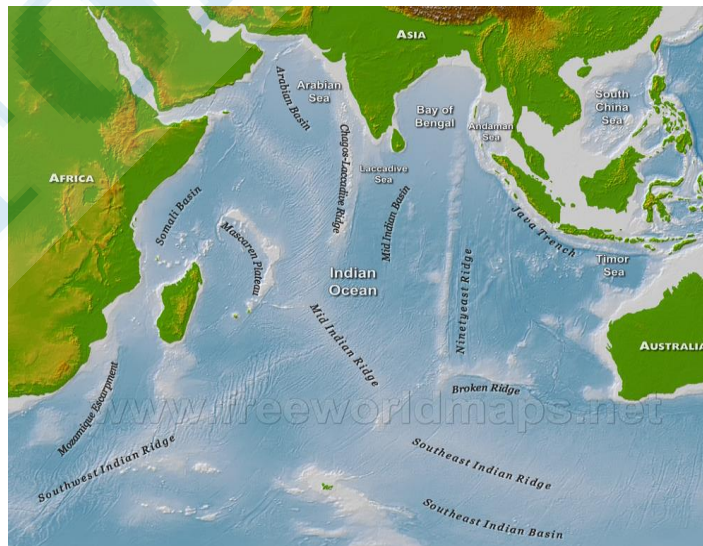
**Which of the statements given above is/are not correct?**

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

**ANS: B**

**Explanation: About Greater Maldives Ridge (Indian Ocean):**

- Greater Maldives Ridge (GMR) is located in the western Indian Ocean, southwest of India. The ridge is a segment of the larger Chagos-Laccadive Ridge (CLR) system.
- The ridge is aseismic which means that it is not associated with earthquake activities.
- A recent study undertaken by the Indian Institute of Geomagnetism, Mumbai has shown that the Maldives Ridge might have formed in the close vicinity of the Mid-Oceanic Ridge where new ocean floor is created due to divergent motion of spreading centre or lithospheric plates.



Source: EPIC March 2022

**Q.4) Consider the following statements:**

1. Rivers Mahanadi, Godavari and Krishna drain into the Bay of Bengal and have formed fertile deltas at their mouth.
2. Hundru falls in the Chhotanagpur plateau is on the Subarnarekha River.

**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

**ANS: C**

**Explanation:**

- Rivers on West Coast West coast has many rivers draining into the Bay of Bengal that form delta. The rivers Mahanadi, Godavari, Krishna and Kaveri drain into the Bay of Bengal.
- These rivers have formed fertile deltas at their mouth. Presence of so many deltas along the eastern coast is partly responsible for broader coastal plains on the east.
- In the plateau areas, there may be several waterfalls as the river falls from a great height. In India, the Hundru falls in the Chhotanagpur plateau on the river Subarnarekha and the Jog falls in Karnataka are examples of such waterfalls.

**Source:** NCERT

**Q.5) Which of the following are the characteristic features of the Indian Desert?**

1. The ephemeral river has brackish water which is the main source of obtaining salt.
2. Sand dune is any accumulation of sand grains shaped into a mound or ridge by the wind.

**Which of the above statements is/are correct?**

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

**ANS: B**

**Explanation: Characteristic features of the Indian:**

- Desert The Great Indian Desert lies to the northwest of the Aravali hills. It is a land of undulating topography dotted with longitudinal dunes and barchans.
- Most of the rivers in this region are ephemeral. The Luni River flowing in the southern part of the desert is of some significance. Low precipitation and high evaporation make it a water deficit region.
- There are some streams which disappear after flowing for some distance and present a typical case of inland drainage by joining a lake or playa. The lakes and the playas have brackish water which is the main source of obtaining salt.
- Though the underlying rock structure of the desert is an extension of the peninsular plateau, yet, due to extreme arid conditions, its surface features have been carved by physical weathering and wind actions.
- Some of the well pronounced desert land features present here are mushroom rocks, shifting dunes and oasis (mostly in its southern part).
- An ephemeral river is a river that only flows when there is rain or snow has melted.
- The rest of the year there is just a dry river bed with no water.
- Sand dune is any accumulation of sand grains shaped into a mound or ridge by the wind whereas a barchan or barkhan dune is a crescent-shaped dune.

**Source:** NCERT

**Q.6) Lake Razzaza, recently seen in news is located in which of the following country?**

- a) Iraq
- b) Syria
- c) Ukraine
- d) Belarus

**ANS: A**

**Explanation: About Lake Razzaza (Iraq):**

- Razzaza Lake is located in Iraq. It is also known as Lake Milh, Arabic for Salt Lake. It is the second-largest lake in Iraq.
- The lake was constructed as a measure to control floods in the Euphrates and to be used as a huge reservoir for irrigation purposes.
- Euphrates River is the longest river in southwest Asia. The river rises in Turkey and flows southeast across Syria and through Iraq.
- The lake is popular tourist spot. In recent years, the lake has been affected by the water shortage, drought, neglect, pollution and increased evaporation during Iraq's hot summers.



Source: EPIC March 2022

**Q.7) Char Chinar Island, recently seen in news is located at which of the following places?**

- a) Brahmaputra, Assam
- b) Dal Lake, Jammu and Kashmir
- c) Pangong lake, Ladakh
- d) Chandra taal, Himachal Pradesh

**ANS: B**

**Explanation: About Char Chinar Island and Chinar Trees:**

- Char Chinar also called Char Chinari, Ropa Lank or Rupa Lank is an island in Dal Lake, Srinagar.
- The Jammu & Kashmir administration has decided to translocate three fully-grown Chinar trees from elsewhere to the Char Chinar Island, where the decayed trees once stood in the 'green' of health.
- Chinar trees characteristically grow in Eastern Himalayas. Their botanical name is *Platanus orientalis*.

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- It is a large, deciduous tree known for its longevity and spreading crown. Its applications include:
  - Leaves and bark: Medicine;
  - Wood: Also called lacewood is used for delicate furniture;
  - Twigs and roots: Making dyes.

**Source:** EPIC March 2022

**Q.8) Which of the following countries of Europe is/are landlocked?**

1. Austria
2. Germany
3. Italy

**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

**ANS: A**

**Explanation:**

- A landlocked country is a country which has no connection to a sea or ocean.
- There are 17 landlocked countries in Europe: Andorra, Armenia, Austria, Belarus, Kosovo, Czech Republic, Hungary, Liechtenstein, Luxembourg, Macedonia, Moldova, San Marino, Serbia, Slovakia, Switzerland and Vatican City.
- Liechtenstein is unique in Europe because it is doubly-landlocked meaning it is both landlocked and surrounded by countries which are also landlocked, a situation it only shares with Uzbekistan which is the second country in the world surrounded only by landlocked countries (Turkmenistan, Kazakhstan, Kirgizstan, Tajikistan and Afghanistan).

**Source:** Oxford Atlas

**Q.9) Arrange the following hill ranges from South to North:**

1. Balaghat range
2. Harischandra range
3. Satpura range
4. Vindhya range

**Select the correct answer using the code given below:**

- a) 2 – 1 – 4 – 3
- b) 2 – 1 – 3 – 4
- c) 1 – 2 – 3 – 4
- d) 1 – 2 – 4 – 3

**ANS: B**

**Explanation:**



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Source: Oriental Black Swan Atlas

**Q.10) Which of the following country is not sharing border with Caspian Sea?**

- a) Russia
- b) Iran
- c) Turkmenistan
- d) Iraq

**ANS: D**

**Explanation: Russia, Iran, Azerbaijan, Kazakhstan and Turkmenistan**

- All bordering the Caspian Sea - have agreed in principle on how to divide it up.



Source: Oriental Black Swan Atlas

## *Polity*

**Q.1) Consider the following statements about Fundamental duties:**

1. They are not justifiable and are enforceable in a court of law.
2. These are in the form of general directives to citizens to display 'ideal' conduct in their public lives.

**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

**ANS: B**

**Explanation: About Fundamental Duties:**

- Fundamental duties (Article 51A) are in the form of general directives to citizens to display 'ideal' conduct in their public lives. However, they are not justifiable i.e. they are not enforceable in a court of law.

**Concerns Regarding Legal Enforcement:**

- Provisions already present: There are many laws like Prevention of Insults to National Honour Act, IPC 124A, Contempt of Courts Act, Environmental Protection Act, Ancient Monuments and Archaeological Remains Act, Right to Education Act that already cover some aspects of fundamental duties.
- Abuse and misuse: Fundamental duties deal with diverse areas such as environment, education, national security, heritage conservation, etc. Making them legally enforceable will make such a law prone to abuse and politicisation.
- Law making is Parliament's prerogative. The function of the Judiciary is to interpret the laws. Judiciary mandating Parliament to make laws on certain issues is against the doctrine of separation of powers.

**Source:** EPIC March 2022

**Q.2) Consider the following statements with respect to Election Commission of India:**

1. The appointment of the chief election commissioner and other election commissioners shall be made by the President.
2. They hold office for a term of six years or until they attain the age of 65 years, whichever is earlier

**Which of the following below given codes are correct?**

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

**ANS: C**

**Explanation: Article 324 of the Constitution has made the following provisions with regard to the composition of election commission:**

- The Election Commission shall consist of the chief election commissioner and such number of other election commissioners, if any, as the president may from time to time fix.

**PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022**

- The appointment of the chief election commissioner and other election commissioners shall be made by the president.
- When any other election commissioner is so appointed, the chief election commissioner shall act as the chairman of the election commission.
- They hold office for a term of six years or until they attain the age of 65 years, whichever is earlier. They can resign at any time or can also be removed before the expiry of their term.

**Source:** ForumIAS

**Q.3) Consider the following statements with respect to the procedure for the amendment of the Constitution:**

1. An amendment of the Constitution can be initiated in either House of Parliament.
2. The bill should be introduced by minister only.

**Which of the following below given codes are correct?**

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

**ANS: A**

**Explanation: Article 368 in Part XX of the Constitution deals with the powers of Parliament to amend the Constitution and its procedure:**

- An amendment of the Constitution can be initiated only by the introduction of a bill for the purpose in either House of Parliament and not in the state legislatures.
- The bill can be introduced either by a minister or by a private member and does not require prior permission of the president.
- The bill must be passed in each House by a special majority, that is, a majority (that is, more than 50 per cent) of the total membership of the House and a majority of two-thirds of the members of the House present and voting.
- Each House must pass the bill separately. In case of a disagreement between the two Houses, there is no provision for holding a joint sitting of the two Houses for the purpose of deliberation and passage of the bill.
- If the bill seeks to amend the federal provisions of the Constitution, it must also be ratified by the legislatures of half of the states by a simple majority, that is, a majority of the members of the House present and voting.
- After duly passed by both the Houses of Parliament and ratified by the state legislatures, where necessary, the bill is presented to the president for assent.
- The president must give his assent to the bill. He can neither withhold his assent to the bill nor return the bill for reconsideration of the Parliament.
- After the president's assent, the bill becomes an Act (i.e., a constitutional amendment act) and the Constitution stands amended in accordance with the terms of the Act.

**Source:** ForumIAS

**Q.4) Which of the following given statements are Socialistic Principles of Directive Principles of State Policy (DPSP):**

1. To promote equal justice and to provide free legal aid to the poor.
2. To secure the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement.
3. To promote voluntary formation, autonomous functioning, democratic control and professional management of co-operative societies.

**Which of the following below given codes are correct?**

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

**ANS: D**

**Explanation:** These principles reflect the ideology of socialism. They lay down the framework of a democratic socialist state, aim at providing social and economic justice, and set the path towards welfare state. They direct the state:

- To promote the welfare of the people by securing a social order permeated by justice—social, economic and political—and to minimize inequalities in income, status, facilities and opportunities<sup>4</sup> (Article 38).
- To secure (a) the right to adequate means of livelihood for all citizens; (b) the equitable distribution of material resources of the community for the common good; (c) prevention of concentration of wealth and means of production; (d) equal pay for equal work for men and women; (e) preservation of the health and strength of workers and children against forcible abuse; and (f) opportunities for healthy development of children<sup>5</sup> (Article 39).
- To promote equal justice and to provide free legal aid to the poor<sup>6</sup> (Article 39 A).
- To secure the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement (Article 41).
- To make provision for just and humane conditions of work and maternity relief (Article 42).
- To secure a living wage<sup>7</sup>, a decent standard of life and social and cultural opportunities for all workers (Article 43).
- To take steps to secure the participation of workers in the management of industries<sup>8</sup> (Article 43 A).
- To raise the level of nutrition and the standard of living of people and to improve public health (Article 47).

**Source:** ForumIAS

**Q.5) Indian government recently started to develop Agaléga Islands, located in which of the following country?**

- a) Iran
- b) Malaysia
- c) Singapore
- d) Mauritius

**ANS: D**

**Explanation:**

- As work gets under way on one of India's prize projects in the Indian Ocean to upgrade facilities on the Agaléga islands in Mauritius, the government is closely watching a battle brewing in the Mauritius parliament over the project.

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- After facing resistance over placing its helicopters in the Maldives' Addu atoll and the virtual cancellation of its project to develop the Assumption Island in the Seychelles earlier this year, New Delhi is moving swiftly but quietly to ensure its project in the Mauritius — to construct a jetty, rebuild and extend the runway, and build an airport terminal — does not run into trouble.
- The \$87 million project, to be funded by India, has been awarded to two Indian companies: AFCON construction group and RITES engineering consultancy. Surveys have begun to fulfil the contract signed on September 28 this year, which stipulated that construction begin by February 12, 2019, and be completed in 2021.
- Earlier this week, Prime Minister Pravinnd Jugnauth's government faced tough questions in the National Assembly as the Opposition raised a storm over Indian involvement in the project and its costs and whether it would involve a military component.

**Source:** ForumIAS

**Q.6) Consider the following statements with respect to The National Institute of Rural Development and Panchayati Raj (NIRD&PR):**

1. It is a premier national centre of excellence in rural development and Panchayati Raj
2. It is recognized as one of the UN-ESCAP Centres of Excellence

**Which of the following below given codes are correct?**

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

**ANS: C**

**Explanation:**

- The National Institute of Rural Development and Panchayati Raj (NIRD&PR), an autonomous organisation under the Union Ministry of Rural Development, is a premier national centre of excellence in rural development and Panchayati Raj.
- Recognized internationally as one of the UN-ESCAP Centres of Excellence, it builds capacities of rural development functionaries, elected representatives of PRIs, bankers, NGOs and other stakeholders through inter-related activities of training, research and consultancy.
- The Institute is located in the historic city of Hyderabad in Telangana state. The NIRD&PR celebrated its Golden Jubilee Year of establishment in 2008. In addition to the main campus at Hyderabad, this Institute has North-Eastern Regional Centre at Guwahati, Assam to meet the NE-regional needs.

**Source:** ForumIAS

**Q.7) "Lisbon Treaty" is recently in news related to which of the following?**

- a) European Union
- b) African Union
- c) Islamic Union
- d) None of the above

**ANS: A**

**Explanation:**

- The Lisbon Treaty started as a constitutional project at the end of 2001 (European Council declaration on the future of the European Union, or Laeken declaration), and

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was followed up in 2002 and 2003 by the European Convention which drafted the Treaty establishing a Constitution for Europe (Constitutional Treaty).

- The process leading to the Lisbon Treaty is a result of the negative outcome of two referenda on the Constitutional Treaty in May and June 2005, in response to which the European Council decided to have a two-year 'period of reflection'.
- Finally, on the basis of the Berlin declaration of March 2007, the European Council of 21 to 23 June 2007 adopted a detailed mandate for a subsequent Intergovernmental Conference (IGC), under the Portuguese presidency.
- The IGC concluded its work in October 2007. The Treaty was signed at the European Council of Lisbon on 13 December 2007 and has been ratified by all Member States.

**Source:** ForumIAS

### **Q.8) Consider the following statements with respect to Council of Ministers:**

1. The council of ministers shall be collectively responsible to the Lok Sabha
  2. The total number of ministers, shall not exceed 15% of the total strength of the Lok Sabha
- Which of the following codes given below is/are correct?

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

**ANS: C**

#### **Explanation:**

- The council of ministers headed by the prime minister is the real executive authority is our politico-administrative system.
- The principles of parliamentary system of government are not detailed in the Constitution, but two Articles (74 and 75) deal with them in a broad, sketchy and general manner.
- Article 74 deals with the status of the council of ministers while Article 75 deals with the appointment, tenure, responsibility, qualification, oath and salaries and allowances of the ministers.

#### **Provisions related to Council of Ministers:**

- The Prime Minister shall be appointed by the President and the other Ministers shall be appointed by the President on the advice of the Prime Minister.
- The total number of ministers, including the Prime Minister, in the Council of Ministers shall not exceed 15% of the total strength of the Lok Sabha. This provision was added by the 91st Amendment Act of 2003.
- A member of either house of Parliament belonging to any political party who is disqualified on the ground of defection shall also be disqualified to be appointed as a minister. This provision was also added by the 91st Amendment Act of 2003.
- The ministers shall hold office during the pleasure of the President.
- The council of ministers shall be collectively responsible to the Lok Sabha.
- The President shall administer the oaths of office and secrecy to a minister.
- A minister who is not a member of the Parliament (either house) for any period of six consecutive months shall cease to be a minister.
- The salaries and allowances of ministers shall be determined by the Parliament.

**Source:** ForumIAS

**Q.9) The term ‘Fourth Estate’ refers to which among the following?**

- a) Executive
- b) Judiciary
- c) Parliament
- d) Press

**ANS: D**

**Explanation:**

- The term Fourth Estate or fourth power refers to the press and news media both in explicit capacity of advocacy and implicit ability to frame political issues.
- Though it is not formally recognized as a part of a political system, it wields significant indirect social influence.
- The Fourth Estate is a societal power, force or institution whose influence is not consistently or officially recognised as such. ‘Fourth Estate’ most commonly refers to the news media, journalism or ‘the press’.
- The term ‘Fourth Estate’ makes implicit reference to the earlier historical division of the Three Estates of the Realm: the clergy, the nobility, and the commoners.
- The equivalent term ‘fourth power’, used in many European languages as it historically belongs to European constitutional lore dating back to the time of the Roman Empire, refers to the separation of powers into legislative, executive and judiciary branches.
- This separation of power has become the construct upon which nations have been built throughout the world. Of which the press is the fourth element.

**Source:** ForumIAS

**Q.10) What is the other name of the Iran Nuclear deal signed in 2015?**

- a) JCPOA
- b) CAATSA
- c) LEMOA
- d) None of the above

**ANS: A**

**Explanation:**

- The E3/EU+3 (China, France, Germany, the Russian Federation, the United Kingdom and the United States, with the High Representative of the European Union for Foreign Affairs and Security Policy) and the Islamic Republic of Iran welcome this historic Joint Comprehensive Plan of Action (JCPOA), which will ensure that Iran’s nuclear programme will be exclusively peaceful, and mark a fundamental shift in their approach to this issue.
- They anticipate that full implementation of this JCPOA will positively contribute to regional and international peace and security. Iran reaffirms that under no circumstances will Iran ever seek, develop or acquire any nuclear weapons.

**Source:** ForumIAS

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## *Economy*

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**Q.1) The Financial Stability Report is published by:**

- a) Financial Stability and Development Council
- b) Reserve Bank of India
- c) Securities and Exchange Board of India
- d) National Bank for Agriculture and Rural Development

**ANS: B**

**Explanation:** Recently, the Reserve Bank of India released the 24th issue of the Financial Stability Report (FSR).

**Financial Stability Report:**

- It is published by RBI bi-annually on behalf of the Financial Stability and Development Council, an umbrella group of regulators which gives an overview of the health of India's financial system.
- It reflects the collective assessment of the Sub-Committee of the Financial Stability and Development Council (FSDC) on risks to financial stability and the resilience of the financial system in the context of contemporaneous issues relating to development and regulation of the financial sector.
- The RBI looks at the state of both the global as well as domestic economy.

**Key highlights of the latest report are:**

- Global economic recovery has been losing momentum in the second half of 2021 in the face of resurfacing COVID-19 infections. Supply disruptions and bottlenecks, elevated inflationary levels and shifts in monetary policy stances and actions across advanced economies and emerging market economies.
- On the domestic front, progress in vaccination has enabled the recovery to regain traction after the debilitating second wave of the pandemic. The corporate sector is gaining strength and bank credit growth is improving.
- The capital to risk-weighted assets ratio (CRAR) of scheduled commercial banks (SCBs) rose to a new peak of 16.6 percent and their provisioning coverage ratio (PCR) stood at 68.1 per cent in September 2021.
- Macro stress tests for credit risk indicate that the gross non-performing asset (GNPA) ratio of SCBs may increase from 6.9 per cent in September 2021 to 8.1 per cent by September 2022 under the baseline scenario and to 9.5 per cent under a severe stress scenario. SCBs would, however, have sufficient capital, both at the aggregate and individual levels, even under stress conditions.
- They have remained resilient amidst the pandemic and stability prevails in the financial markets, cushioned by policy and regulatory support.

**Source:** EPIC March 2022



**Q.2) Consider the following statements regarding a currency swap facility:**

1. A currency swap involves the exchange of interest and principal in one currency for the same in another currency.
2. It is considered to be a foreign exchange transaction and is not shown on a company's balance sheet.
3. These swap operations carry exchange rate risks as transaction terms are set in advance.

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

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

**ANS: B**

**Explanation: Currency Swap:**

- India recently confirmed a 400 million currency swap with Sri Lanka while deferring another 400 million currency swap with Sri Lanka while deferring another 500 million due for settlement to the Asian Clearing Union (ACU), in a move aimed at helping the island nation witnessing an unprecedented economic crisis.
- In the swap arrangement, a country provides dollars to a foreign central bank, which, at the same time, provides the equivalent funds in its currency to the former, based on the market exchange rate at the time of the transaction. The parties agree to swap back these quantities of their two currencies at a specified date in the future, which could be the next day or even two years later, using the same exchange rate as in the first transaction.
- These swap operations carry no exchange rate or other market risks, as transaction terms are set in advance. The absence of an exchange rate risk is the major benefit of such a facility. This facility provides the country, which is getting the dollars, with the flexibility to use these reserves at any time in order to maintain an appropriate level of balance of payments or short-term liquidity.
- A currency swap typically involves the exchange of interest and sometimes of principal in one currency for the same in another currency. Interest payments are exchanged at fixed dates through the life of the contract. It is considered to be a foreign exchange transaction and is not required by law to be shown on a company's balance sheet.

Source: EPIC March 2022

**Q.3) Which of the following reports are the flagship publications of International Labor Organization (ILO)?**

1. World Employment and Social Outlook
2. Global Wage Report
3. World Social Protection Report
4. Future of Jobs Report

**Select the correct answer using the correct answer using the code given below:**

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

**ANS: C**

**Explanation: World Employment and Social Outlook:**

- ILO recently released its flagship World Employment and Social Outlook - Trends 2022 report.
- Its other flagship publications include: Global Wage Report and World Social Protection Report.
- Published by International Labor Organization (ILO), the report details effects of COVID-19 crisis on the world of work.

**Key findings are:**

- Global unemployment is expected to remain above pre-COVID-19 levels until at least 2023. The 2022 level is estimated at 207 million, compared to 186 million in 2019.
- It downgraded its forecast for labour market recovery in 2022, projecting a deficit in hours worked globally equivalent to 52 million full-time jobs, relative to the fourth quarter of 2019.
- An additional 30 million adults fell into extreme poverty in 2020 while being out of paid work.
- The European and the North American regions are showing the most encouraging signs of recovery, while South-East Asia and Latin America and the Caribbean have the most negative outlook.
- At the national level, labour market recovery is strongest in high-income countries, while lower-middle-income economies are faring worst.
- The disproportionate impact of the crisis on women's employment is expected to last in the coming years. While the closing of education and training institutions "will have cascading long-term implications" for young people, particularly those without internet access.
- There can be no real recovery from this pandemic without a broad-based labour market recovery. And to be sustainable, this recovery must be based on the principles of decent work – including health and safety, equity, social protection and social dialogue.

**Source:** EPIC March 2022

**Q.4) Which of the following statements regarding Account Aggregator System is/are correct?**

1. An Account Aggregator is a financial utility for secure flow of data controlled by the individual.
2. The licence for AAs is issued by the Financial Stability and Development Council (FSDC).
3. It will help banks reduce transaction costs and thus enable them to offer more tailored products and services to customers.

**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

**ANS: C**

**Explanation: Account Aggregator System:**

- Complementing the PM Jan DhanYojana (PMJDY), India recently unveiled the account aggregator network to overcome the challenges of access to micro-credit for individuals and MSMEs.
- An Account Aggregator is a non-banking financial company engaged in the business of providing, under a contract, the service of retrieving or collecting financial information pertaining to its customer.
- It is also engaged in consolidating, organising and presenting such information to the customer or any other financial information user as may be specified by the bank.
- The AA framework was created through an inter-regulatory decision by RBI and other regulators including Securities and Exchange Board of India, Insurance Regulatory and Development Authority, and Pension Fund Regulatory and Development Authority (PFRDA) through and initiative of the Financial Stability and Development Council (FSDC).
- The licence for AAs is issued by the RBI and no entity other than a company can undertake the business of an Account Aggregator.
- The AA framework allows customers to avail various financial services from a host of providers on a single portal based on a consent method, under which the consumers can choose what financial data to share and with which entity.
- It reduces the need for individuals to wait in long bank queues, use Internet banking portals, share their passwords, or seek out physical notarisation to access and share their financial documents. Thus it is a financial utility for secure flow of data controlled by the individual.
- It will help banks reduce transaction costs, which will enable banks to offer lower ticket size loans and more tailored products and services to customers. It will also help banks reduce frauds and comply with upcoming privacy laws.
- It has a three-tier structure: Account Aggregator, FIP (Financial Information Provider) and FIU (Financial Information User).
- An FIP is the data fiduciary, which holds customers' data. It can be a bank, NBFC, mutual fund, insurance repository or pension fund repository. An FIU consumes the data from an FIP to provide various services to the consumer. An FIU is a lending bank that wants access to the borrower's data to determine if the borrower qualifies for a loan. Banks play a dual role – as an FIP and as an FIU.

**Source:** EPIC March 2022

**Q.5) Which of the following countries are the members of Cotton Four or C4 grouping?**

1. Benin
2. Chad
3. Niger
4. Burkina Faso

**Select the correct answer using the code given below:**

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

**ANS: B**

**Explanation: Burkina Faso:**

- Recently, Burkina Faso's army announced that it had ousted President Roch Kabore, suspended the constitution, dissolved the government and the national assembly, and closed the country's borders.
- A former French colony, Burkina Faso has suffered chronic instability since gaining independence in 1960, including several coups.
- The country's name, meaning "land of the honest men", was picked by revolutionary military officer Thomas Sankara who took power in 1983. He was toppled and killed in 1987.
- Since 2015, the country has been fighting an Islamist insurgency that spilled over from neighboring Mali. This has fueled anger in the military and damaged the once important tourist industry.
- Landlocked Burkina Faso, one of West Africa's poorest countries despite being a gold producer, has experienced numerous coups since independence from France in 1960.
- Islamist militants control swathes of Burkina Faso's territory and have forced residents in some areas to abide by their harsh version of Islamic law, while the military's struggle to quell the insurgency has drained scarce national resources.
- Kabore had faced waves of protests in recent months amid frustration over killings of civilians and soldiers by militants, some of whom have links to Islamic State and al Qaeda.
- Burkina Faso along with three other African countries — Benin, Chad and Mali are known as the Cotton Four or C4.
- Cotton is discussed at the WTO on two tracks:
  1. the trade reforms needed to address subsidies and high trade barriers for cotton, and
  2. the assistance provided to the cotton sector in developing countries
- The trade aspects of cotton are handled by the Committee on Agriculture in Special Session including through dedicated discussions on trade in cotton. The development assistance aspects of cotton are discussed in the meetings of the "Director-General's Consultative Framework Mechanism on Cotton".
- These various tracks of discussion have been developed over the years as a response to a series of proposals to address the sector tabled by four African countries — Benin, Burkina Faso, Chad and Mali — known as the Cotton Four or C4.

**Source:** EPIC March 2022

**Q.6) Consider the following statements about National Strategy on Additive Manufacturing:**

1. It is launched by Ministry of Science and technology.
2. The Strategy targets to achieve 50% of Global Additive Manufacturing market share.

**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

**ANS: D**

**Explanation:** About **the National Strategy on Additive manufacturing (AM):**

- It has been released by the Ministry of Electronics & IT. Its main aims are to:
  - Position India as a global hub for Additive Manufacturing development and deployment;
  - Create and protect the integrity of India's AM intellectual properties;
  - Create a conducive ecosystem for Global AM leaders to set up their operations in India.
- The Strategy targets to achieve 5% of Global AM market share and add nearly US\$ 1 billion to the GDP by 2025 and to develop 50 India specific technologies, 100 new start-ups, 500 products, 10 existing & new manufacturing sectors and 1 Lakh new skilled manpower in Additive Manufacturing (AM) sector by 2025.

**Source:** EPIC March 2022

**Q.7) Consider the following statements about Market Infrastructure Institutions (MIIs):**

1. MIIs include Stock exchanges, depositories and clearing houses.
2. National Securities Depository Ltd. is yet to be qualified to be a MII.

**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

**ANS: A**

**Explanation: About Market Infrastructure Institutions (MIIs):**

- Stock exchanges, depositories and clearing houses are Market Infrastructure Institutions (MIIs) and constitute a key part of the nation's vital economic infrastructure.
- According to the Bimal Jalan Committee (2010), MIIs are systemically important for India as these institutions have seen phenomenal growth in terms of the market capitalization of listed companies, capital raised and the number of investor accounts with brokers and depositories and the value of assets held in the depositories account.

**Institutions in India that qualify as MIIs**

- **Stock Exchanges:** SEBI lists 7 institutions including BSE, NSE, Multi Commodity Exchange of India and Metropolitan Stock Exchange of India as MIIs.
- **Depositories:** They are charged with the safekeeping of securities and enabling their trading and transfer.
- Central Depository Services Ltd. and the National Securities Depository Ltd. have been listed as MIIs.
- **Clearing houses:** They help validate and finalise securities trades and ensure that both buyers and sellers honour their obligations. SEBI lists seven clearing houses including the Multi Commodity Exchange Clearing Corporation as MIIs.

**Governance norms in the regulation of MIIs**

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- Any failure of MIIs could result in an overall economic downfall that could potentially extend beyond the boundaries of the securities market. Hence, the governance and oversight of MIIs are critical, and need to be of the highest standards.

**Source:** EPIC March 2022

**Q.8) Consider the following statements about Star Rating System for packaged food products:**

1. Under this system, packaged foods will display the number of stars on the front of the pack, indicating how healthy or unhealthy it is depending upon the amount of salt, sugar and fat it has.
2. The rating system will be mandatory from 2023.

**Which of the statements given above is/are not correct?**

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

**ANS: B**

**Explanation: About Star Rating System for packaged food products**

- The aim is to guide consumers to opt for healthy food. Under this system, packaged foods will display the number of stars on the front of the pack, indicating how healthy or unhealthy it is depending upon the amount of salt, sugar and fat it has.
- Milk and dairy products will be excluded from this proposed front-of-the-pack labelling.
- The rating system will be initially voluntary from 2023 with a transition period of four years. After this period, it would be made mandatory.
- This rating system will be similar to the one that is being used by the Bureau of Energy Efficiency for assessing the energy efficiency in electrical devices.
- At present, countries such as the UK, Chile, New Zealand, Mexico and Australia have Front of the Pack labelling (FoPL) for packaged food Products.

**Source:** EPIC March 2022

**Q.9) Consider the following statements about Public Financial Management System (PFMS):**

1. It is a web-based online software application developed and implemented by the Controller General of Accounts (CGA).
2. It tracks funds released under all Plan schemes of Government of 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

**ANS: C**

**Explanation: What is Public Financial Management System (PFMS)?**

- (1) The PFMS is a web-based online software application developed and implemented by the Controller General of Accounts (CGA), Department of Expenditure, Ministry of Finance;
- (2) PFMS was conceptualized in 2009. The objectives of PFMS have been gradually expanded:
  - (a) Tracking funds released under all Plan schemes of Government of India;
  - (b) Real time reporting of expenditure at all levels of Programme implementation;
  - (c) Track Direct Payments to beneficiaries under all Schemes;

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- (d) Payment and Exchequer Control;
- (3) The primary function of the PFMS is to facilitate sound financial management for the Government. PFMS does so by establishing an efficient fund flow system as well as a payment cum accounting network.

Source: EPIC March 2022

**Q.10) Services Trade Restrictiveness Index (STRI) is released by which of the following institutions?**

- a) WTO
- b) UNCTAD
- c) OECD
- d) ITU

**ANS: C**

**Explanation: About Services Trade Restrictiveness Index (STRI)**

- STRI was launched in 2014 by OECD.
- It provides information on regulations affecting trade in services in 22 sectors.
- It considers OECD plus some other countries like India, China, South Africa, Brazil, Russia, Indonesia etc.
- The 22 sectors include computer services, telecommunication, air transport, maritime transport, rail freight, cargo-handling, legal services, construction, engineering services etc. The index varies from 0 (least restrictive) to 1 (most restrictive).

**Source:** EPIC March 2022

## *Environment*

**Q.1) National Institute of Urban Affairs (NIUA) has signed a MoU with which of the following institutions for 'Sustainable Cities India Program'?**

- a) World Economic Forum
- b) UNEP
- c) World Bank
- d) ADB

**ANS: A**

**Explanation: About Sustainable Cities India Program:**

- The World Economic Forum (WEF) and the National Institute of Urban Affairs (NIUA) have signed an MoU to collaborate on a jointly designed 'Sustainable Cities India program'.
- The aim is to enable cities to decarbonize in a systematic and sustainable way that will reduce emissions and deliver resilient and equitable urban ecosystems.
- The NIUA will adapt the WEF's City Sprint process and Toolbox of Solutions for decarbonization in the context of five to seven Indian cities across two years.

**Source:** EPIC March 2022

**Q.2) Consider the following statements about Cheetah:**

1. It is the world's fastest land animal.
2. The cheetah was declared extinct in India in 1952.
3. Its IUCN Status is Critically Endangered.

**Which of the following statement given below is/are correct?**

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

**ANS: C**

**Explanation: About Cheetah Reintroduction Project in India:**

- The cheetah is the world's fastest land animal. The cheetah was declared extinct in India in 1952. Cheetah is the only large carnivore to have become extinct in Independent India.
- Its IUCN Status is Vulnerable. The Government of India has released the Action Plan for Introduction of Cheetah in India.
- As part of the plan, India will be translocating around 12-14 cheetahs from South Africa, Namibia and Botswana to Kuno Palpur National Park in Madhya Pradesh. This could be the world's first intercontinental cheetah translocation project.

**Source:** EPIC March 2022



**Q.3) New software named SIMBA has been developed for which of the following species?**

- a) Bengal Tiger
- b) Asiatic Lion
- c) Cheetah
- d) Leopard

**ANS: B**

**Explanation: About SIMBA:**

- The forest department of Gujarat has developed new software named SIMBA.
- Software with Intelligent Marking Based Identification of Asiatic lions is Artificial Intelligence (AI)-based software developed to identify Asiatic lions individually.
- The software has been developed by Hyderabad-based “teliolabs”. SIMBA works with a deep machine learning technique to distinguish unique whisker marks to identify Asiatic lions individually.

**Source:** EPIC March 2022

**Q.4) Consider the following statements about Indian Grey Hornbill:**

1. This species is found only in the Indian subcontinent.
2. These birds are known to be terrestrial.

**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

**ANS: A**

**Explanation: About Indian Grey Hornbill:**

- Indian Grey Hornbill (*Ocyrceros birostris*) is a fairly common hornbill species found only in the Indian subcontinent. It is a medium-sized hornbill with a brownish-grey body. Its IUCN Status is Least Concern.
- It plays an essential role in the ecosystem as prime dispersers of seeds. It is also one of the few hornbill species found in urban areas. These birds are known to be arboreal, i.e. spend most of their time on tall trees but may descend for food and to collect mud pellets for nesting.
- They are threatened primarily by habitat loss in the cities and the cutting down of large trees, which is important for both food and nesting. Gujarat Forest Department is reintroducing the Indian grey hornbill in Gir Forest after almost 90 years.

**Source:** EPIC March 2022

**Q.5) Which of the following statement about Northern River Terrapin is not correct?**

- a) It is one of Asia’s largest freshwater and breakwater turtles.
- b) It is regionally extinct in India.
- c) Its IUCN Red List is Critically Endangered.
- d) They spend most of their time in water and only come on land to lay eggs.

**ANS: B**

**Explanation: About Northern River Terrapin:**

- Northern River Terrapin (*Batagur baska*) is a species of riverine turtle native to Southeast Asia. It is one of Asia’s largest freshwater and breakwater turtles. Its IUCN Red List is Critically Endangered and falls under Appendix I in CITES and Schedule I of the Wildlife (Protection) Act, 1972.

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- The species is currently found in Bangladesh, India (Sunderbans), Cambodia, Indonesia and Malaysia. It is regionally extinct in Myanmar, Singapore, Thailand and Vietnam. They spend most of their time in water and only come on land to lay eggs.
- They are even known to undertake long seasonal migrations to the sandbanks where they were hatched.
- They have an omnivorous diet. Threats to them include hunting and harvesting of eggs, Pollution and loss of habitat, Incidental drowning by getting trapped in fishing nets and Destructive fishing practices.

**Source:** EPIC March 2022

**Q.6) Consider the following statements about Jaladhara Frog:**

1. It is predominantly a freshwater frog.
2. It is found in River Ganga.

**Which of the statements given above is/are not correct?**

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

**ANS: B**

**Explanation: About Jaladhara Frog:**

- Researchers have discovered a new frog species named 'Jaladhara skittering frog' from the freshwater bodies of the western coastal plains of India.
- Its scientific name is Euphlyctis Jaladhara. It is predominantly a freshwater frog. The frog is found along the western coastal plains from Kerala to Gujarat. This is the second new species of skittering frog detected from the locality.
- The earlier species, the Kerala pond frog (Phrynomeris Kerala) was also discovered in the same region by the same group of researchers in 2021.

**Source:** EPIC March 2022

**Q.7) A new gin berry species named 'Glycosmis albicarpa' from which of the following area?**

- a) Eastern Ghats
- b) Khasi hills
- c) Western Ghats
- d) Himalaya

**ANS: C**

**Explanation: About Glycosmis albicarpa:**

- Scientists from the Botanical Survey of India (BSI) have discovered a new gin berry species named 'Glycosmis albicarpa' from the Kanyakumari Wildlife Sanctuary in Tamil Nadu.
- It belongs to the Orange family, Rutaceae. It is endemic to the southern Western Ghats. It is an evergreen small tree with a distinct white fruit growing on it. Its berries gained popularity as edible fruit.
- They are also being utilized for their medicinal values and food.

**Source:** EPIC March 2022

**Q.8) Consider the following statements about Chinar trees:**

1. Chinar trees characteristically grow in Western Himalayas.
2. It is a large, deciduous tree known for its longevity and spreading crown.

**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

**ANS: B**

**Explanation: About Chinar trees:**

- Chinar trees characteristically grow in Eastern Himalayas. Their botanical name is *Platanus orientalis*. It is a large, deciduous tree known for its longevity and spreading crown. Its applications include:
  - Leaves and bark: Medicine;
  - Wood: Also called lacewood is used for delicate furniture;
  - Twigs and roots: Making dyes.

**Source:** EPIC March 2022

**Q.9) India's first conservation reserve for the Dugong would be established at which of the following place?**

- a) Gulf of Mannar
- b) Gulf of Khambhat
- c) Gahirmatha Marine sanctuary
- d) Andaman and Nicobar

**ANS: A**

**Explanation: About Conservation Reserve for Dugongs:**

- The Government of Tamil Nadu has decided to establish India's first conservation reserve for the Dugong in Gulf of Mannar, Palk Bay.
- It will make India as the leading nation in the South Asia Sub-region with respect to dugong conservation.

**Source:** EPIC March 2022

**Q.10) "Pamed Wildlife Sanctuary" is located in which of the following state?**

- a) Jharkhand
- b) Odisha
- c) Chhattisgarh
- d) Maharashtra

**ANS: C**

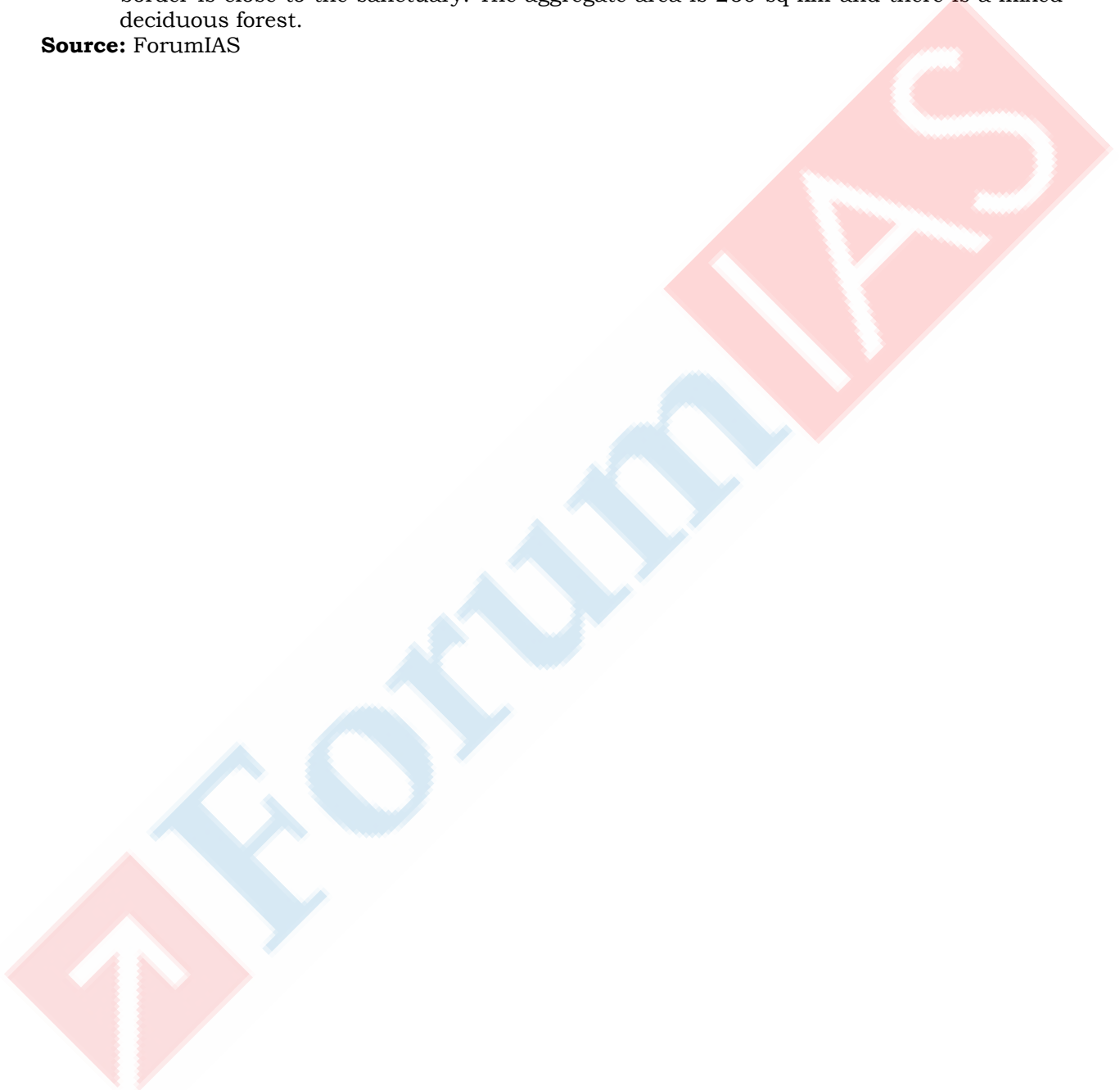
**Explanation:**

- Spread over a region of 262 sq km, Pamed is one of the essential wildlife sanctuaries in Bastar. Set up in 1983 to accommodate the overabundance population of the wild bison, this sanctuary is also home to the tiger, panther, chital and different types of fauna.
- Chhattisgarh is one of the essential places in the tourism guide of the nation. A major portion of the state is covered with forests.

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- A considerable measure of rare trees is to be found in the forests. You can also find some of the rare types of creatures in the national parks and the wildlife Sanctuaries.
- Pameda Wildlife Sanctuary, Chhattisgarh is one of the vital sanctuaries and attracts the travelers who have an adventurous blend of mind. Pameda wildlife Sanctuary in Chhattisgarh in India is located in Dantewada District of Chhattisgarh. Andhra Pradesh border is close to the sanctuary. The aggregate area is 260 sq km and there is a mixed deciduous forest.

**Source:** ForumIAS



## *History/ Art and Culture*

**Q.1) Consider the following statements about Theyyam:**

1. Theyyam is a popular ritual form of dance worship in Kerala and Karnataka.
2. Theyyam is performed by females, except the Devakoothu theyyam which is the only Theyyam ritual performed by men.

**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

**ANS: A**

**Explanation: About Theyyam:**

- Theyyam is a popular ritual form of dance worship in Kerala and Karnataka. It consists of thousand-year-old traditions, rituals and customs.
- The people consider Theyyam itself as a channel to a god, and they thus seek blessings from Theyyam.
- There are about 456 types of Theyyam.
- Theyyam is performed by males, except the Devakoothu theyyam which is the only Theyyam ritual performed by women. It is performed only in the Thekkumbad Kulum temple (Kerala).
- The dance or invocation is generally performed in front of the village shrine. It is also performed in the houses as ancestor worship with elaborate rites and rituals.

**Some popular Theyyams**

- Vishnumoorthi: It is the most popular Vaishnava Theyyam. This theyyam narrates and performs the story of Hiranyakashipu's death by Lord Vishnu in his avatar of Narasimham.
- Sree Muthappan Theyyam: It is considered as the personification of two divine figures—the Thiruvappana or Valiya Muttapan (Vishnu) and the Vellatom or Cheriya Muttapan (Shiva).
- Gulikan: Gulikan represents Yama, the Hindu god of death. The Benkanakavu in Nileshwar is the most famous temple dedicated to Gulikan.

**Source:** EPIC March 2022

**Q.2) Consider the following statements about Sohrai Art Form:**

1. It is practised by tribal women in the Hazaribagh district of Jharkhand.
2. Sohrai Khovar painting received the Geographical Indication (GI) tag in 2020.

**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

**ANS: C**

**Explanation: About Sohrai Art Form:**

- Sohrai painting is an indigenous art form practised by tribal women in the Hazaribagh district of Jharkhand.

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- The paintings are done on mud walls to welcome the harvest and to celebrate the cattle. The women clean their houses and decorate their walls with murals of Sohrai arts.
- This art form has continued since 10,000-4,000 BC. It was prevalent mostly in caves, but shifted to houses with mud walls. Sohrai Khovar painting received the Geographical Indication (GI) tag in 2020.

### **Key Features of Sohrai Art Form**

- The Sohrai art form can be monochromatic or colourful. The people coat the wall with a layer of white mud, and while the layer is still wet, they draw with their fingertips on it.
- Their designs range from flowers and fruits to various other nature-inspired designs. The cow dung is used to add colour.
- The artists are spontaneous in their drawings. The designs are usually drawn from the artist's memory. The personal experience of the artist and their interaction with nature are the biggest influence.

**Source:** EPIC March 2022

### **Q.3) The term Blue Shield, recently seen in news is related to which of the following?**

- a) Shield system to recognise ageing dams around the world
- b) Organization to protect heritage during armed conflicts and disasters across the world.
- c) Shielding of earth outer space with a network of satellites
- d) None

**ANS: B**

### **Explanation: About the 1954 Hague Convention:**

- The Convention for the Protection of Cultural Property in the Event of Armed Conflict also known as the Hague Convention was adopted in 1954 under the auspices of UNESCO.
- Its aims is to protect cultural properties such as monuments of architecture, art or history, archaeological sites, works of art, manuscripts, books and other objects of artistic, historical or archaeological interest, as well as scientific collections of any kind regardless of their origin or ownership.
- It is the first and the most comprehensive multilateral treaty dedicated exclusively to the protection of cultural heritage in times of peace as well as during an armed conflict.
- India is a party to this convention.

### **About Blue Shield**

- Blue Shield was founded in 1996. It is an independent, neutral, non-governmental, non-profit, international organization which strives to protect heritage during armed conflicts and disasters across the world.
- This includes all forms of cultural property including museums, monuments, archaeological sites, archives, libraries and audio-visual material, and significant natural areas, as well as intangible heritage.
- The 1954 Hague Convention designates an emblem for a cultural property that should be protected, and for identification of those working to protect it. The Blue Shield organization took up the emblem of the Convention as a symbol of their protective work, set in a blue circular background.



Source: EPIC March 2022

**Q.4) Pal-Dadhvav Massacre took place in 1922 in which of the following region?**

- a) Punjab
- b) Bihar
- c) Gujarat
- d) Jharkhand

**ANS: C**

**Explanation: About Pal – Dadhvav Massacre:**

- Pal – Dadhvav massacre took place on March 7, 1922 in Pal-Chitariya and Dadhvaav villages of Sabarkantha district, then part of Idar state (present-day Gujarat).
- The villagers from Pal, Dadhvav, and Chitariya had gathered on the banks of River Heir as part of the 'Eki movement' led by Motilal Tejawat.
- The movement was to protest against the land revenue tax (lagaan) imposed on the peasants by the British and feudal lords.
- However, the British Paramilitary force reached the spot and fired on them. Nearly 1,000 tribals (Bhils) died.
- But Tejawat was taken safely from there, and later he returned to the spot to christen it 'Veer Bhumi'.

**Recognition of Pal-Dadhvav Massacre**

- The Pal-Dadhvav massacre was brought into focus at the Republic Day parade this year.
- The Republic Day tableau featured a seven-ft statue of Tejawat, inspired by the statue at the memorial.

**Source:** EPIC March 2022

**Q.5) Perini Dance, an ancient dance form, belongs to which of the following state?**

- a) Telangana
- b) Assam
- c) Kerala
- d) Manipur

**ANS: A**

**Explanation: About Perini Dance:**

- Perini is an ancient dance form from Telangana. This dance form prospered during the Kakatiya dynasty.
- This dance form is also called 'Dance of Warriors'. It is believed that in ancient times, this dance form was performed before the soldiers were sent to war.
- It is usually performed by males in honour of Lord Shiva. The evidence of this dance is found in the sculptures near Garbha Gudi (Sanctum Sanctorum) of the Ramappa Temple at Warangal.

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- This dance form was almost forgotten until the early 1970s. However, Padma Shri Dr. Nataraja Ramakrishna revived this art form.

**Source:** EPIC March 2022

**Q.6) Which of the following ministry has announced 'Dhara, an Ode to Indian Knowledge System' as a part of the Science Week Vigyan Sarvatra Pujyate?**

- a) Ministry of Culture
- b) Ministry of Science and technology
- c) Ministry of Education
- d) NITI Aayog

**ANS: A**

**Explanation: About Dhara, an Ode to Indian Knowledge System:**

- The Ministry of Culture has announced 'Dhara, an Ode to Indian Knowledge System' as a part of the Science Week Vigyan Sarvatra Pujyate.
- Dhara comprises a series of lecture demonstrations by eminent scholars across the world to revisit history and celebrate the achievements of India and the contribution of great scholars, mathematicians, scientists, and leaders to its heritage.
- The lectures commenced with 'Mathematics in India' which will focus on India's contribution to Mathematics through the ages.

**Source:** EPIC March 2022

**Q.7) Consider the following statements about Nathdwara Paintings:**

1. Nathdwara school is a subset of the Mewar school of painting.
2. Most paintings revolve around the figure of Shrinathji as a manifestation of Krishna and refer to the incident of him holding the Govardhan hill on his last finger.

**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

**ANS: C**

**Explanation: About Nathdwara Paintings:**

- Nathdwara Painting refers to a painting tradition and school of artists that emerged in Nathdwara, Rajasthan.
- Nathdwara school is a subset of the Mewar school of painting and is seen as an important school in the 17th and 18th-century miniature paintings.
- Most works produced in this style revolve around the figure of Shrinathji as a manifestation of Krishna and refer to the incident of him holding the Govardhan hill on his last finger.
- A new book has been recently released on Nathdwara Paintings.

**Source:** EPIC March 2022



**Q.8) Consider the following statements about Bhasha Sangam App:**

1. It is a mobile application developed by the Ministry of Education.
2. Its aim is to foster the spirit of Ek Bharat Shreshtha Bharat by enabling people across India to learn different languages of 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

**ANS: C**

**Explanation: About Bhasha Sangam App:**

- It is a mobile application developed by the Ministry of Education in collaboration with MyGov India.
- Its aim is to foster the spirit of Ek Bharat Shreshtha Bharat by enabling people across India to learn different languages of India and come closer to their culture.
- Using the app, people can learn 100+ sentences of daily use in as many as 22 scheduled Indian languages.

**Source:** EPIC March 2022

**Q.9) Which among the following is not part of Subsidiary Alliance?**

- a) Hyderabad
- b) Tanjore
- c) Bhagat
- d) Awadh

**ANS: C**

**Explanation: Subsidiary Alliance of Wellesley: Subsidized States are:**

- Hyderabad (1798; 1800)
- Mysore (1799)
- Tanjore (October 1799)
- Awadh (November 1801)
- Peshwa (December 1801)
- Bhonsle of Berar (December 1803)
- Sindhia (February 1804)
- Jodhpur (1818)
- Jaipur (1818)
- Macheri (1818)
- Bundi (1818)
- Bharatpur (1818)

**Doctrine of Lapse: Lapsed States under Lord Dalhousie (1848-56)**

- Satara (1848)
- Sambhalpur (1849)
- Bhagat (1850)
- Udaipur (1850)
- Nagpur (1854)
- Jhanshi (1855)
- Awadh (1856; on charge of mal-administration)

**Source:** Spectrum's A Brief History of Modern India.

**Q.10) Which of the following Governor – General of India was considered as the father of local self-government in India?**

- a) Lord Mayo
- b) Lord Ripon
- c) Lord Dufferin
- d) Lord Curzon

**ANS: B**

**Explanation: Ripon's Resolution of 1882:**

- The Government of Ripon desired the provincial governments to apply in case of local bodies the same principle of financial decentralization which Lord Mayo's Government had begun towards them.
- For his contributions, Lord Ripon is called father of local self-government in India.

**Source:** Spectrum's A Brief History of Modern India.

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## *Scheme/ Programs/ Institutions*

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**Q.1) Consider the following statements about PM 15 Point Programme for the welfare of Minority Communities:**

1. It aims to ensure that the underprivileged and weaker sections of six centrally notified minority communities have equal opportunities for availing of the various Government welfare Schemes.
2. Ministry of Social Justice and Empowerment is implementing this programme.

**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

**ANS: A**

**Explanation: About PM 15 Point Programme for the welfare of Minority Communities:**

- It is an overarching programme covering various schemes/initiatives of the participating Ministries/Departments and is implemented throughout the country.
- Aim of the Programme: To ensure that the underprivileged and weaker sections of six centrally notified minority communities have equal opportunities for availing of the various Government welfare Schemes.
- To ensure that wherever possible, 15% of targets and outlays under various schemes should be earmarked for minorities.
- However, the schemes of the Ministry of Minority Affairs are exclusively meant for notified minorities.

Objectives of the Programme: The programme has the following broad objectives:

- Enhancing opportunities for education,
- Ensuring an equitable share for minorities in economic activities and employment,
- Improving the conditions of living of minorities by ensuring an appropriate share for them in infrastructure development schemes and
- Prevention and control of communal disharmony and violence.

**Source:** ForumIAS

**Q.2) Consider the following statements about Bharatiya Prakritik Krishi Paddhati (BPKP) Scheme:**

1. It is launched by Ministry of Agriculture & Farmers Welfare during 2020-21.
2. It aims to promote traditional indigenous practices which give freedom to farmers from externally purchased inputs.

**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

**ANS: C**

**Explanation: About Bharatiya Prakritik Krishi Paddhati(BPKP) Scheme:**

- **Launched by:** Ministry of Agriculture & Farmers Welfare during 2020-21
- **Parent Scheme:** It is a sub-mission under the centrally sponsored scheme-Paramparagat Krishi Vikas Yojana(PKVY).

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### **Aim:**

- To promote traditional indigenous practices which give freedom to farmers from externally purchased inputs.
- Main Focus of the Scheme: The scheme mainly focuses on the exclusion of all synthetic chemical inputs and promotes on-farm biomass recycling with major stress on biomass mulching, use of cow dung-urine formulations and other plant-based preparations.
- Financial Assistance: Under BPKP, financial assistance of Rs. 12200/ha for 3 years is provided for cluster formation, capacity building and continuous handholding by trained personnel, certification and residue analysis.
- Achievements of the Scheme: Until now, under natural farming, an area of 4.09 lakh ha area has been covered. The Government of Andhra Pradesh is leading in terms of 1.0 lakh ha area under natural farming under BPKP.

**Source:** ForumIAS

### **Q.3) What is 'Igla-S system' which is seen in news recently?**

- a) Man-portable air defense system capable of engaging all types of visually observable aircraft and helicopters.
- b) First indigenously built long range artillery gun.
- c) High-speed Expendable Aerial Target (HEAT) that offers a realistic threat scenario for practice of weapon systems.
- d) Third generation fire and forget class anti-tank guided missile (ATGM) system

### **ANS: A**

#### **Explanation: About Igla-S Systems**

- It is a man portable air defence system (MANPADS) developed by Russia.
- It is a Very Short Range Air Defence System (VSHORAD) weapon.
- "Igla-S" man-portable air defense system is designed to defeat all types of visible fixed- and rotary-winged aircraft on head-on and in pursuit courses as well as small aerial targets like cruise missiles around the clock under induced thermal and background noise.
- It implements the principle of "shoot-and-forget", high survivability and stealth of combat work.
- It is designed in a way for countering low-flying aircraft, as it forms the last line of defense against flying objects in a multi-layered air defense system.
- The Igla-S is capable of engaging all types of visually observable aircraft and helicopters as well as identifying air targets such as cruise missiles and UAVs, both head-on and receding, at any time of day, against background clutter and decoy flares (jamming).

**Source:** ForumIAS

### **Q.4) Consider the following statements about National Institute of Nutrition (NIN):**

1. It is an Indian Public health, Nutrition and Translational research center located in Hyderabad.
2. It was founded by Sir Robert McCarrison in the year 1918 as 'Beri-Beri' Enquiry Unit.

#### **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

### **ANS: C**

**Explanation: About National Institute of Nutrition:**

- The National Institute of Nutrition (NIN) is an Indian Public health, Nutrition and Translational research center located in Hyderabad.
- The institute is one of the oldest research centers in India, and the largest center, under the Indian Council of Medical Research, located in the vicinity of Osmania University.
- It was founded by Sir Robert McCarrison in the year 1918 as 'Beri-Beri' Enquiry Unit in a single room laboratory at the Pasteur Institute, Coonoor, Tamil Nadu.
- Within a short span of seven years, this unit blossomed into a "Deficiency Disease Enquiry" and later in 1928, emerged as full-fledged "Nutrition Research Laboratories" (NRL) with Dr. McCarrison as its first Director.
- It was later shifted to Hyderabad in 1958.
- At the time of its golden jubilee in 1969, it was renamed as National Institute of Nutrition (NIN).

**Source:** ForumIAS

**Q.5) Consider the following statements regarding the Broadcast Seva Portal:**

1. It is an online portal solution for speedy filing and processing of applications for various kinds of licences, permissions and payment of fee.
2. It has been jointly developed by National Informatics Centre (NIC).

**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

**ANS: A**

**Explanation: About Broadcast Seva Portal:**

- It is an online portal solution for speedy filing and processing of applications for various kinds of licences, permissions and registrations among other services.
- The portal is expected to provide a 360-degree solution to over 900 Satellite TV channels, over 70 teleport operators, over 1,750 multi-service operators, over 350 community radio stations (CRS) and over 380 private FM channels.
- It would provide online facilities to the applicants for seeking permissions, subsequent change in permissions and payment of fee. It will also provide faceless communication between the applicant and different stakeholders for faster processing of applications.
- It would bring transparency, accountability and responsiveness in the ecosystem and it would soon be linked to the government's flagship 'National Single Window System'.
- The Broadcast Seva Portal will reduce the turnaround time of applications and at the same time will help applicants track the progress. This portal will reduce the human interface that was required earlier and thus add to capacity building of the Ministry and will be a major step towards Ease of Doing Business.
- The portal has been developed in cooperation with Broadcast Engineering Consultants India Ltd, a Mini-Ratna PSU, and Tata Consultancy Services Ltd.

**Source:** ForumIAS

**Q.6) Which of the following statements regarding the India Semiconductor Mission (ISM) is/are correct?**

1. ISM is a specialized and independent business division of Digital India Corporation.
2. The scheme would provide fiscal support of up to 50% of the project cost for setting up semiconductor and display fabrication units.
3. Design Linked Incentive (DLI) Scheme is not a component of this programme.

**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

**ANS: B**

**Explanation: About India Semiconductor Mission (ISM)**

- India Semiconductor Mission (ISM) has been setup as an Independent Business Division within Digital India Corporation having administrative and financial autonomy to formulate and drive India's long term strategies for developing semiconductors and display manufacturing facilities and semiconductor design ecosystem. Envisioned to be led by global experts in the Semiconductor and Display industry, ISM will serve as the nodal agency for efficient, coherent and smooth implementation of the schemes.
- Following four schemes have been introduced under the aforesaid programme:
  - Scheme for setting up of Semiconductor Fabs in India provides fiscal support to eligible applicants for setting up of Semiconductor Fabs which is aimed at attracting large investments for setting up semiconductor wafer fabrication facilities in the country.
  - Scheme for setting up of Display Fabs in India provides fiscal support to eligible applicants for setting up of Display Fabs which is aimed at attracting large investments for setting up TFT LCD / AMOLED based display fabrication facilities in the country. The Scheme provides fiscal support of up to 50% of Project Cost subject to a ceiling of INR 12,000 crore per Fab.
  - Scheme for setting up of Compound Semiconductors / Silicon Photonics / Sensors Fab and Semiconductor Assembly, Testing, Marking and Packaging (ATMP) / OSAT facilities in India: The Scheme provides a fiscal support of 30% of the Capital Expenditure to the eligible applicants for setting up of Compound Semiconductors / Silicon Photonics (SiPh) / Sensors (including MEMS) Fab and Semiconductor ATMP / OSAT facilities in India.
  - Design Linked Incentive (DLI) Scheme offers financial incentives, design infrastructure support across various stages of development and deployment of semiconductor design for Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores and semiconductor linked design. The scheme provides "Product Design Linked Incentive" of up to 50% of the eligible expenditure subject to a ceiling of ₹15 Crore per application and "Deployment Linked Incentive" of 6% to 4% of net sales turnover over 5 years subject to a ceiling of ₹30 Crore per application.
- The Vision of ISM is to build a vibrant semiconductor and display design and innovation ecosystem to enable India's emergence as a global hub for electronics manufacturing and design.
- The total fiscal outlay of the proposed schemes is INR 76,000 crore which is fungible across different schemes.

**Source:** ForumIAS

**Q.7) Which of the following statements regarding the United Nations Human Rights Council (UNHRC) are not correct?**

1. It makes recommendations on situations of human rights violations and can discuss all thematic human rights issues and situations.
2. Members of the Council serve for a period of three years and are not eligible for immediate re-election.
3. The Council can hold a special session to address human rights emergencies on request of half of the member states.

**Select the correct answer using the code given below:**

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

**ANS: C**

**Explanation:**

**Human Rights Council**

- The Human Rights Council is an inter-governmental body within the United Nations system, which is responsible for strengthening the promotion and protection of human rights around the world.
- It also addresses and makes recommendations on situations of human rights violations, and can discuss all thematic human rights issues and situations.
- The Human Rights Council replaced the former UN Commission on Human Rights.
  - It was created by the UNGA on March 15, 2006, and the body met in its first session in June, 2006.
- In 2007, the Council adopted an “institution-building package” to set up its procedures and mechanisms.
- Among these were the mechanism of Universal Periodic Review to assess the human rights situations in all UN Member States, the Advisory Committee that serves as the Council’s think tank providing it with expertise and advice on thematic human rights issues, and the Complaint Procedure, which allows individuals and organisations to bring human rights violations to the Council’s attention.

**Membership of the Council**

- The Council, which meets at the UN Office in Geneva, Switzerland, is made up of 47 UN Member States who are elected by majority vote through a direct and secret ballot at the UNGA.
- According to the Council’s website, the UNGA takes into account the candidate States’ contribution to the promotion and protection of human rights, as well as their voluntary pledges and commitments in this regard.
- The membership of the Council is based on equitable geographical distribution.
  - African and Asia-Pacific states have 13 seats each, Latin American and Caribbean states have 8 seats, Western European and other states 7 seats, and Eastern European states 6 seats.
- The members serve for three years and are not eligible for immediate re-election after serving two consecutive terms.
- With membership on the Council comes a responsibility to uphold high human rights standards.
  - This is a criteria insisted on by States themselves when they adopted resolution 60/251 in March 2006 to create the Human Rights Council.

**Meetings of the Council**

- The Human Rights Council holds no fewer than three regular sessions a year, for a total of at least 10 weeks.

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- If a third of the Member states requests, the Council can decide at any time to hold a special session to address human rights violations and emergencies.
- Under the presidency of Nazhat S Khan of Fiji, the Council held a record five special sessions in 2021 — on Myanmar, the Occupied Palestinian Territory and Israel, Afghanistan, Sudan, and Ethiopia.

**Source:** ForumIAS

### **Q.8) Consider the following statements about Pradhan Mantri Adi Adarsh Gram Yojana:**

1. It seeks to develop Adarsh Gram villages by improving the living conditions of these villages, providing them better education healthcare facilities.
2. The villages selected under this will have a tribal population of more than 5000 and 25% will be tribals.

**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

**ANS: A**

**Explanation: About Pradhan Mantri Adi Adarsh Gram Yojana:**

- It seeks to develop Adarsh Gram villages by improving the living conditions of these villages, providing them better education healthcare facilities and facilitating their products to be linked directly with the market.
- The villages selected under this will have a tribal population of more than 500 and 50% will be tribals.

**Source:** ForumIAS

### **Q.9) Consider the following statements about Nav Bharat (New India) Literacy Programme:**

1. It is a Central sector scheme.
2. The scheme aims to cover 5 crore non-literates during the implementation period from 2022-23 to 2026-27.

**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

**ANS: B**

**Explanation: About Nav Bharat Literacy Programme:**

**Nodal Ministry:** Ministry of Education

**Type:** Centrally Sponsored Scheme

**Aim:** To support the States and Union Territories in promoting literacy among non-literates in the age group of 15 and above across the country.

**Target:** The scheme aims to cover 5 crore non-literates during the implementation period from 2022-23 to 2026-27.

**Components:** The scheme has five components namely 1) Foundational Literacy and Numeracy, 2) Critical Life Skills 3) Vocational Skills Development, 4) Basic Education and 5) Continuing Education.

**Salient Features of the Scheme**

- Involvement of school students, pre-service students of Higher Education Institutions (HEIs), school teachers, Anganwadi and ASHA workers,
- School to be unit for implementation of the scheme,



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- Use of ICT and online implementation of the scheme through 'Online Teaching Learning and Assessment System' (OTLAS),
- Providing material and resources through digital modes, viz, TV, radio, cell phone-based free/open-source Apps/portals, etc,
- Assessment tests to be conducted in schools by State/UTs and evaluation of learners by NIOS/SIOS,
- Sample achievement survey and Online Management Information Systems (MIS).

**Source:** ForumIAS

**Q.10) Consider the following statements about PM-Daksh Yojana:**

1. It is being implemented by Ministry of Social Justice & Empowerment.
2. It is a National Action Plan for skilling marginalized persons covering SCs, OBCs, EBCs, DNTs, Sanitation workers including waste pickers.

**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

**ANS: C**

**Explanation: About PM-Daksh Yojana:**

**Nodal Ministry:** Ministry of Social Justice & Empowerment.

**Full Form:** Pradhan Mantri-Dakshata Aur Kushalta Sampann Hitgrahi Yojana (PM-DAKSH)

**Purpose:** It is a National Action Plan for skilling marginalized persons covering SCs, OBCs, EBCs, DNTs, Sanitation workers including waste pickers.

**Aim:** To increase the skill levels of the target youth by providing them short term and long term skills, followed by assistance in wage/self-employment.

**Implementation:** It is being implemented through 3 Corporations: National Scheduled Castes Finance and Development Corporation (NSFDC), National Backward Classes Finance & Development Corporation(NBCFDC) and National Safai Karamcharis Finance & Development Corporation(NSKFDC).

**Salient Features of PM-Daksh**

**Training Institutions:**

- The training is provided through Government Sector training institutions and reputed institutions enabling them to take up suitable job/self-employment opportunities.
- Age of the candidates for undergoing skill training: Beneficiaries between the age of 18-45 years are considered for Skill Development Training.
- Stipend to the trainees: Stipend is provided to the eligible candidates based on their attendance through DBT.

**Source:** ForumIAS

## *Science and Technology*

**Q.1) Consider the following statements about Daylight Harvesting Technology:**

1. Daylight Harvesting works on the simple premise that facilities can optimally utilize natural light.
2. The Technology Development Board (TDB) under the Ministry of new and renewable energy will provide Rs 5 crore as support to a start-up called Skyshade Daylight Private Limited for developing Daylight Harvesting Technologies.

**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

**ANS: A**

**Explanation: About Daylight Harvesting Technology:**

- The Ministry of Science & Technology has decided to promote a unique Start-up in Daylight Harvesting Technology.
- Daylight Harvesting works on the simple premise that facilities can optimally utilize natural light where available and cut down on the use of artificial light during daylight hours.

**Its benefits include**

- Reduced carbon footprint;
- Improve building energy efficiency;
- Reduced electrical lighting energy consumption.
- The Technology Development Board (TDB) under the Ministry of Science and Technology will provide Rs 5 crore as support to a start-up called Skyshade Daylight Private Limited for developing Daylight Harvesting Technologies.

**Source:** ForumIAS

**Q.2) Consider the following statements about Corbevax Vaccine:**

1. Drugs Controller General of India (DCGI) has given emergency use authorization to Corbevax vaccine for use in children between 12 and 18 years of age.
2. Corbevax is the first vaccine approved by the DCGI for children's use.

**Which of the statements given above is/are not correct?**

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

**ANS: B**

**Explanation: About Corbevax Vaccine:**

- Drugs Controller General of India (DCGI) has given emergency use authorisation to Corbevax vaccine for use in children between 12 and 18 years of age.
- Corbevax is India's first indigenously developed Receptor Binding Domain (RBD) protein subunit vaccine.

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- It is being manufactured by the Hyderabad-based Biological E. Corbevax is the third vaccine approved by the DCGI for children's use after Covaxin and Zydus Cadila's ZyCoV-D.

**Source:** ForumIAS

**Q.3) Chandra's Atmospheric Composition Explorer-2 (CHACE-2), a payload onboard Chandrayaan-2, has recently detected which of the following gas in Moon's atmosphere?**

- a) Oxygen
- b) Argon-40
- c) Hydrogen
- d) Methane

**ANS: B**

**Explanation: Argon-40 in Moon's Atmosphere:**

- Chandra's Atmospheric Composition Explorer-2 (CHACE-2), a payload onboard Chandrayaan-2, has detected Noble Gas Argon-40 in Moon's atmosphere.
- Argon-40 (Ar-40) is known to exist in the lunar exosphere. But the knowledge on its distribution at higher latitudes is lacking.
- Now, the CHACE-2 payload has detected the presence of Argon in the equatorial and mid-latitude regions of the Moon.

**Source:** ForumIAS

**Q.4) Physicist Professor Deepak Dhar has become the first Indian to be awarded with which one of the following award?**

- a) Abel Prize
- b) Fields Medal
- c) Boltzmann Medal
- d) Wigner Medal

**ANS: C**

**Explanation: About Boltzmann Medal:**

- Boltzmann Medal was initiated in 1975. It is awarded by the Commission on Statistical Physics (C3) of the International Union of Pure and Applied Physics.
- The award is given to physicists that obtain new results concerning statistical mechanics. The award is given only once to a person and on the condition that that person has not won the Nobel prize so far.
- It has been named after Austrian Physicist Ludwig Boltzmann who gave statistical explanation of the second law of thermodynamics.
- Physicist Professor Deepak Dhar has become the first Indian to be awarded the Boltzmann Medal.
- He shares the medal with John J Hoefield of Princeton University.

**Source:** ForumIAS

**Q.5) Touchless touch screen technology has been developed by which of the following?**

- a) CSIR
- b) Centre for Nano and Soft Matter Sciences (CeNS)
- c) ISRO
- d) DRDO

**ANS: B**

**Explanation: About Touchless Screens:**

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- Scientists at the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru have developed touchless touch screen technology.
- This touch sensor senses a proximal or hovers touch even from a distance of 9 cm from the device.
- The technology will help reduce the risk of spreading of viruses particularly in public touchscreens like on self-service kiosks, ATMs and vending machines.

**Source:** ForumIAS

**Q.6) Consider the following statements about SARAS 3 radio telescope:**

1. It has been invented and built by the astronomers at Raman Research Institute, Bengaluru.
2. The telescope has been designed, built and deployed in backwaters of Shravati River.

**Which of the statements given above is/are not correct?**

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

**ANS: D**

**Explanation: About SARAS 3 Experiments and Radio Telescope:**

- The SARAS 3 radio telescope has been invented and built by the astronomers at Raman Research Institute, Bengaluru.
- The telescope has been designed, built and deployed in backwaters of Shravati river to detect extremely faint radio wave signals from the earliest times of the Universe when the first stars and galaxies were formed.

**Source:** ForumIAS

**Q.7) Consider the following statements about DDoS Attack:**

1. Floods a website with countless frivolous requests for information, eventually leading it to paralyze or crash.
2. It uses bots to send these queries that bombard the site, leaving it inaccessible to legitimate users.

**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

**ANS: C**

**Explanation: About DDoS Attack:**

- Ukraine's largest commercial bank was hit by a distributed denial-of-service attack or DDoS. A DDoS attack floods a website with countless frivolous requests for information, eventually leading it to paralyze or crash.
- It uses bots to send these queries that bombard the site, leaving it inaccessible to legitimate users. Such attacks, in a conflict situation, can damage critical digital infrastructure, disable government communication and the information ecosystem in a country.

**Source:** ForumIAS

**Q.8) Consider the following statements about PARAM Ganga Supercomputer:**

1. It has been established at Allahabad University.
2. It is designed by the Centre for Development of Advanced Computing (C-DAC).

**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

**ANS: B**

**Explanation: About PARAM Ganga Supercomputer:**

- A Supercomputer named 'PARAM Ganga' has been established at IIT Roorkee. PARAM Ganga is a supercomputer designed by the Centre for Development of Advanced Computing (C-DAC) under Phase 2 of the National Supercomputing Mission (NSM)
- It has a supercomputing capacity of 1.66 Petaflops (1 petaflop equals a quadrillion or 10<sup>15</sup> operations per second).

**Source:** ForumIAS

**Q.9) Consider the following statements about AI Research SuperCluster (RSC):**

1. It is an AI Supercomputer being built by Facebook-parent Meta.
2. It can perform tasks like translating text between languages.

**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

**ANS: C**

**Explanation: About AI Research SuperCluster (RSC):**

- It is an AI Supercomputer being built by Facebook-parent Meta.
- The company has claimed that this will be the fastest supercomputer in the world once fully built by mid-2022.
- It can perform tasks like translating text between languages and help identify potentially harmful content on Meta's platform.

**Source:** ForumIAS

**Q.10) Consider the following statements about HANSA-NG:**

1. It is India's first indigenous Flying Trainer aircraft.
2. It has been developed by CSIR-National Aerospace Laboratories, Bangalore.

**Which of the statements given above is/are not correct?**

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

**ANS: D**

**Explanation: About HANSA-NG:**

- HANSA-NG aircraft has successfully completed the sea level trials at Puducherry. It is India's first indigenous Flying Trainer aircraft.
- It has been developed by CSIR-National Aerospace Laboratories, Bangalore.

- The aircraft is designed to meet the Indian flying club needs, and it is an ideal aircraft for Commercial Pilot Licensing (CPL) due to its low cost and low fuel consumption.

**Source:** ForumIAS

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## *Location/IR/Geography*

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**Q.1) Consider the following statements about World Food Price Index:**

1. It is released by Food and Agriculture Organization (FAO) since 1996.
2. The index is a measure of the weekly change in international prices of a basket of food commodities.

**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

**ANS: A**

**Explanation: About World Food Price Index:**

**Released by:** Food and Agriculture Organization (FAO) since 1996.

**Aim:** To help in monitoring the developments in the global agricultural commodity markets.

**Purpose:** The index is a measure of the monthly change in international prices of a basket of food commodities.

**Commodities:** It consists of the average of five commodity group price indices. Such as cereal, vegetables, dairy, meat and sugar. Also, these five indices are given weightage based on the average export shares.

**Base Year:** 2014-16.

**Source:** ForumIAS

**Q.2) Consider the following statements about UN Human Rights Council (UNHRC):**

1. United Nations General Assembly (UNGA) has suspended Russia from the UNHRC.
2. This is the first time the UNGA has suspended a country from the 47-member UN Human Rights Council after its formation in 2006.

**Which of the statements given above is/are not correct?**

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

**ANS: B**

**Explanation:**

The United Nations General Assembly (UNGA) has voted to suspend Russia from the UN Human Rights Council (UNHRC).

**Note:** This is only the second time the UNGA has suspended a country from the 47-member UN Human Rights Council after its formation in 2006. In 2011, Libya was thrown out through a resolution adopted by UNGA through consensus.

**Why was Russia suspended?**

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The resolution titled 'Suspension of the rights of membership of the Russian Federation in the Human Rights Council' was first moved by the United States over Russia's military aggression in Ukraine.

**About-** The Human Rights Council is an inter-governmental body within the 'United Nations' system.

- The UNHRC replaced the former United Nations Commission on Human Rights.
- The Council was created by the United Nations General Assembly in 2006 by a resolution.

**Headquarters:** Geneva, Switzerland.

**Mandate:**

- It is responsible for strengthening the promotion and protection of human rights around the globe.
- It addresses situations of human rights violations and make recommendations on them.

**Membership:**

The Council is made of 47 Member States, elected by the General Assembly of the UN through direct and secret ballot.

- The General Assembly takes into account the candidate States' contribution to the promotion and protection of human rights, as well as their voluntary pledges and commitments in this regard.
- The Council's Membership is based on equitable geographical distribution. Seats are distributed as follows:

**African States:** 13 seats

**Asia-Pacific States:** 13 seats

**Latin American and Caribbean States:** 8 seats

**Western European and other States:** 7 seats

**Eastern European States:** 6 seats

Members of the Council serve for a period of 3 years and are not eligible for immediate re-election after serving two consecutive terms.

The Bureau of the Council consists of five people – one President and four Vice-presidents – representing the five regional groups. They serve for a year, in accordance with the Council's annual cycle.

**Source:** ForumIAS

**Q.3) Which of the following statement about Exercise Varuna is/are correct?**

1. It is a bilateral exercise between the Indian and French Air Force.
2. It was first conducted in the year 2011.

**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

**ANS: D**

**Explanation: About Exercise Varuna:**

**Type:** Bilateral Naval Exercise

**Countries Involved:** India and France.

**Started in:** 1993.

The exercise was named 'VARUNA' in 2001.

**Aim:** To develop interoperability between the two navies. Further, it aims to foster mutual cooperation by learning from each other's best practices to conduct joint operations.

**What are the other exercises between India and France?**

**Exercise Garuda:** It is a bilateral exercise between the Indian and French Air Force. The first edition of the exercise was held in 2003.

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**Exercise SHAKTI:** It is a biennial military exercise conducted between India and France. It was first conducted in the year 2011.

**Exercise La Pérouse:** It is a multilateral maritime exercise led by the French Navy. The Indian Navy participated in this exercise for the first time in 2021.

**Source:** ForumIAS

### **Q.4) Which of the following statement is /are correct?**

1. National Snow and Ice Data Centre (NSIDC) is an Indian information and referral centre in support of polar and cryospheric research.
2. Sea ice reflects 80% of the sunlight that strikes its surface.

**Select the correct answer using the codes given below:**

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

**ANS: B**

**Explanation:**

Arctic sea ice has appeared to have hit its annual maximum extent on February 25, 2022, after growing through the fall and winter. According to National Snow and Ice Data Centre(NSIDC), this year's Arctic sea ice wintertime extent is the 10th-lowest in the satellite record.

**Note:** NSIDC is a United States information and referral centre in support of polar and cryospheric research.

**What is Sea Ice?**

Sea ice is essentially frozen ocean water. All stages of winter sea ice – formation, growth and melting – occur in the ocean, unlike icebergs, glaciers and ice shelves that originate on land.

**Why is polar sea ice important?**

Polar sea ice is important to maintain global temperatures. This is because sea ice reflects 80% of the sunlight that strikes its surface, thus keeping the polar regions cool.

- Once the ice melts in the summer, the dark surface of the ocean is exposed, and it absorbs 90% of the sunlight that falls on it. This causes a rise in the temperature of the polar region.
- Moreover, small temperature changes at the poles can lead to greater warming over time, making polar regions extremely sensitive to climate change. The loss of sea ice can accelerate global warming.

**Source:** ForumIAS

### **Q.5) Consider the following statements regarding “Satpura range”:**

1. It stretches through Maharashtra, Madhya Pradesh and Andhra Pradesh.
2. It forms the watershed between the Narmada and Godavari rivers.

Which of the statements given above is/are **NOT** correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

**ANS: C**

**Explanation:** Satpura Range, range of hills, part of the Deccan plateau, western India.



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- The hills stretch for some 560 miles (900 km) across the widest part of peninsular India, through Maharashtra, Madhya Pradesh, and Gujarat and Chhattisgarh states.
- The range, the name of which means “Seven Folds,” forms the watershed between the Narmada (north) and Tapti (south) rivers.

**Source:** NCERT XI India Physical Environment

**Q.6) Consider the following statements regarding “River Godavari”:**

1. It originates from Trimbakeshwar, Nashik District in Western Ghats.
2. The biggest city on the river banks of the Godavari is Vijayawada.
3. Kaleshwaram project was built on Godavari River in the state of Andhra Pradesh.

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

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

**ANS: B**

**Explanation:** The River Godavari is an important stream in central India, rising in the Western Ghats Mountain Range.

- The name of the origin is Trimbakeshwar and it is situated in the Nashik District or Subdivision in the state of Maharashtra and runs towards the east over the Deccan terrain through the Maharashtra state. The river is also named as Southern Ganges or Dakshin Ganga.
- The river moves into Andhra Pradesh at Kandhakurthi in Nizamabad district of Andhra Pradesh, moves past the Deccan terrain and subsequently bends to run according to a southeasterly course till it pours into the Bay of Bengal via two mouths.
- An important place of attraction on the riverbanks is Basara in Adilabad District.
- It houses a popular place of worship for Goddess Saraswati. It is also the second oldest temple for the deity in India.
- The biggest city on the riverbanks of the Godavari is Rajahmundry.
- In this place, the river has the maximum breadth (about 5 km from Rajahmundry to the other bank at Kovvur).
- The Kaleshwaram Lift Irrigation Project or KLIP is a multi-purpose irrigation project on the Godavari River in Kaleshwaram, Bhoopalpally, Telangana, India.

**Source:** NCERT – XI Indian Physical Environment and The Hindu

**Q.7) “Rainfall occurs in winter from the retreating monsoon and summer is dry” - above statement best describes which of the following regions?**

- a) North East
- b) Konkan coast
- c) Lakshadweep Islands
- d) Coromandel Coast

**ANS: D**

**Explanation:**

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- The Ganga delta and the coastal plains of Orissa are hit by strong rain-bearing storms almost every third or fifth day in July and August while the Coromandal coast, a thousand km to the south, goes generally dry during these months.
  - Most parts of the country get rainfall during June-September, but on the coastal areas of Tamil Nadu, it rains in the beginning of the winter season.
- Source: NCERT – India Physical Environment

**Q.8) Which of the following Soils is/are zonal Soil?**

1. Desert Soils
2. Red Soils
3. Laterite Soils

**Select the correct answer using the codes given below:**

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

**ANS: D**

**Explanation: The Soils can be classified on the basis of dominating factors:**

**Zonal Soil** – These soils occur in broad geographical areas or zones.

- They are influenced more by the climate and vegetation of the area rather than the rock-type.
- They are mature, as a result of stable conditions over a long period of time.
- For example – red soils, black soils, laterite soils, desert soils etc.

**Azonal Soil** – It is that soil which has been developed by the process of deposition by the Agents of erosion.

- It means that it has been made by the fine rocky particles transported from the far-off regions.
- These are immature soils and lack well-developed soil profiles.
- This may be due to the non-availability of sufficient time for them to develop fully or due to the location on very steep slopes which prohibits profile development.
- For Example – alluvial and loess soils.

**Source:** G C Leong

**Q.9) Consider the following statements regarding “Eastern Ghats”:**

1. It is spread across Tamil Nadu, Kerala and Karnataka.
2. Highest percentage of geographical spread of Eastern Ghats is located in Andhra Pradesh.

**Which of the following codes below given is/are correct?**

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

**ANS: B**

**Explanation:** Despite being older than the Himalayas and the Western Ghats, the Eastern

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Ghats, an ancient discontinuous low mountain range that spreads along the East coast of the Indian Peninsula, never got its due.

- The geographical extent of the Eastern Ghats is about 75,000 kilometres, spread over the states of Odisha (25 %), Andhra Pradesh (40%), Telangana (5%), Karnataka (5%) and Tamil Nadu (25%).
- Though it is bestowed with rich bio-diversity and is home to different tribal communities, there has never been a clear policy in place for its conservation.

**Source:** ForumIAS

**Q.10) “Rushikulya River” is often seen in news is flows through which of the following state?**

- a) Kerala
- b) Karnataka
- c) Odisha
- d) Andhra Pradesh

**ANS: C**

**Explanation:** The Rushikulya River is one of the major rivers in the state of Odisha and covers entire catchment area in the districts of Kandhamal and Ganjam of Odisha.

- The Rushikulya originates at an elevation of about 1000 metres from Daringbadi hills of the Eastern Ghats range.
- The place from where the river originates, Daringbadi is called the ' Kashmir of Odisha '. The river meets the Bay of Bengal at Puruna Bandha in Ganjam.
- Its tributaries are the Baghua, the Dhanei, Badanadi etc. It has no delta as such at its mouth.
- Gahirmatha marine sanctuary and Rushikulya rookery coast in Ganjam district are main Olive Ridley Nesting sites in Odisha.

**Source:** ForumIAS

## *Economy*

**Q.1) Consider the following statements regarding Viability Gap Funding (VGF):**

1. VGF is provided with the objective of making a PPP project commercially viable.
2. The total Viability Gap Funding cannot exceed twenty percent of the Total Project Cost(TPC).
3. VGF is limited to projects concerning economic infrastructure.

**Which of the above statements is/are correct?**

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

**ANS: C**

**Explanation: About Revamped Viability Gap Funding Scheme:**

The Cabinet Committee on Economic Affairs has approved Continuation and Revamping of the Scheme for Financial Support to Public Private Partnerships (PPPs) in Infrastructure Viability Gap Funding (VGF) Scheme till 2024-25 with a total outlay of Rs. 8,100 crore.

**The new scheme will have two components:**

- The sub-scheme-1 would cater to social sectors such as waste water treatment, water supply, solid waste management, health and education sectors, which often face bankability issues on account of poor revenue streams.
- The projects eligible under the sub-scheme-1 should have at least 100 per cent operational cost recovery.
- The central government will provide a maximum of 30% of the total project cost (TPC) of the project as VGF. State government, sponsoring central ministry or statutory entity may provide an additional support up to 30% of TPC.
- The sub scheme-2 will support demonstration or pilot social sectors projects. The projects may be from health and education sectors where there is at least 50% operational cost recovery.
- In such projects, central and state governments together will provide up to 80 per cent of capital expenditure and up to 50 per cent of operation and maintenance (O&M) costs for the first five years.
- The Centre will provide a maximum of 40% of the TPC of the project.
- The government has revamped the viability gap funding (VGF) scheme for encouraging investment in social as well as economic infrastructure projects.

**Source:** ForumIAS

**Q.2) 'Sahakar Pragya', recently seen in news is related to which of the following?**

- a) Enabling rural people to set-up micro-enterprises.
- b) Assisting cooperatives in creation of healthcare infrastructure in the country.
- c) Involvement of youth in cooperative movement.
- d) Imparting training to primary cooperative societies in rural areas.

**ANS: D**

**Explanation: About Sahakar Pragya:**

- Agriculture Minister recently unveiled 'Sahakar Pragya' to impart training to primary cooperative societies in rural areas.

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- The National Cooperative Development Corporation (NCDC) will train farmers in primary cooperatives in rural areas of India through its newly launched programme, Sahakar Pragya.
- The 45 new training modules of Sahakar Pragya of the National Cooperative Development Corporation (NCDC) will impart training to primary cooperative societies in rural areas of the country along with LakshmanraoInamdar National Cooperative Research and Development Academy. The academy is fully funded by NCDC.

**Source:** ForumIAS

**Q.3) Consider the following statements:**

1. Minimum Age Convention of ILO is the only labor convention to have achieved universal ratification.
2. India has ratified all of ILO's 8 core conventions.

**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

**ANS D**

**Explanation: Convention 182 of ILO:**

- Convention No. 182 on the Worst Forms of Child Labor has recently achieved universal ratification, following ratification by the Kingdom of Tonga.
- For the first time in the ILO's history, an International Labor Convention has been ratified by all member States.
- The Convention is the most rapidly ratified Convention in the history of the Organization, since its adoption 21 years ago by the International Labor Conference.
- Universal ratification of Convention 182 is an historic first that means that all children now have legal protection against the worst forms of child labor.
- The two ILO Conventions on child labor are Convention No.138 on Minimum Age and Convention No. 182 on the Worst Forms of Child Labor. These Conventions are "fundamental" Conventions.
- This means that, under the ILO Declaration on Fundamental Principles and Rights at Work, all ILO member States have an obligation to respect, promote and realize the abolition of child labor, even if they have not ratified the Conventions in question.
- India has ratified 6/8 core conventions of ILO (Freedom of Association and Protection of Right to Organized Convention (No.87) and Right to Organize and Collective Bargaining Convention (No.98) are not yet ratified by India).

**Source:** ForumIAS

**Q.4) Consider the following statements regarding Unique Document Identification Number (UDIN):**

1. UDIN is mandatory for every kind of certificate/tax audit report.
2. Director Identification Number (DIN) system is being executed in both direct and indirect tax administration in India.

**Which of the above statements is/are correct?**

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

**ANS: C**

**Explanation: About Unique Document Identification Number (UDIN):**

- Finance Ministry has said, CBDT will validate Unique Document Identification Number (UDIN) generated from ICAI portal at the time of upload of Tax Audit Reports.
- Unique Document Identification Number (UDIN) is a unique number given to documents attested by Chartered Accountants. It is an 18 digits system generated unique number which shall generated separately for each document.
- Institute of Chartered Accountants of India (ICAI), in its gazette notification dated 2nd August, 2019, had made generation of UDIN from ICAI website mandatory for every kind of certificate/tax audit report and other attests made by their members as required by various regulators.
- This was introduced to curb fake certifications by non-CAs misrepresenting themselves as Chartered Accountants.
- This measure would create a digital directory for maintaining a proper audit trail of such communication. Importantly, it would provide the recipients of such communication a digital facility to ascertain their genuineness.
- Though DIN is mandatory requirement, still in exceptional circumstances communication may be issued without an auto generated DIN. However, this exception is to be made only after recording the reasons in writing.

**Source:** ForumIAS

**Q.5) RBI recently extended currency swap facility to Sri Lanka. In this regard, consider the following statements:**

1. A currency swap involves the exchange of interest and principal in one currency for the same in another currency.
2. It is considered to be a foreign exchange transaction and is not shown on a company's balance sheet.
3. These swap operations carry exchange rate risks as transaction terms are set in advance.

**Which of the above statements is/are correct?**

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

**ANS: B**

**Explanation: About Currency Swap:**

- The Reserve Bank of India (RBI) has recently signed an agreement for extending a \$400-million currency swap facility under SAARC framework to Sri Lanka to boost the foreign reserves and ensure financial stability of the country, which is badly hit by the COVID-19 pandemic.
- In the swap arrangement, a country provides dollars to a foreign central bank, which, at the same time, provides the equivalent funds in its currency to the former, based on the market exchange rate at the time of the transaction. The parties agree to swap back these quantities of their two currencies at a specified date in the future, which could be the next day or even two years later, using the same exchange rate as in the first transaction.
- These swap operations carry no exchange rate or other market risks, as transaction terms are set in advance. The absence of an exchange rate risk is the major benefit of such a facility. This facility provides the country, which is getting the dollars, with the flexibility to use these reserves at any time in order to maintain an appropriate level of balance of payments or short-term liquidity.
- A currency swap typically involves the exchange of interest and sometimes of principal in one currency for the same in another currency. Interest payments are exchanged at fixed

dates through the life of the contract. It is considered to be a foreign exchange transaction and is not required by law to be shown on a company's balance sheet.

**Source:** ForumIAS

**Q.6) With reference to Chief Compliance Officer (CCO) in banking industry, consider the following statements:**

1. CCO has a fixed tenure of not less than 3 years.
2. He/she is appointed or removed by Department of Supervision, RBI.
3. He/she must be a senior executive of the bank.

**Which of the above statements is/are not correct?**

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

**ANS: C**

**Explanation: About Chief Compliance Officer (CCO):**

- The Reserve Bank of India (RBI) recently directed banks to set up an independent corporate compliance function headed by a designated chief compliance officer (CCO) selected through a suitable process with an appropriate 'fit and proper' selection criteria to effectively manage compliance risk.
- It said the CCO should be appointed for a fixed tenure of not less than three years. The CCO may be transferred or removed before completion of the tenure only in exceptional circumstances with the explicit prior approval of the board after following a well-defined and transparent internal administrative procedure.
- The person should be a senior executive of the bank, preferably in the rank of a general manager or an equivalent position or he could also be recruited from outside.
- According to the RBI, the bank should also develop and maintain a quality assurance and improvement programme covering all aspects of the compliance function.
- The quality assurance and improvement programme shall be subject to independent external review periodically (at least once in three years).
- A prior intimation to the Department of Supervision, RBI, should be provided before appointment, premature transfer or removal of the CCO.
- As per RBI guidelines on appointment of CCO, CCO should be appointed for a fixed tenure of not less than three years. The audit committee of the board (ACB) and managing director and CEO of the bank should factor this requirement while appointing CCO.
- The person should be a senior executive of the bank, preferably in the rank of a general manager or an equivalent position or he could also be recruited from outside.

**Source:** ForumIAS

**Q.7) Rajiv Mehrishi Committee, constituted recently is related to which of the following?**

- a) One-time restructuring of corporate loans
- b) Improving quality of statistical data
- c) Assessment of relief to bank borrowers
- d) Suggesting parameters to cope up with the COVID-19 related stressed assets

**ANS: C**

**Explanation: About Rajiv Mehrishi Committee:**

- Government has recently constituted a three member expert committee to assist in the assessment of relief to bank borrowers.

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- The committee chaired by former CAG Rajiv Mehrishi will measure the impact on the national economy and financial stability of waiving of interest and COVID-19 related moratorium. It will also give suggestions to mitigate financial constraints of various sections of society in this respect and measures to be adopted in this regard.
- The panel will submit its report within one week.
- The move came as various concerns have been raised during the ongoing hearing in the Supreme Court in the matter regarding relief sought in terms of waiver of interest and waiver of interest on interest and other related issues.

**Source:** ForumIAS

**Q.8) New York Convention, recently seen in news is related to which of the following?**

- a) Safe and environmentally sound recycling of ships.
- b) International settlement of agreements resulting from mediation.
- c) Recognition and enforcement of foreign arbitral awards.
- d) International trade in endangered species of wild fauna and flora.

**ANS:** C

**Explanation: About New York Convention:**

- Recently, Cairn Energy has filed a case, in accordance with the New York Convention, in the USA district court to enforce a USD 1.2 billion arbitration award it won in a tax dispute against India.
- The Convention on the Recognition and Enforcement of Foreign Arbitral Awards, also known as the "New York Arbitration Convention" or the "New York Convention", is one of the key instruments in international arbitration.
- The Convention's principal aim is that foreign and non-domestic arbitral awards should not be discriminated against by courts asked to enforce them.
- It applies to the recognition and enforcement of foreign arbitral awards and the referral by a court to arbitration.
- The Convention was adopted by the United Nations (UN) following a diplomatic conference held in May and June 1958 at the UN Headquarters in New York, and entered into force on 7th June, 1959.
- The Convention has 166 state parties (Countries). India is a party to the Convention.

**Source:** ForumIAS

**Q.9) Consider the following statements regarding Singapore Convention on Mediation:**

1. The Convention allows for direct enforcement of mediated settlement agreements.
2. It can be resorted to only in cases international commercial disputes.
3. India is not a party to this convention.

**Which of the above statements is/are correct?**

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

**ANS:** B

**Explanation: About Singapore Convention on Mediation:**

- The Singapore Convention on Mediation came into force recently and will provide a more effective way for enforcing mediated settlements of corporate disputes involving businesses in India and other countries that are signatories to the Convention.



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- Also known as the United Nations Convention on International Settlement Agreements Resulting from Mediation, this is also the first UN treaty to be named after Singapore.
- With the Convention in force, businesses seeking enforcement of a mediated settlement agreement across borders can do so by applying directly to the courts of countries that have signed and ratified the treaty, instead of having to enforce the settlement agreement as a contract in accordance with each country's domestic process.
- The Singapore Convention can be resorted to only in case of an international commercial dispute, and specifically excludes disputes arising from personal, family, inheritance or employment matters.
- The Convention has 53 signatories, including India, China and the U.S.

**Source:** ForumIAS

### **Q.10) Consider the following statements about Broadcast Seva Portal:**

1. It is an online portal aimed at improving the ease of doing business in the broadcast industry.
2. It has been launched by Ministry of Information and Broadcasting (I&B).

**Which of the following statement is/are correct?**

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

**ANS: C**

**Explanation:**

**What is Broadcast Seva Portal?**

**Launched by:** Ministry of Information and Broadcasting (I&B).

**Purpose:** It is an online portal aimed at improving the ease of doing business in the broadcast industry.

**Features:** The portal can be used by broadcasters for speedy filing and processing of applications, various kinds of licences, permissions, registrations, tracking applications, calculating fees and executing payments.

**Significance of the Portal:** The portal will reduce the turnaround time of applications and at the same time will help applicants track their progress.

- It will also reduce the human interface that was required earlier and thus add to the capacity building of the Ministry and will be a major step towards ease of doing business.

**Source:** ForumIAS

## *Polity*

**Q.1) Consider the following statements with respect to Qualifications of Supreme Court Judge:**

1. He should be a citizen of India
2. He should have been a Judge of a High Court for 7 years
3. He should have been a Advocate of a High Court for 10 years

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

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

**ANS: D**

**Explanation:** A person to be appointed as a judge of the Supreme Court should have the following qualifications:

1. He should be a citizen of India.
2. (A) He should have been a judge of a High Court (or high courts in succession) for five years; or (B) He should have been an advocate of a High Court (or High Courts in succession) for ten years; or (C) He should be a distinguished jurist in the opinion of the president.

From the above, it is clear that the Constitution has not prescribed a minimum age for appointment as a judge of the Supreme Court.

**Source:** Laxmikant

**Q.2) Which of the following statement is/are Basic Structure of the Indian Constitution?**

1. Supremacy of the Constitution
2. Federal character of the Constitution
3. Judicial Review

**Select the correct answer using the codes given below:**

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

**ANS: D**

**Explanation:** The present position is that the Parliament under Article 368 can amend any part of the Constitution including the Fundamental Rights but without affecting the 'basic structure' of the Constitution. However, the Supreme Court is yet to define or clarify as to what constitutes the 'basic structure' of the Constitution. From the various judgments, the following have emerged as 'basic features' of the Constitution or elements / components / ingredients of the 'basic structure' of the constitution:

1. Supremacy of the Constitution
2. Sovereign, democratic and republican nature of the Indian polity
3. Secular character of the Constitution
4. Separation of powers between the legislature, the executive and the judiciary
5. Federal character of the Constitution
6. Unity and integrity of the nation
7. Welfare state (socio-economic justice)
8. Judicial review

9. Freedom and dignity of the individual

**Source:** Laxmikant

**Q.3) Consider the following statements with respect to Merits of Parliamentary System:**

1. Harmony between legislatures
2. Continuity of policies
3. Wide representation

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

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

**ANS: C**

**Explanation:** The parliamentary system of government has the following merits:

1. Harmony between legislature and executive.
2. Responsible government.
3. Prevents despotism.
4. Wide representation.

**Source:** Laxmikant

**Q.4) Which of the following is/are features of Federal Government?**

1. Dual Government
2. Written Constitution
3. No division of powers

**Select the correct answer using the codes given below:**

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

**ANS: B**

**Explanation:** The Constitution establishes a dual polity consisting of the Union at the Centre and the states at the Periphery. Each is endowed with sovereign powers to be exercised in the field assigned to them respectively by the Constitution. The Constitution is not only a written document but also the lengthiest Constitution of the world. Originally, it contained a Preamble, 395 Articles (divided into 22 Parts) and 8 Schedules. At present (2013), it consists of a Preamble, about 465 Articles (divided into 25 Parts) and 12 Schedules. It specifies the structure, organization, powers and functions of both the Central and state governments and prescribes the limits within which they must operate. The Constitution divided the powers between the Centre and the states in terms of the Union List, State List and Concurrent List in the Seventh Schedule. The Union List consists of 100 subjects (originally 97), the State List 61 subjects (originally 66) and the Concurrent List 52 subjects (originally 47). Both the Centre and the states can make laws on the subjects of the concurrent list, but in case of a conflict, the Central law prevails. The residuary subjects (ie, which are not mentioned in any of the three lists) are given to the Centre.

**Source:** Laxmikant

**Q.5) National Legal Services Authority (NALSA) established in which year?**

- a) 1985
- b) 1986
- c) 1987
- d) 1988

**ANS: C**

**Explanation:** Article 39A of the Constitution of India provides for free legal aid to the poor and weaker sections of the society and ensures justice for all. Articles 14 and 22(1) of the Constitution also make it obligatory for the State to ensure equality before law and a legal system which promotes justice on the basis of equal opportunity to all. In the year 1987, the Legal Services Authorities Act was enacted by the Parliament which came into force on 9th November, 1995 to establish a nationwide uniform network for providing free and competent legal services to the weaker sections of the society on the basis of equal opportunity. The National Legal Services Authority (NALSA) has been constituted under the Legal Services Authorities Act, 1987 to monitor and evaluate implementation of legal aid programmes and to lay down policies and principles for making legal services available under the Act.

**Source:** Laxmikant

**Q.6) Fazl Ali Commission identified four major factors that can be taken into account in any scheme of reorganization of states:**

1. One-Language One-State
2. Preservation and strengthening of the unity and security of the country
3. Financial, economic and administrative considerations
4. Planning and promotion of the welfare of the people in each state as well as of the nation as a whole

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

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

**ANS: D**

**Explanation:** The creation of Andhra state intensified the demand from other regions for creation of states on linguistic basis. This forced the Government of India to appoint (in December 1953) a three-member States Reorganisation Commission under the chairmanship of Fazl Ali to re-examine the whole question. Its other two members were K M Panikkar and H N Kunzru. It submitted its report in September 1955 and broadly accepted language as the basis of reorganisation of states. But, it rejected the theory of 'one language- one state'. Its view was that the unity of India should be regarded as the primary consideration in any redrawing of the country's political units. It identified four major factors that can be taken into account in any scheme of reorganisation of states:

- a) Preservation and strengthening of the unity and security of the country.
- b) Linguistic and cultural homogeneity.
- c) Financial, economic and administrative considerations.
- d) Planning and promotion of the welfare of the people in each state as well as of the nation as a whole.

**Source:** Laxmikant

**Q.7) Consider the following statements with respect to Cantonment Board:**

1. It is established for municipal administration for civilian population in the cantonment area
2. It is set up under the provisions of the Cantonments Act of 2004
3. It works under the administrative control of the defense ministry of the Central government

**Which of the following below given codes are correct?**

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

**ANS: D**

**Explanation:** A cantonment board is established for municipal administration for civilian population in the cantonment area. It is set up under the provisions of the Cantonments Act of 2006—a legislation enacted by the Central government. It works under the administrative control of the defense ministry of the Central government. Thus, unlike the above four types of urban local bodies, which are created and administered by the state government, a cantonment board is created as well as administered by the Central government.

**Source:** Laxmikant

**Q.8) Consider the following statements with respect to features of Fifth Schedule:**

1. The Governor is empowered to declare an area to be a scheduled area
2. Each state having scheduled areas has to establish a tribes advisory council to advise on welfare and advancement of the scheduled tribes

**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

**ANS: B**

**Explanation:** The scheduled areas are treated differently from the other areas in the country because they are inhabited by 'aboriginals' who are socially and economically rather backward, and special efforts need to be made to improve their condition. Therefore, the whole of the normal administrative machinery operating in a state is not extended to the scheduled areas and the Central government has somewhat greater responsibility for these areas'.

The president is empowered to declare an area to be a scheduled area. He can also increase or decrease its area, alter its boundary lines, rescind such designation or make fresh orders for such re-designation on an area in consultation with the governor of the state concerned.

Each state having scheduled areas has to establish a tribe's advisory council to advice on welfare and advancement of the scheduled tribes. It is to consist of 20 members, three-fourths of whom are to be the representatives of the scheduled tribes in the state legislative assembly.

**Source:** Laxmikant

**Q.9) Consider the following statements about National Legal Services Authority (NALSA):**

1. It is a constitutional body under Article 39A of the constitution.
2. It was constituted to monitor and evaluate implementation of legal aid programmes.

**Which of the statement given above is/are correct?**

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

**ANS: B**

**Explanation:** Article 39A of the Constitution of India provides for free legal aid to the poor and weaker sections of the society and ensures justice for all. Articles 14 and 22(1) of the Constitution also make it obligatory for the State to ensure equality before law and a legal system which promotes justice on the basis of equal opportunity to all. In the year 1987, the Legal Services Authorities Act was enacted by the Parliament which came into force on 9th November, 1995 to establish a nationwide uniform network for providing free and competent legal services to the weaker sections of the society on the basis of equal opportunity. The National Legal Services Authority (NALSA) is a statutory body that has been constituted under the Legal Services Authorities Act, 1987 to monitor and evaluate implementation of legal aid programmes and to lay down policies and principles for making legal services available under the Act.

**Source:** Laxmikant

**Q.10) The Constituent Assembly appointed a number of committees to deal with different tasks of constitution making. Consider the given below pairs:**

<b>Committee</b>	<b>Headed by</b>
1. Union powers committee	Jawaharlal Nehru
2. Union constitution committee	B R Ambedkar
3. Rules of procedure committee	Sardar patel

**Which of the above pairs is/are correctly matched?**

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

**ANS: A**

**Explanation:** The Constituent Assembly appointed a number of committees to deal with different tasks of constitution-making. Out of these, eight were major committees and the others were minor committees. The names of these committees and their chairmen are given below:

Major Committees

- Union Powers Committee – Jawaharlal Nehru
- Union Constitution Committee – Jawaharlal Nehru
- Provincial Constitution Committee – Sardar Patel
- Drafting Committee – Dr. B.R. Ambedkar
- Advisory Committee on Fundamental Rights, Minorities and Tribal and Excluded Areas – Sardar Patel. This committee had the following five sub-committees:
  - Fundamental Rights Sub-Committee – J.B. Kripalani
  - Minorities Sub-Committee – H.C. Mukherjee

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- North-East Frontier Tribal Areas and Assam Excluded & Partially Excluded Areas Sub- Committee – Gopinath Bardoloi
- Excluded and Partially Excluded Areas (Other than those in Assam) Sub-Committee – A.V. Thakkar
- North-West Frontier Tribal Areas Sub-Committee
- Rules of Procedure Committee – Dr. Rajendra Prasad
- States Committee (Committee for Negotiating with States) – Jawaharlal Nehru
- Steering Committee – Dr. Rajendra Prasad.

**Source:** Laxmikant

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## *Environment*

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**Q.1) Which of the following is/are constitutes of “photochemical smog”?**

1. Volatile organic compound (VOC)
2. Sunlight
3. Sulfur dioxide

**Choose the correct code from below given options:**

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

**ANS: B**

**Explanation:** Today, most of the smog we see is photochemical smog. Photochemical smog is produced when sunlight reacts with nitrogen oxides and at least one volatile organic compound (VOC) in the atmosphere. Nitrogen oxides come from car exhaust, coal power plants, and factory emissions. VOCs are released from gasoline, paints, and many cleaning solvents. When sunlight hits these chemicals, they form airborne particles and ground-level ozone—or smog. Ozone can be helpful or harmful. The ozone layer high up in the atmosphere protects us from the sun’s dangerous ultraviolet radiation. But when ozone is close to the ground, it is bad for human health. Ozone can damage lung tissue, and it is especially dangerous to people with respiratory illnesses like asthma. Ozone can also cause itchy, burning eyes.

**Source:** ForumIAS

**Q.2) Which of the following is/are “pioneer species” of ecological succession?**

1. Lichens
2. Fungi
3. Bacteria

**Choose the correct code from below given options:**

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

**ANS: D**

**Explanation:** Ecological succession is a series of progressive changes in the species that make up a community over time. Primary succession occurs when new land is formed or bare rock is exposed, providing a habitat that can be colonized for the first time. What happens to this land during primary succession? First, weathering and other natural forces break down the substrate, rock, enough for the establishment of certain hearty plants and lichens with few soil requirements, known as pioneer species. Algae, fungi, bacteria, lichens colonize on the bare rocks and provide organic materials for further higher level of colonization, while the planktons i.e., phytoplankton’s, zooplanktons provide base at the shallow water for further higher levels of succession in hydro sere.

**Source:** ForumIAS



**Q.3) “Global Drylands Initiative” is launched by which of the following?**

- a) UNEP
- b) Global Environment Facility
- c) World Bank
- d) IUCN

**ANS: D**

**Explanation:** Drylands are found in tropical and temperate latitudes and account for 41.3% of the global terrestrial area. They can be classified into four types - dry sub-humid, semi-arid, arid and hyper-arid lands - encompassing a variety of ecosystems. The goal of the Global Drylands Initiative is to restore, sustainably manage and protect dryland ecosystems for multiple environmental, economic and social benefits. The Initiative supports countries to adapt ecosystem management policy and practice to the unique conditions of the drylands and to the evolving challenges that the drylands face. Further, as the IUCN Focal Point to the United Nations Convention to Combat Desertification, the Global Drylands Initiative leads IUCN's efforts to influence the global discourse on Land Degradation and Sustainable Land Management. In this case, the Initiative supports countries to implement their commitments to the Convention by demonstrating good practices on the ground, influencing the science-policy interaction of the Convention itself and working with other stakeholders to achieve Land Degradation Neutrality.

**Source:** ForumIAS

**Q.4) Consider the following statements with respect to World Network of Biosphere Reserves (WNBR):**

1. WNBR consists of 20 trans-boundary sites.
2. WNBR is the part of Man and Biosphere (MAB) programme.

**Which of the following codes below given is/are NOT correct?**

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

**ANS: D**

**Explanation:** Composed of 686 biosphere reserves in 122 countries, including 20 transboundary sites, the WNBR of the MAB Programme promotes North-South and South-South collaboration and represents a unique tool for international co-operation through sharing knowledge, exchanging experiences, building capacity and promoting best practices. The World Network of Biosphere Reserves of the MAB Programme consists of a dynamic and interactive network of sites of excellence. It fosters the harmonious integration of people and nature for sustainable development through participatory dialogue; knowledge sharing; poverty reduction and human well-being improvements; respect for cultural values and society's ability to cope with change - thus contributing to the Millennium Development Goals. Accordingly, the WNBR is one of the main international tools to develop and implement sustainable development approaches in a wide array of contexts.

**Source:** ForumIAS

**Q.5) “Velavadar National Park” is located in which of the following state?**

- a) Maharashtra
- b) Rajasthan
- c) Gujarat
- d) Madhya Pradesh

**ANS: C**

**Explanation:** Velavadar is situated in the Bhal region of Saurashtra in Gujarat. It is a unique grassland ecosystem and perhaps the only tropical grasslands in India to be deemed a National Park. It is most renowned for its enchanting blackbuck population. The elegant blackbuck is endemic to India and Velavadar is one of its prime home territories. Wolves are the main predators of blackbuck in the park. It is highly recommended for any birdwatcher, with several birds like the Lesser Florican visiting the area. Besides, Velavadar has also earned fame as the world's largest roosting site of the harrier.

**Source:** ForumIAS

**Q.6) Consider the following statements with respect to “Global Environment Outlook”:**

1. Global Environment Outlook (GEO) is a series of reports on the environment issued periodically by the World Economic Forum.
2. The report is based on integrated environmental assessment (IEA) methodology.

**Which of the following codes below given is/are correct?**

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

**ANS: B**

**Explanation:** Global Environment Outlook (GEO) is a series of reports on the environment issued periodically by the United Nations Environment Programme (UNEP). The sixth edition of the Global Environment Outlook (GEO-6) provides a clear assessment of the current state of the environment, the challenges that we face and how well we have dealt with them, with due consideration given to gender, indigenous knowledge and cultural dimensions. The assessment lays the foundation for continued socio-environmental assessments across relevant scales, with a thematic as well as an integrated focus, enabling and informing societal transitions and the tracking of Sustainable Development Goal targets and goals as well as previously agreed internationally environmental goals. Using the integrated environmental assessment (IEA) methodology, UNEP has produced five GEO reports thus far, and the first edition of regional assessments which have analyzed environmental state and trends at the global and regional scales, described plausible outlooks for various time frames and formulated policy options.

**Source:** ForumIAS

**Q.7) Gothenburg Protocol is related to which among the following?**

- a) Protocol to Abate Acidification, Eutrophication and Ground-level Ozone
- b) Protocol aimed to reduce green house gases.
- c) Protocol on the Transboundary Movement of Hazardous Wastes and their Disposal
- d) Protocol for the protection of migratory birds

**ANS: A**

**Explanation:** Gothenburg Protocol aims to Abate Acidification, Eutrophication and Ground-level Ozone and is a part of the Convention on Long-Range Transboundary Air Pollution. It aims to control and reduce emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds (VOCs) and particulate Matter (PM) that are caused by human activities.

**Source:** ForumIAS

**Q.8) Syngas is a mixture of:**

1. Carbon Monoxide (CO)
2. Hydrogen (H<sub>2</sub>)
3. Methane (CH<sub>4</sub>)
4. Carbon Dioxide (CO<sub>2</sub>)

**Select the correct code:**

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

**ANS: C**

**Explanation:** Synthesis gas or briefly, syngas, is a mixture of carbon monoxide, carbon dioxide and hydrogen. Syngas can be produced from many sources, including natural gas, coal, biomass, or virtually any hydrocarbon feedstock, by reaction with steam or oxygen. Syngas is a crucial intermediate resource for production of hydrogen, ammonia, methanol, and synthetic hydrocarbon fuels.

The formation of syngas is strongly endothermic and requires high temperatures. Steam reforming of natural gas (or shale gas) proceeds in tubular reactors that are heated externally. The process uses nickel catalyst on a special support that is resistant against the harsh process conditions. Waste heat from the oven section is used to preheat gases and to produce steam. This plant generates syngas with H<sub>2</sub>/CO ratios in the range of 3-4, and is suitable for hydrogen production.

**Source:** ForumIAS

**Q.9) The Global Carbon Project report was published by which of the following?**

- a) World Economic Forum
- b) UNEP
- c) IUCN
- d) Future Earth

**ANS: D**

**Explanation:** The Global Carbon Project is a Global Research Project of Future Earth and a research partner of the World Climate Research Programme. It was established in 2001. The project seeks to work with the international science community to establish a common and mutually agreed knowledge base to support policy debate and action to slow down and ultimately stop the increase of greenhouse gases in the atmosphere.

**Source:** ForumIAS

**Q.10) Consider the following statements with respect to Zero Tillage:**

1. Zero tillage is the process where the crop seed will be sown through drillers without prior land preparation
2. Residual moisture can be effectively utilized in Zero Tillage

**Which of the following below given codes are correct?**

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

**ANS: C**

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**Explanation:** Zero tillage is the process where the crop seed will be sown through drillers without prior land preparation and disturbing the soil where previous crop stubbles are present. Zero tillage not only reduce the cost of cultivation it also reduces the soil erosion, crop duration and irrigation requirement and weed effect which is better than tillage. Zero Tillage (ZT) also called No Tillage or Nil Tillage.

- Advantages of Zero Tillage: Reduction in the crop duration and thereby early cropping can be obtained to get higher yields.
- Reduction in the cost of inputs for land preparation and therefore a saving of around 80%.
- Residual moisture can be effectively utilized and number of irrigations can be reduced.
- Dry matter and organic matter get added to the soil.
- Environmentally safe - Greenhouse effect will get reduced due to carbon sequestration.
- No tillage reduces the compaction of the soil and reduces the water loss by runoff and prevents soil erosion.
- As the soil is intact and no disturbance is done, No Till lands have more useful flora and fauna.

**Source:** ForumIAS

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## *History/ Art and Culture*

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**Q.1) Sixth Century B.C saw rise of intellectual awakening. What is/are the causes of intellectual awakening?**

1. Rigidity of vedic religion.
2. State formations.
3. Non-organized vedic religion.

**Select the correct answer using the codes given below:**

- 1 only
- 1 and 2 only
- 2 and 3 only
- 1, 2 and 3

**ANS: D**

**Explanation:** Sixth century BCE was a period of intense intellectual ferment. There are several reasons for the emergence of this ferment.

- State formation and the rigidity of the Vedic religion constrained the liberty of thought and action.
- A revolt against religious practice of following dogmas found its articulation in heterodox sects.
- The emergence of territorial identities accelerated the process of sociopolitical and economic changes.
- The elite class, disillusioned with the system in place, began to move in protest towards the heterodox religions blossoming in Magadha or middle Ganges plains.
- As the Vedic religion was not fully organized, its reach did not permeate into the society and hence people did not find it difficult to follow the newly emerging religious sects.

**Source:** Tamil Nadu state board class 11, page 46.

**Q.2) “Samannaphala Sutta” is related to which of the following?**

- Buddhist text
- Jain text
- Ajivika text
- Dharmashastras

**ANS: A**

**Explanation:** A Buddhist text, Samannaphala Sutta, while making a reference to Ajatashatru of Magadha meeting Gautama Buddha.

**Source:** Tamil Nadu state board class 11, page 46.

**Q.3) Who among the following composed Aihole inscription of Pulikesin II?**

- a) Ravikirti
- b) Pampa
- c) Nannaya
- d) Appar

**ANS: A**

**Explanation:** The Aihole inscription of Pulikesin II composed by his court poet Ravikirti in Sanskrit is among the most important of Chalukyan inscriptions. Kavirajamarga, a work on poetics in Kannada, Vikramarjuna-vijayam, also called Pampa-bharata, by Pampa in Kannada, which were all of a later period, and Nannaya's Mahabharatam in Telugu also provide useful historical data.

**Source:** Tamil Nadu state board class 11, page 139.

**Q.4) Consider the following statements:**

1. The wild boar is the royal insignia of the Pallavas.
2. The bull, Shiva's mount was the symbol of Chalukyas.

**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

**ANS: D**

**Explanation:** The wild boar was the royal insignia of the Chalukyas. It was claimed that it represented the varaha avatar of Vishnu in which he is said to have rescued the Goddess of the Earth. The bull, Siva's mount, was the symbol of the Pallavas.

**Source:** Tamil Nadu state board class 11, page 142.

**Q.5) On banks of which river, Vijayanagara kingdom was established?**

- a) Godavari
- b) Kaveri
- c) Tungabhadra
- d) Musi

**ANS: C**

**Explanation:** Zafar Khan who declared independence in 1345 at Devagiri shifted his capital to Gulbarga in northern Karnataka. He took the title, Bahman Shah and the dynasty he inaugurated became known as the Bahmani dynasty (1347– 1527).

A few years earlier, in 1336, the Vijayanagar kingdom was inaugurated by the Sangama brothers Harihara and Bukka at Vijayanagara (presentday Hampi) on the south bank of Tungabhadra.

During the next two centuries these two states fought continually and bitterly, to control the rich Raichur doab, and also the sea ports of Goa, Honavar, etc. on the west coast, which were the supply points of the horses needed for their army.

**Source:** Tamil Nadu state board class 11, part 2, page 2.

**Q.6) Which Bahmani king won the fortress of Golkonda from the state of Warangal?**

- a) Bahman Shah
- b) Mohammed I
- c) Mohammed Gawan
- d) Mohammed III

**ANS: B**

**Explanation:** Rivalry with the Vijayanagar kingdom over the fertile Raichur doab, lying between the Krishna and Tungabhadra rivers, not only marked the early history of the Bahmani kingdom, but continued to be an enduring feature over two centuries. Bahman Shah had also to contend in the east with the rulers of Warangal and Orissa.

Mohammed I succeeded Bahman Shah. There was a decade-long war with Vijayanagar, most of which related to control over the Raichur doab. Neither side gained lasting control over the region, in spite of the huge fatalities in battles. Two bitter wars with Vijayanagar gained him nothing. But his attack on Warangal in 1363 brought him a large indemnity, including the important fortress of Golkonda and the treasured turquoise throne, which thereafter became the throne of the Bahmani kings.

**Source:** Tamil Nadu state board class 11, part 2, page 3.

**Q.7) Who among the following was the ruler of Calicut when Vasco Da Gama arrived in 1498?**

- a) Zamorin
- b) Sikander Lodhi
- c) Yusuf Adil Shah
- d) Krishnadevaraya

**ANS: A**

**Explanation:** The arrival of three ships under Vasco Da Gama, led by a Gujarati pilot named Abdul Majid, at Calicut in May 1498 profoundly affected the course of Indian history.

The Hindu ruler of Calicut, the Zamorin (Samuthiri), however, had no apprehensions as to the European's intentions. As the prosperity of his kingdom was due to Calicut's position as an entrepot, he accorded a friendly reception to Vasco Da Gama.

The Arab traders, who had a good business on the Malabar coast were apprehensive and were not keen on the Portuguese getting a hold there.

**Source:** Spectrum's A Brief History of Modern India, Page 23.

**Q.8) Who among the following is known for Blue Water Policy?**

- a) Vasco Da Gama
- b) Nino Da Cunha
- c) Francisco De Almeida
- d) Alfonso de Albuquerque

**ANS: C**

**Explanation:** In 1505, the King of Portugal appointed a governor in India for a three-year term and equipped the incumbent with sufficient force to protect the Portuguese interests. Francisco De Almeida, the newly appointed governor, was asked to consolidate the position of the Portuguese in India and to destroy Muslim trade by seizing Aden, Ormuz and Malacca.

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He was also advised to build fortresses at Anjadiva, Cochin, Cannanore and Kilwa. What Almeida, however, encountered along with the opposition of the Zamorin, was a threat from the Mameluke Sultan of Egypt. Encouraged by the merchants of Venice whose lucrative commerce was now at risk due to the Portuguese interference, the Egyptians raised a fleet in the Red Sea to stop the advance of the Portuguese.

In 1507, the Portuguese squadron was defeated in a naval battle off Diu by the combined Egyptian and Gujarat navies, and Almeida's son was killed. Next year, Almeida avenged his defeat by totally crushing the two navies. Almeida's vision was to make the Portuguese the master of the Indian Ocean. His policy was known as the Blue Water Policy (cartaze system).

**Source:** Spectrum's A Brief History of Modern India, Page 26.

**Q.9) Which among the following treaty was signed the earliest?**

- a) Treaty of Sagauli
- b) Treaty of Lhasa
- c) Treaty of Gandamak
- d) Durand Agreement

**ANS: A**

**Explanation: Relations of British India with Neighbouring Countries**

- Anglo-Nepal Relations (Treaty of Sagauli, 1816)
- Anglo-Burma Relations
  - ✓ First Anglo-Burma War, 1824-26
  - ✓ Second Anglo-Burma War, 1852
  - ✓ Third Anglo-Burma War, 1885
- Anglo-Tibetan Relations
  - ✓ Treaty of Lhasa (1904)
- Anglo-Afghan Relations
  - ✓ Forward Policy of Auckland
  - ✓ First Anglo-Afghan War (1839-1842)
  - ✓ John Lawrence's Policy of Masterly Inactivity
  - ✓ Lytton and the Policy of Proud Reserve
  - ✓ Second Anglo-Afghan War (1870-80)
  - ✓ Treaty of Gandamak (May 1879)
- North-West Frontier
  - ✓ Durand Agreement (1893)

**Source:** Spectrum's A Brief History of Modern India, Page 137.



**Q.10) Heer Ranjha, the romantic epic in Punjabi literature was composed by who among the following?**

- a) Warris shah
- b) Shah Abdul Latif
- c) Mirza Galib
- d) Tayumanavar

**ANS: A**

**Explanation:** A distinct feature of the literary life of the 18th century was the growth of Urdu language and poetry. It was the period of Urdu poets like Mir, Sauda, Nazir and Mirza Ghalib (19<sup>th</sup> century).

In south India, Malayalam literature flourished under the patronage of the Travancore rulers. Kanchan Nambiar was a noted Malayalam poet. The Tamil language was enriched by sittal poetry. Tayumanavar (1706-44), one of the best exponents of sittal poetry, protested against the abuses of temple-rule and the caste system.

Heer Ranjha, the romantic epic in Punjabi literature, was composed by Warris Shah. In Sindhi literature, Shah Abdul Latif composed Risalo, a collection of poems. These are just some examples of literary works in regional languages.

**Source:** Spectrum's A Brief History of Modern India, Page 80.

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## *Scheme/ Programs/ Institutions*

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**Q.1) Which of the following area (s) is/are addressed in United Nations Conference on Environment and Development (UNCED)?**

1. Alternative sources of energy to replace the use of fossil fuels.
2. The growing scarcity of water.
3. Ozone layer protection.

**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

**ANS: B**

**Explanation:** United Nations Conference on Environment and Development (UNCED) also known as the Rio Summit, Rio Conference, Earth Summit held in Rio de Janeiro in June 1992. The issues addressed included:

- Systematic scrutiny of patterns of production — particularly the production of toxic components, such as lead in gasoline, or poisonous waste including radioactive chemicals.
- Alternative sources of energy to replace the use of fossil fuels which are linked to global climate change.
- New reliance on public transportation systems in order to reduce vehicle emissions, congestion in cities and the health problems caused by polluted air and smog.
- The growing scarcity of water.

**Source:** Shankar page no: 325

**Q.2) Which of the following is/are outcome of earth summit?**

1. Agenda 21.
2. Global Environment Facility.
3. Kyoto Protocol.

**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

**ANS: A**

**Explanation:** The Earth Summit resulted in the following documents:

- Rio Declaration on Environment and Development
- Agenda 21
- Forest Principles

**Source:** Shankar page no: 325

**Q.3) “Cartagena Protocol” is often seen in news is related to which of the following?**

- a) Sustainable agriculture
- b) Renewable energy
- c) Bio-safety
- d) Ozone layer protection

**ANS: C**

**Explanation:** The Cartagena Protocol on Bio-safety is an additional agreement to the Convention on Biological Diversity.

The Protocol establishes procedures for regulating the import and export of LMOs from one country to another.

The Protocol also requires Parties to ensure that LMOs being shipped from one country to another are handled, packaged and transported in a safe manner.

**Source:** Shankar page no: 327

**Q.4) Which of the following addresses traditional knowledge associated with genetic resources with provisions on access, benefit-sharing and compliance?**

- a) Kyoto protocol
- b) Nagoya protocol
- c) Montreal protocol
- d) Basel protocol

**ANS: B**

**Explanation:** The Nagoya Protocol addresses traditional knowledge associated with genetic resources with provisions on access, benefit-sharing and compliance.

It also addresses genetic resources where indigenous and local communities have the established right to grant access to them.

Contracting Parties are to take measures to ensure these communities’ prior informed consent, and fair and equitable benefit-sharing, keeping in mind community laws and procedures as well as customary use and exchange.

**Source:** Shankar page no: 328

**Q.5) Consider the following statements regarding “Ramsar Convention on Wetlands”:**

1. It is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
2. It is not affiliated with the United Nations system of Multilateral Environmental Agreements.

**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

**ANS: C**

**Explanation:** The Convention on Wetlands [waterfowl convention] is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

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It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975, and it is the only global environmental treaty that deals with a particular ecosystem.

Ramsar is not affiliated with the United Nations system of Multilateral Environmental Agreements, but it works very closely with the other MEAs and is a full partner among the “biodiversity-related cluster” of treaties and agreements.

**Source:** Shankar page no: 330

**Q.6) Consider the following statements regarding “National Green Tribunal”:**

1. It was created for the effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
2. It is mandated to dispose the cases within six months of their respective appeals.

**Which of the statements given above is/are NOT correct?**

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

**ANS: D**

**Explanation:** The Preamble of the act provides for the establishment of a National Green Tribunal for the effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources, including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto (The National Green Tribunal Act, 2010).

NGT is mandated to dispose the cases within six months of their respective appeals.

**Source:** Shankar page no: 310

**Q.7) Consider the following statements regarding “National Wildlife Action Plan (NWAP)”:**

1. It was created by the provisions of the wildlife protection act, 1972.
2. The first National Wildlife Action Plan (NWAP) was adopted in 1983.

**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

**ANS: B**

**Explanation:** The first National Wildlife Action Plan (NWAP) was adopted in 1983, based upon the decision taken in the XV meeting of the Indian Board for Wildlife held in 1982.

The plan had outlined the strategies and action points for wildlife conservation which are still relevant.

**Source:** Shankar page no: 313

**Q.8) Consider the following statements with respect to ICEDASH:**

1. ICEDASH is an ease of doing business(EoDB) monitoring dashboard of the Indian Customs
2. It is developed by Department for Promotion of Industry and Internal Trade (DPIIT) in collaboration with National Informatics Centre

**Which of the following below given codes are correct?**

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

**ANS: A**

**Explanation:** ICEDASH is an ease of doing business (EoDB) monitoring dashboard of the Indian Customs helping public see the daily customs clearance times of import cargo at various ports and airports. It will be an effective tool that can help businesses compare clearance times across ports and plan their logistics accordingly. The dashboard has been developed by the Central Board of Indirect Taxes and Customs (CBIC) in collaboration with National Informatics Centre (NIC).

**Source:** ForumIAS

**Q.9) “Economic Outlook for South East Asia, China and India” report is released by which of the following Institution?**

- a) IMF
- b) World Bank
- c) OECD
- d) WEF

**ANS: C**

**Explanation:** The Organization for Economic Co-operation and Development (OECD) has released its report titled Economic Outlook for South East Asia; the report said that India's reliance on consumption will continue due to large informal labor share which indicates that there is room to strengthen the consumption base. China and India. India's gross domestic product (GDP) is projected to grow at 6.6% in 2020-24 lower than its 2013-17 average of 7.4%.

**Source:** ForumIAS

**Q.10) Consider the following statements with respect to G-20:**

1. The G-20's members represent two-thirds of the world's people and 85 percent of its economy
2. The G-20's primary mandate is to prevent future international financial crises

**Which of the following below given codes is/are correct?**

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

**ANS: C**

**Explanation:** The G-20 is the G-7 plus developing nations such as Brazil, China, India, and Russia. The G-20's members represent two-thirds of the world's people and 85 percent of its

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economy. Since 2007, the media has covered each G-20 summit. That recognizes the members' role as significant drivers of the world economy. The G-20's primary mandate is to prevent future international financial crises. It seeks to shape the global economic agenda. It lends the perspective of Asian and Latin American growing economies. That "broadens the scope of international economic and financial cooperation."

**Source:** ForumIAS



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## *Science and Technology*

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**Q.1) Consider the following statements:**

1. National Cyber Exercise (NCX) India was conducted by National Security Council Secretariat (NSCS) to train personnel of Government/Critical Sector organisations on contemporary cyber threats and handling cyber incidents and response.
2. The National Security Council (NSC) is headed by the National Security Advisor (NSA).

**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

**ANS: A**

**Explanation: About National Security Architecture in India**

- As per the Allocation of Business (AOB) rules, the National Security Advisor (NSA) is “the principal advisor on national security matters to the prime minister”.
- The National Security Council Secretariat (NSCS) reports to National Security Advisor (NSA) and acts as the secretariat for the PM-led National Security Council (NSC).
- The National Security Council (NSC) is headed by the Prime Minister.
- The NSCS was formed two decades ago, as an outcome of the elaborate post-Kargil review. It was formed to assist the then newly created NSA’s post and was housed within the cabinet secretariat. In 2002, it was brought under the PMO.
- NSCS also has the authority to service the Strategic Policy Group (SPG) and the Defence Planning Group (DPG). Both the SPG and DPG are headed by the NSA.
- The Strategic Policy Group (SPG) was created under the cabinet secretary with the NSA as the member. This was changed in 2018 when NSA AjitDoval was made head of a reconstituted SPG and the NSCS was tasked to service it.

**Source:** Forum IAS

**Q.2) Which of the following can be the effects of a Geomagnetic Storm?**

1. It impacts the shape of the earth’s magnetosphere.
2. It can damage satellite electronics and expose high-altitude pilots to increased levels of radiation.
3. It does not cause Voltage surges.
4. It can intensify northern lights visible in the skies of higher latitudes.

**Select the correct answer using the codes given below:**

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

**ANS: C**

**Explanation: About Geomagnetic Storm**

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- A geomagnetic storm is a disturbance in the earth's magnetosphere, which is the area around the planet controlled by its magnetic field.
- The earth's magnetosphere protects its inhabitants from most of the particles emitted by the sun.
- When a coronal mass ejection (CME) or a high-speed stream reaches the earth, it strikes the planet's magnetosphere.
- If the incoming solar magnetic field is directed southwards, it interacts strongly with the earth's own magnetic field that is opposite in direction, causing disturbances.
- A coronal mass ejection is a large expulsion of plasma and magnetic field from the sun's corona. Plasma is the highly ionised gas present on the sun, while corona is the outermost part of the sun's atmosphere.
- The corona is structured by strong magnetic fields. If these fields are closed, the solar atmosphere can release sudden, violent bubbles of gas and magnetic fields which constitute the CME.
- The changes produced in the earth's magnetic field as a result of this interaction allow solar wind particles to stream down the magnetic field lines and hit the atmosphere near the poles.
- Solar winds deeply impact the shape of the earth's magnetosphere, and variations in solar winds cause geomagnetic storms on earth.
- At the surface of the earth, a geomagnetic storm can result in a rapid decline in the earth's magnetic field strength. This decrease can last for around 6 to 12 hours and gradually recovers over several days.
- Geomagnetic storms can impact long-range radio communication and global positioning system (GPS) devices.
- These storms can also damage satellite electronics and expose astronauts and high-altitude pilots to increased levels of radiation.
- Voltage surges due to altered magnetic activity can also affect power supply on the earth and cause outages.
- Geomagnetic storms are also linked with intensified northern lights visible in the skies of higher latitudes.

**Source:** Forum IAS

### **Q.3) Consider the following statements regarding e-DAR portal, recently seen in news:**

1. It is an integrated data and instant information provisioning portal on road accidents.
2. It is an extension of Integrated Road Accident Database (iRAD) and will provide geo tagging of the exact accident spot along with the site map.

**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

**ANS: C**

**Explanation: About e-DAR**

- 'e-DAR' stands for e-Detailed Accident Report. It is an integrated data and instant information provision portal on road accidents.



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- It designed by the government in consultation with insurance companies and will provide instant information on road accidents with a few clicks and help accelerate accident compensation claims, bringing relief to victims' families.
- Digitalised Detailed Accident Reports (DAR) will be uploaded on the portal for easy access.
- The web portal will be linked to the Integrated Road Accident Database (iRAD). From iRAD, applications to more than 90% of the datasets would be pushed directly to the e-DAR. Stakeholders like the police, road authorities, hospitals, etc., are required to enter very minimal information for the e-DAR forms. Thus, e-DAR would be an extension and e-version of iRAD.
- The portal would be linked to other government portals like Vaahan and would get access to information on driving licence details and registration of vehicles.
- For the benefit of investigating officers, the portal would provide geo tagging of the exact accident spot along with the site map. This would notify the investigating officer on his distance from the spot of the incident in the event the portal is accessed from any other location.
- Details like photos, video of the accident spot, damaged vehicles, injured victims, eye-witnesses, etc., would be uploaded immediately on the portal.
- Hotspots for accidents would also be identified so as to obtain solutions to avoid accidents at these hotspots.

**Source:** Forum IAS

### **Q.4) With reference to 'Hirudotherapy', consider the following statements:**

1. It is a medicinal leech therapy that can be used for treatment for inflammatory lesions, cystic lesions and tumorigenesis.
2. It finds mention in the 'Sushruta Samhita', a 3,000-year-old treatise on medicine and surgery.

**Which of the statements given above is/are not correct?**

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

**ANS: D**

### **Explanation: About Hirudotherapy**

- Medicinal Leech Therapy (MLT), also known as Hirudotherapy, has a mention in the 'Sushruta Samhita', a 3,000-year-old treatise on medicine and surgery.
- Hirudomedicinalis, belonging to the phylum Annelida, is used as 'medicinal leech' and it can be used in treatment of chronic eczema, non-healing ulcers, dermatitis, varicose veins, thrombotic piles, diabetic foot and some auto-immune disorders.
- The leeches are first dropped into water laced with turmeric and later kept on the affected portion of the human body. The leech moves around the area, selects the place where to begin from and secretes some of the 36 proteolytic enzymes available in its saliva, facilitating its release into the systemic circulation to counter the disease morbidity.
- Sushruta advised this treatment for inflammatory lesions, cystic lesions and tumorigenesis if the affected area is palm-sized. The weekly process is repeated for five to ten weeks depending on the chronicity of the disorder and pathology.

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- The therapy is in great demand in the U.S.A. as it is used post-grafting in plastic surgery procedures to enhance circulation and improve permeability of blood flow. Also, it is used for congestive cardiac failure (CCF) cases to regulate the heart beat and relieve coronary artery blocks.
- The therapy has been recognised by the American Surgical Association and the procedure approved by the Food and Drug Administration (FDA), U.S.A.

**Source:** Forum IAS

**Q.5) Which of the following statements regarding 'Oort Cloud' are correct?**

1. It is a thick-walled bubble made of icy pieces of space debris the sizes of mountains and source to most of the comets.
2. It lies in the same flat disk around the Sun.

**Which of the statements given above is/are not correct?**

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

**ANS: B**

**Explanation: About OortCloud**

- The OortCloud is the most distant region of our solar system. Even the nearest objects in the OortCloud are thought to be many times farther from the Sun than the outer reaches of the Kuiper Belt.
- Unlike the orbits of the planets and the Kuiper Belt, which lie mostly in the same flat disk around the Sun, the OortCloud is believed to be a giant spherical shell surrounding the rest of the solar system.
- It is like a big, thick-walled bubble made of icy pieces of space debris the sizes of mountains and sometimes larger. The OortCloud might contain billions, or even trillions, of objects.
- Because the orbits of long-period comets are so extremely long, scientists suspect that the OortCloud is the source of most of those comets.
- The outer limit of the Oort cloud defines the cosmographic boundary of the Solar System and the extent of the Sun's Hill sphere.
- It is proposed to surround the Sun at distances ranging from 2,000 to 200,000 AU
- It is divided into two regions: a disc-shaped inner Oort cloud (or Hills cloud) and a spherical outer Oort cloud. Both regions lie beyond the heliosphere and in interstellar space.
- The OortCloud lies far beyond Pluto and the most distant edges of the Kuiper Belt.
- While the planets of our solar system orbit in a flat plane, the OortCloud is believed to be a giant spherical shell surrounding the Sun, planets and Kuiper Belt Objects.
- It lies far beyond Pluto and the most distant edges of the Kuiper Belt.

**Source:** ForumIAS

**Q.6) With reference to WHO's classification of Variant of Concern (VOC), which of the following statements are correct?**

1. There is an increase in transmissibility
2. There is increase in virulence
3. There is an increase in the effectiveness of public health measures

**Select the correct answer using the codes given below:**

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

**ANS: A**

**Explanation: About Delta Variant of Covid-19:**

- The World Health Organization (WHO) has named B.1.617.1 variant as 'Kappa' and B.1.617.2 variant as 'Delta'. These variants are sub-lineages of B.1.617 which was detected in India in 2021.
- This new nomenclature for the various variants of the coronavirus using Greek alphabets was introduced to simplify public discussions and also help remove the stigma from the names.
- Moreover, WHO has also categorized the Delta variant as a Variant of Concern (VOC).

**What is Variant of Concern (VOC)?**

WHO classifies a variant as a VOC when it is associated with:

- An increase in transmissibility or detrimental change in Covid-19 epidemiology or
- Increase in virulence (Ability to cause severe/life-threatening disease)
- Decrease in the effectiveness of public health measures or available diagnostics, vaccines and therapeutics.

**Why is Delta Variant more dangerous than other variants?**

- This variant has multiple mutations that appear to give it an advantage over other strains.
- The most important advantage is that the mutations may make the strain more transmissible. This will make the delta variant the most dangerous variant yet.
- One study indicated that the Delta variant may be up to 50% more transmissible than the B.1.1.7 (U.K./Alpha) variant.

**Source:** ForumIAS

**Q.7) CHIME Telescope, recently seen in news for detecting 535 Fast Radio Bursts, is located in which of the following country?**

- a) USA
- b) Germany
- c) Canada
- d) Australia

**ANS: C**

**Explanation: About CHIME Telescope**

- Canadian Hydrogen Intensity Mapping Experiment (CHIME) is a radio telescope designed to answer major questions in astrophysics and cosmology.

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- The telescope is a partnership between the University of British Columbia, McGill University, the University of Toronto and the Canadian National Research Council's Dominion Radio Astrophysical Observatory.

### **Working of CHIME Telescope:**

- The CHIME telescope functions a bit differently from others used for radio astronomy. Most radio astronomy is done by rotating a large dish to focus light from different parts of the sky.
- On the other hand, the CHIME telescope comprises four massive parabolic radio antennas. It has no moving parts, and it receives radio signals each day from half of the sky as the Earth rotates.
- The telescope has a powerful digital signaling processor that works at about seven terabits per second – equivalent to a few percent of the world's internet traffic.
- This digital signal processor reconstructs and looks in thousands of directions simultaneously.
- That's what helps it to detect FRBs a thousand times more often than a traditional telescope.
- **Location:** The telescope is located at Dominion Radio Astrophysical Observatory in British Columbia, Canada.

### **Why in news?**

- Scientists from the Canadian Hydrogen Intensity Mapping Experiment (CHIME) have detected 535 Fast Radio Bursts (FRB). It is the largest collection of FRB till date.
- They have detected this in collaboration with India's Tata Institute for Fundamental Research (TIFR) and the National Centre for Radio Astrophysics (NCRA).

### **What are Fast Radio Bursts (FRBs)?**

- FRBs are bright bursts of radio waves (radio waves can be produced by astronomical objects with changing magnetic fields) that blaze for a few milliseconds before vanishing without a trace.
- They are spotted in various and distant parts of the universe as well as in our own galaxy. However, their origins are still unknown, and their appearance is highly unpredictable.
- The first FRB was spotted in 2007. Since then, scientists had only caught sight of around 140 bursts in their telescopes.

**Source:** ForumIAS

### **Q.8) Consider the following statements about Project O2 for India:**

1. It is an initiative of the Office of Principal Scientific Adviser.
2. Under the Project, a National Consortium of Oxygen has been set up.
3. The consortium has been raising funds from public sector organisations.

### **Which of the statements given above is/are not correct?**

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

**ANS: C**

**Explanation: About Project O2 for India:**

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Project O2 for India is an initiative of the Office of Principal Scientific Adviser, Government of India (GoI).

**Purpose:** The project aims to:

- Step up production of medical oxygen to meet the potential increase in demand due to further waves of the pandemic.
- Help the stakeholders working to increase the country's ability to meet the rise in demand for medical oxygen.

**Key Features of the Project O2 for India:**

- Under the Project, a National Consortium of Oxygen has been set up. It has been raising funds from private sector organisations, individuals among others.
- These funds are being used by the consortium to supply critical raw materials. Such as zeolites, setting up of small oxygen plants, manufacturing compressors, ventilators among others.
- Moreover, the consortium is also working to strengthen the manufacturing ecosystem of medical oxygen for long-term preparedness.
- Further, a committee of experts has also been set up to evaluate critical equipment. Such as oxygen plants, concentrators, and ventilators from a pool of India-based manufacturers, start-ups, and MSMEs.

**About Office of the Principal Scientific Adviser (PSA):**

- Setup in: Office of the Principal Scientific Adviser (PSA) was set up in 1999 by the Cabinet Secretariat. It is currently a Secretary level position.
- Mandate: This office is the chief advisor to the government on matters related to scientific policy. The policies focus on critical infrastructure, economic and social sectors.

**Source:** ForumIAS

**Q.9) SAGE Portal, recently seen in news is launched for which of the following?**

- a) Elderly person
- b) Disabled person
- c) Anaemic Women
- d) Orphan Children

**ANS: A**

**Explanation: About SAGE Initiative and SAGE Portal:**

- SAGE Initiative and SAGE Portal have been launched with an aim to provide “one-stop access” for elderly care. The portal will provide access to all elderly care products and services developed by credible start-ups.

- Launched by: Ministry of Social Justice and Empowerment (MoSJ&E) Key Features of the Initiative:

- Helping start-ups: The initiative aims to help startups that are interested in the field of providing services for elderly care.

- Selection of start-ups: Start-ups will be selected by an independent screening committee of experts.
- Basis of selection: The committee will select the startups on the basis of their innovative products and services across sectors. Such as health, housing, care centres and technological access linked to finances, food, wealth management and legal guidance.

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- Fund: A fund of up to Rs 1 crore as one-time equity will be granted to each selected start-up.
- Ministry will act as a facilitator: After the product is made, the Ministry of Social Justice will act as a facilitator enabling the elderly to access these products

**Source:** ForumIAS

**Q.10) Consider the following statements with regarding benefits of Gene Editing:**

1. It can treat many human diseases & genetic disorders.
2. It can be used to grow healthier food and increasing harvest.
3. It can be used to bring to life extinct species.

**Which of statements given above is/are correct?**

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

**ANS: D**

**Explanation:** It is a type of genetic engineering in which DNA is inserted, deleted or replaced in the genome of an organism using artificially engineered nucleases, or “molecular scissors”.

- Human genome editing can be used to treat many human diseases & genetic disorders like HIV/AIDS, hemophilia etc.
- It could substantially bolster disease resistance in humans & increase life span.
- It could form the basis of highly efficient & cost effective next generation antibiotics (based on bacteriophage viruses).
- Gene editing can be used to protect endangered species or bring to life extinct species.
- It can be used to grow healthier food (via fortification) and increasing harvest.
- It has the potential to slow down the spread of diseases by eliminating its means of transmission. E.g. Gene editing can be used to introduce sterile mosquitoes into the environment.

Source: ForumIAS

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## *Location/ IR/ Geography*

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**Q.1) Which of the following is/are tributaries of “Brahmaputra River”?**

1. Teesta River
2. Sankosh River
3. Manas River
4. Subansiri River

**Select the correct answer using the codes given below:**

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

**ANS: A**

**Explanation:** Primary Tributaries of the Brahmaputra River are:

- The Dhansiri River.
- The Dibang River.
- The Subansiri River.
- The Kameng River.
- The Manas River.
- The Sankosh River.
- The Teesta River.

**Source:** ForumIAS

**Q.2) In how many years the world population increased from 5 billion to 6 billion?**

- a) 10 years
- b) 12 years
- c) 18 years
- d) 24 years

**ANS: B**

**Explanation:** It took more than a million years for the human population to attain the one billion mark. But it took only 12 years for it to rise from 5 billion to 6 billion.

Source: NCERT – XII Fundamentals of Human Geography

**Source:** ForumIAS

**Q.3) The minimum population needed to term a settlement as mega city?**

- a) 1 million
- b) 10 million
- c) 50 million
- d) 100 million

**ANS: B**

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**Explanation:** A mega city or megalopolis is a general term for cities together with their suburbs with a population of more than 10 million people.

**Source:** NCERT – XII Fundamentals of Human Geography

**Q.4) With reference to the wetland farming, which of the following statements is/are Correct?**

1. In wetland farming, the rainfall is less than soil moisture requirement of plants during rainy season.
2. These areas grow various water intensive crops such as rice, jute and sugarcane.

**Select the correct answer using the codes given below:**

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

**ANS: B**

**Explanation:** In wetland farming, the rainfall is in excess of soil moisture requirement of plants during rainy season.

- Such regions may face flood and soil erosion hazards.
- These areas grow various water intensive crops such as rice, jute and sugarcane and practice aquaculture in the fresh water bodies.

**Source:** NCERT – XII India People and Economy

**Q.5) With reference to the wheat, which of the following statements is/are correct?**

1. Almost 50 per cent of total area under this crop is concentrated in southern regions of the country.
2. About 20 per cent of the total cropped area in the country is under wheat cultivation.

Select the correct answer using the codes given below:

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

**ANS: D**

**Explanation:** In India after rice. India produces about 12.3 per cent of total wheat production of world (2016).

- It is primarily a crop of temperate zone. Hence, its cultivation in India is done during winter i.e. rabi season.
- About 85 per cent of total area under this crop is concentrated in north and central regions of the country i.e. Indo-Gangetic Plain, Malwa Plateau and Himalayas up to 2,700 m altitude.
- About 14 per cent of the total cropped area in the country is under wheat cultivation.

**Source:** NCERT – XII India People and Economy



**Q.6) Which of the following port in India is known as twin dock systems?**

- a) Vishakhapatnam Port
- b) Mangalore Port
- c) Tuticorin Port
- d) Kolkata Port

**ANS: D**

**Explanation:** Kolkata is the only riverine major port in India. Known for twin dock systems viz., Kolkata Dock System (KDS) on the eastern bank and Haldia Dock Complex (HDC) on the western bank of river Hooghly.

Vishakhapatnam is India's deepest landlocked port handling crude oil and petroleum products.

**Source:** NCERT – XII India People and Economy

**Q.7) Koderma, Ajmer and Nellore areas are famous for which of the following?**

- a) Copper
- b) Iron ore
- c) Mica
- d) Bauxite

**ANS: C**

**Explanation:** Mica is a mineral made up of a series of plates or leaves. It splits easily into thin sheets.

- These sheets can be so thin that a thousand can be layered into a mica sheet of a few centimeters high.
- Mica can be clear, black, green, red yellow or brown. Due to its excellent di-electric strength, low power loss factor, insulating properties and resistance to high voltage, mica is one of the most indispensable minerals used in electric and electronic industries.
- Mica deposits are found in the northern edge of the Chota Nagpur plateau. Koderma Gaya – Hazaribagh belt of Jharkhand is the leading producer.
- In Rajasthan, the major mica producing area is around Ajmer. Nellore mica belt of Andhra Pradesh is also an important producer in the country.

**Source:** NCERT – XII India People and Economy

**Q.8) Which of the following state has largest resource of Bauxite in India?**

- a) Gujarat
- b) Chattisgarh
- c) Odisha
- d) Maharashtra

**ANS: C**

**Explanation:** By States, Odisha alone accounts for 51% of country's resources of bauxite followed by Andhra Pradesh (16%), Gujarat (9%), Jharkhand (6%), Maharashtra (5%) and Madhya Pradesh & Chhattisgarh (4% each).

Major bauxite resources are concentrated in the East Coast bauxite deposits in Odisha and Andhra Pradesh.

**Source:** NCERT – XII India People and Economy

**Q.9) Which of the following river (s) is/are NOT an antecedent origin?**

1. Ganga
2. Satluj
3. Kosi

**Select the correct answer using the codes given below:**

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

**ANS: A**

**Explanation:** The drainage pattern was already present before a period of uplift and folding that formed the present structure.

- As the uplift took place, the rivers were able to cut down at approximately the same rate and so maintain their courses.
- This process is called antecedence and the drainage system thus developed is called antecedent drainage.
- Many of the Himalayan Rivers have antecedent origin i.e. these rivers existed even before the Himalayan ranges were uplifted.
- These rivers originate in the Tibetan side beyond the mountain ranges of Himalayas.
- The Indus, Satluj, Alaknanda, Gandak, Kosi, Brahmaputra all has an antecedent origin.
- Since these rivers are antecedent, they run transverse to the mountain ranges cutting deep V-shaped, steep-sided valleys (deep gorges).

**Source:** NCERT XI – India Physical Environment

**Q.10) The Jog falls is located in which of the following state?**

- a) Maharashtra
- b) Goa
- c) Kerala
- d) Karnataka

**ANS: D**

**Explanation:** Jog Falls, also called Gersoppa Falls, cataract of the Sharavati River, western Karnataka state, southwestern India.

The Jog Falls are located 18 miles (29 km) upstream from Honavar at the river's mouth on the Arabian Sea.

**Source:** NCERT – XI India Physical Environment

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## *Economy*

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**Q.1) Consider the following statements about National Export Insurance Account (NEIA) Trust:**

1. NEIA Trust was set up in 2006 by the Ministry of Finance.
2. It aims to promote Medium and Long Term (MLT) /project exports from India that are of strategic and national importance.

**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

**ANS: B**

**Explanation: About the National Export Insurance Account (NEIA) Trust**

NEIA Trust was set up in 2006 by the Ministry of Commerce and Industry.

**Aim:** To promote **Medium and Long Term (MLT) /project exports** from India that is of strategic and national importance. It provides additional support to the insurance cover provided by ECGC for project exports.

It will support the projects that are desirable from the point of view of national interest but which Export Credit Guarantee Corporation of India (ECGC) is unable to underwrite due to capacity constraints or unfavorable terms.

**Source:** [Indian Economy \(core\)](#)

**Q.2) Which of the following statements about certificate of origin (CoO) are correct?**

1. It is a document issued by the importers.
2. It is the authentication declaring in which country a commodity or good was manufactured.
3. The certificate of origin contains information regarding the product, its destination, and the country of export.

**Select the correct answer using the codes given below:**

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

**ANS: C**

**Explanation: About the Certificate of Origin (CoO)**

A certificate of origin (CoO) is a document issued by the exporters. It is the authentication declaring in which country a commodity or good was manufactured.

The certificate of origin contains information regarding the product, its destination, and the country of export. For example, a good may be marked "Made in the USA" or "Made in China".

**Why is CoO mandated?**

The CoO is often mandated by importing countries because it can help determine whether certain goods are eligible for import and to what extent they are subject to duties.

**Source:** [Indian Economy \(core\)](#)

**Q.3) With respect to public debt- to-GDP ratio, consider the following statements:**

1. It measures the financial leverage of an economy and is used to gauge a country's ability to repay its debt.
2. A higher ratio indicates a higher risk of default.
3. Public debt consists of external debt only.

**Which of the statements given above are correct?**

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

**ANS: A**

**Explanation: About public debt- to-GDP ratio**

- The Debt-to-GDP ratio is the ratio between a country's government debt and its Gross Domestic Product (GDP).
- It measures the financial leverage of an economy and is used to gauge a country's ability to repay its debt.
- Public debt consists of external debt (which has been borrowed from foreign lenders) and internal debt (like government securities, treasury bills, and short-term borrowings).

**Impacts of public debt- to-GDP ratio**

A high debt-to-GDP ratio is undesirable for a country, as a higher ratio indicates a higher risk of default. In such scenarios, creditors seek higher interest rates during lending. A very high debt-to-GDP ratio may deter creditors from lending money altogether. It,

- a) Deprives the government of its ability to undertake development and welfare measures,
- b) Impacts the outlook of rating agencies for the country,
- c) Widens fiscal deficit and creates pressure on the market interest rate.

- This impacts private firms, thereby increasing per unit cost that is passed on to consumers. It results in cost-push inflation.

**What debt- to-GDP ratio is considered stable?**

- A country able to continue paying interest on its debt-without refinancing, and without hampering economic growth, is generally considered to be stable.
- A low debt-to-GDP ratio indicates an economy that produces and sells goods and services sufficient to pay back debts without incurring further debt.
- According to the recommendations of the **N.K. Singh Committee (2016)**, Debt-to-GDP ratio should have been 38.7% for the Centre and 20% for states by 2022-23 (FY23).

**Source:** [Indian Economy \(core\)](#)

**Q.4) With respect to Capital Gains Tax, which of the following statement is/are correct?**

1. The percentage of Capital Gains Tax changes on the basis of the overall tax slab.
2. It is levied on the profit that is received through the sale of a capital asset.

**Select the correct answer using the codes given below:**

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

**ANS: B**

**Explanation: About Capital Gains Tax**

**Definition:** Capital Gains Tax is levied on the profit that is received through the sale of a capital asset. It covers real estate, gold, stocks, mutual funds, and various other financial and non-financial assets.

**Types:** It is divided into long-term capital gains tax (LTCG) and short-term capital gains tax (STCG) depending on how long one has held the investment in question.

**Why is Capital Gains Tax so complicated?**

Capital gains tax is complicated for a few primary reasons.

**First,** the rate changes from asset to asset. LTCG tax on stocks and equity mutual funds is 10% but on debt mutual funds is 20% with indexation.

**Second,** the holding period changes from asset to asset. The holding period for LTCG tax is two years in real estate, one year for stocks, and three years for debt mutual funds and gold.

**Third,** exemptions are available under complex conditions. For instance, buying a house after selling one can get you an exemption, but the new house must be bought within two years or built-in three years of the sale.

**How is Capital Gains Tax different from Income Tax?**

- Unlike income tax, the percentage of Capital Gains Tax does not change on the basis of the overall tax slab. For example, the LTCG tax excluding surcharge on equity is the same for gains of ₹10 lakh or ₹10 crores.
- Moreover, there is also a separate set of deductions that apply to LTCG which do not apply to ordinary income.

**Source:** [Indian Economy \(core\)](#)

**Q.5) Which of the following is/are “special and differential treatment provisions” given to developing countries under WTO?**

1. Measures to increase trading opportunities for these countries.
2. Support to help developing countries build the infrastructure to undertake WTO work.
3. Longer time periods for implementing agreements and commitments.

**Select the correct answer using the codes given below:**

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

**ANS: D**

**Explanation: About the Special and differential treatment (S&DT) under WTO**

WTO agreements contain special provisions which give developing countries special rights and allow other members to treat them more favorably. These are called “special and differential treatment provisions” (*abbreviated as S&D or SDT*). These special provisions include:

- Longer time periods for implementing agreements and commitments
- Measures to increase trading opportunities for these countries
- Provisions requiring all WTO members to safeguard the trade interests of developing countries
- Support to help developing countries build the infrastructure to undertake WTO work, handle disputes and implement technical standards.
- Provisions related to Least-Developed Country (LDC) members

**About the problem with S&DT under WTO**

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- Currently, any WTO member can designate itself as a developing country and avail S&DT benefits.
- As a result of the self-selection process, there is competition among members to get the developing country status. Several advanced countries have also taken developing country status.
- Hence, the US had submitted its suggestions to the WTO that self-declaration puts the WTO on a path to failed negotiations, and it is also a path to institutional irrelevance.

**Source:** [Indian Economy \(core\)](#)

**Q.6) The US Federal Reserve has raised interest rates subsequently. Which among the following statement correctly explains its impact on Indian Economy?**

1. When interest rates rise in the US, Foreign Institutional Investors (FII) starts more investments (also called portfolio flows) into India.
2. It will strengthen Indian Rupee.

**Select the correct answer using the codes given below:**

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

**ANS: D**

**Explanation:**

- The US Federal Reserve has announced that it would end its pandemic-era bond purchases and raise interest rates subsequently.
- Both these measures are aimed at taming inflation, currently at a four-decade high of around 7%.
- This is likely to impact emerging market economies such as India.

**How do US Fed actions impact India?**

**Outflow of Foreign Capital:** When interest rates rise in the US, Foreign Institutional Investors (FII) start pulling out investments (also called portfolio flows) from India. This means foreign capital outflows can happen not only from equity but also from debt.

**Impact on Rupee:** FPIs pulling money out of the equity and bond markets could weaken the rupee even as the dollar gets stronger with the rate hikes.

**Highest Cost of Fund Mobilization from Overseas Markets:** The rise in rates also means a higher cost of funds, and fund mobilization in overseas markets will be costly. The increase in the cost of funds may not only increase the cost of capital expenditure for India but will also strain the profit margins of companies.

Source: [Indian Economy \(core\)](#)

**Q.7) e-Rupi Voucher, recently seen in news has been developed by which of the following?**

- a) RBI
- b) National Payments Corporation of India
- c) NITI Aayog
- d) MeitY

**ANS: B**

**Explanation: About e-Rupi Voucher:**

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- Thus e-RUPI is a one-time contactless, cashless voucher-based mode of payment.
- It helps users redeem the voucher without a card, digital payments app, or internet banking access.

**For example,** if the Government wants to cover a particular treatment of an employee in a specified hospital, it can issue an e-RUPI voucher to that employee. The employee will receive an SMS or a QR Code on his feature phone / smart phone. He/she can go to the specified hospital, avail of the services and pay through the e-RUPI voucher received on his phone.

**Purpose:** It is designed to be a person and purpose-specific digital payment solution. It seeks to ensure that government schemes reach intended beneficiaries in a targeted and leak-proof manner, with **limited touchpoints** between the government and the beneficiary.

**Developed by:** National Payments Corporation of India (NPCI) in collaboration with the Department of Financial Services (DFS), the Union Health Ministry, and the National Health Authority (NHA).

### **What is the significance of e-Rupi?**

- Unlike other digital payment formats, e-Rupi does not require beneficiaries to have a bank account.
- e-Rupi works on basic phones also and hence it can be used by people who do not own smartphones or in places that lack an internet connection, thereby promoting offline payments.
- It will ensure leak-proof delivery of welfare services. It can be used for delivering services under schemes, meant for providing drugs and nutritional support like Ayushman Bharat fertilizer subsidies, etc.
- The private sector can leverage these digital vouchers as part of its employee welfare and corporate social responsibility programs.

**Source:** [Indian Economy \(core\)](#)

### **Q.8)** Consider the following statements about **Shrinkflation**:

1. It is the practice of reducing the size of a product while maintaining its sticker price.
2. Shrinkflation makes it harder to accurately measure price changes or inflation.

**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

**ANS: C**

### **Explanation: About Shrinkflation:**

- Shrinkflation is a combination of two words, “shrink” and “inflation”.
- It is the practice of reducing the size of a product while maintaining its sticker price.
- Shrinkflation is basically a form of hidden inflation.

**Examples of Shrinkflation:** Shrinkflation is done most commonly in the food and beverage sector, though it may occur in any industry:

1. The size of a chocolate bar is reduced from 60 grams to 55 grams, with no resultant decrease in price.
2. The pages of a notebook are changed from 1000 to 800 and the price remains unaltered.
3. The size of the cold drink bottle is dropped to 750ml from 800ml and no change in price is done.

### **Causes of Shrinkflation**

The main reasons for shrinkflation are:

**Increase Production Costs:** Due to the increase in the various elements of production costs such as raw materials, labour, power cost, and so on, the manufacturers are compelled to follow shrinkflation as the increasing costs eat up their profit margins.

**Strong level of Competition:** Another main reason that leads to shrinkflation is high competition in the industry. To attract customers by maintaining the prices, the producers can maintain their profit margins by adopting this strategy.

### **Implications of Shrinkflation**

- Shrinkflation runs the risk of turning customers away from a product or brand if they notice they are getting less for the same price.
- Shrinkflation makes it harder to accurately measure price changes or inflation. The price point becomes misleading since the product size cannot always be considered in terms of measuring the basket of goods.

**Source:** [Indian Economy \(core\)](#)

### **Q.9) UPI123Pay, recently seen in news has been launched by which of the following?**

- a) Ministry of finance
- b) NITI Aayog
- c) RBI
- d) NPCI

**ANS: C**

#### **Explanation:**

- Reserve Bank of India has launched a new UPI service for feature phones called UPI123Pay.
- It has also launched a 24×7 helpline for digital payments called 'Digisaathi'.

#### **About the UPI123Pay**

- UPI 123PAY is a three-step offline method to initiate and execute transactions that will work on simple feature phones that do not have internet connectivity.
- It will allow users to use feature phones for almost all transactions except scan and pay.
- For transactions, users just need to link their bank accounts with their phones to use the service.

#### **How can transactions be done without the internet?**

UPI123Pay offers users four options to make payments without internet connectivity:

**Interactive Voice Response (IVR):** Users would be required to initiate a secured call from their feature phones to a predetermined IVR number and complete UPI on-boarding formalities to start making financial transactions like money transfer, mobile recharge, EMI repayment, balance check, among others.

**App-based functionality:** One could install an app on feature phones through which several UPI functions, available on smartphones, will be available on their feature phone, except the scan and pay feature which is currently not available.

**Missed call facility:** The missed call facility will allow users to access their bank account and perform routine transactions such as receiving, and transferring funds by giving a missed call on the number displayed at the merchant outlet. The customer will receive an incoming call to authenticate the transaction by entering UPI PIN.



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**Proximity sound-based payments:** One could utilize the proximity sound-based payments option, which uses sound waves to enable contactless, offline, and proximity data communication on any device.

**About DigiSaathi:** DigiSaathi has been set up by the National Payments Corporation of India (NPCI). It is a 24 x 7 Helpline for providing information on digital payment products and services. It will use AI technology to answer any questions related to all types of digital transactions. Currently, it is available in English and Hindi language.

**Source:** [Indian Economy \(core\)](#)

### **Q.10) Consider the following statements about SWIFT:**

1. SWIFT is a messaging network used by banks and financial institutions globally to quickly, accurately, and securely send and receive information, such as money transfer instructions.
2. It is **overseen by** G-10 central banks.
3. It is headquartered at Washington DC.

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

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

**ANS: A**

**Explanation: About SWIFT:**

- SWIFT is a messaging network used by banks and financial institutions globally to quickly, accurately, and securely send and receive information, such as money transfer instructions.
- SWIFT carries an average of approximately 26 million financial messages each day.

**Headquarters:** Belgium

**Established in:** 1973

**Overseen by:** G-10 central banks (Belgium, Canada, France, Germany, Italy, Japan, The Netherlands, United Kingdom, United States, Switzerland, and Sweden) as well as the European Central Bank (ECB)

**Governance:** SWIFT is owned and controlled by its shareholders (financial institutions) representing approximately 3,500 firms from across the world. The shareholders elect a Board of 25 independent Directors representing banks across the world, which governs the Company and oversees the management of the Company.

**Note:** SWIFT does not hold or transfer assets or money; neither is it a financial institution itself. Rather, it just facilitates secure, efficient communication between member institutions.

**Source:** [Indian Economy \(core\)](#)

## *Economy*

**Q.1) Consider the following statements about Vande Bharat Trains:**

1. It is an indigenous semi-high speed train, with maximum speed of 160 kmph.
2. They are self-propelled trains that do not require an engine.

**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

**ANS: C**

**Explanation:** About Vande Bharat Trains:

- Vande Bharat is an indigenous semi-high speed train, with maximum speed of 160 kmph. Currently, two Vande Bharat trains are in operation, with routes New Delhi-Varanasi and New Delhi-Katra.
- They are self-propelled trains that do not require an engine. This feature is called a distributed traction power system.
- It means Vande Bharat rake has eight motorised coaches, compared to a 16-coach Shatabdi type train with one source of power at one end of the train in the form of a train locomotive.
- It allows the train higher acceleration and deceleration as compared to locomotive-based trains that take more time to attain top speed or gradually come to a halt.
- It also has an intelligent braking system with power regeneration for better energy efficiency.
- New features in 400 Vande Bharat Trains: according to the budget, the 400 new trains are expected to be more efficient, with superior aerodynamic profile.
- These trainsets will be built with aluminum instead of steel. An aluminum body will make each train set around 40-80 tonnes lighter than a current Vande Bharat. This will mean lower consumption of energy as well as better speed potential.

**Source:** Infrastructure and Energy

**Q.2) Consider the following statements about Coal gasification:**

1. It is a process in which coal is partially de-oxidized.
2. India has the biggest number of coal gasification projects in the world.

**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

**ANS: D**

**Explanation: About Coal Gasification:**

- Coal gasification is a process in which coal is partially oxidized with air, oxygen, steam or carbon dioxide to form a fuel gas.

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- This gas is then used instead of piped natural gas, methane and others for deriving energy.
- China has the biggest number of coal gasification projects in the world. 5% of China's total coal consumption is from its gasifier.
- The US also has some coal gasification plants running.

### **Significance of coal gasification**

According to the Ministry of Chemicals and Fertilizers, urea is currently produced using pooled natural gas, which comprises of both domestic natural gas and imported LNG. Hence, the usage of locally available coal for making fertilisers would help reduce the import of LNG.

According to the International Energy Agency report, the coal gasification process holds good potential in the future with coal being the most abundantly available fossil fuel across the world and that even low-grade coal can be used in the process.

### **Concerns associated with Coal Gasification**

- Coal gasification actually produces more carbon dioxide than a conventional coal-powered thermal power plant.
- According to CSE estimates, one unit of electricity generated by burning gasified coal generates 2.5 times more carbon dioxide compared to burning the coal directly.
- Coal gasification plants are costlier than conventional power plants.
- Since coal is the main feed for gasification, it in no way helps India's decarbonisation goals.
- Coal gasification is one of the more water-intensive forms of energy production.
- There are concerns about water contamination, land subsidence and disposing of waste water safely

**Source:** Infrastructure and Energy

### **Q.3) 'VIHANGAM' system, recently seen in news is related to which of the following?**

- a) Banking Sector
- b) Taxation
- c) Coalfields
- d) Railways

**ANS: C**

#### **Explanation: About VIHANGAM:**

- VIHANGAM is an Internet-based system integrated with a Remotely Piloted Aircraft System (RPAS).
- The system consists of a Ground Control Station (GCS), an RPAS, internet lease line of 40 Mbps and VIHANGAM portal.
- The system enables **real-time transmission of aerial video** of mining activities from mines to internet platforms, which can be accessed through VIHANGAM portal by authorized personnel only having ID and password.

#### **About Remotely Piloted Aircraft System (RPAS)**

RPAS is considered as one of the subset of the **Unmanned Aircraft System (UAS)**. It consists of a remotely piloted aircraft, its associated remote pilot station(s), the required command and control links and any other components as specified in the type design.

#### **About Mahanadi Coalfields Limited (MCL)**

A **major coal producing company** which is also one of the eight subsidiaries of Coal India Limited. MCL was the **first coal company** to introduce environment-friendly Surface Mining technology in 1999.

**Source:** [Infrastructure and Energy](#)

**Q.4) Sela Tunnel Project, recently seen in news is located in which of the following states/UTs?**

- a) Ladakh
- b) Arunachal Pradesh
- c) Uttarakhand
- d) Jammu and Kashmir

**ANS: B**

**Explanation: About Sela Tunnel Project:**

**Located in:** West Kameng District of Arunachal Pradesh.

- The tunnel is a part of the Balipara-Chariduar-Tawang (BCT) road, one of the key strategic projects near the Chinese border.
- The project comprises two tunnels:
  - a) Tunnel 1 which is a 980 m long single tube tunnel and
  - b) Tunnel 2, which is a 1555 m long twin-tube tunnel. Tunnel 2 has one bi-lane tube for traffic and one escape tube for emergencies.
- The project also includes the construction of an approach road of seven kilometers to Tunnel 1, which takes off from BCT Road and a link road of 1.3 kilometers, which connects Tunnel 1 to Tunnel 2.

**Significance of the tunnel**

Once completed, the tunnel will be the longest twin-lane tunnel above 13,000 feet in the world and will provide all-weather connectivity to Tawang. Moreover, the project will also allow faster deployment of weapons and soldiers to forward areas in the Tawang sector.

**Source:** [Infrastructure and Energy](#)

**Q.5) Consider the following statement about Shale Oil:**

1. It is an unconventional oil produced from oil shale rock fragments.
2. Russia and the US are among the largest shale oil producers in the world.

**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

**ANS: C**

**Explanation: About Shale Oil:**

Shale oil is an unconventional oil produced from oil shale rock fragments.

**Difference between Shale Oil and conventional crude oil:** The key difference between shale oil (also known as Tight Oil) and conventional crude is that the shale oil is conventional crude deposits. Its extraction requires the creation of fractures in oil and gas rich shale to release hydrocarbons through a process called hydraulic fracking.

**Challenges in Shale Oil Exploration:** Environmental concerns around massive water requirements for fracking and potential for groundwater contamination.

**Largest Producers of Shale Oil:** Russia and the US are among the largest shale oil producers in the world, with a surge in shale oil production in the US having played a key role in turning the country from an importer of crude to a net exporter in 2019.

**Shale Oil Exploration in India:** Currently, there is no large-scale commercial production of shale oil and gas in India.

**Note:** Earlier, State-owned ONGC had found prospects of shale oil at the **Cambay basin in Gujarat and the Krishna Godavari basin in Andhra Pradesh**. However, the company concluded that the quantity of oil flow observed in these basins did not indicate “**commerciality**” and that the **general characteristics of Indian shales are quite different from North American ones**.

**Source:** [Infrastructure and Energy](#)

**Q.6) Consider the following statement about Zoji La Tunnel:**

1. It is a single-tube road tunnel under Zoji La pass in the Himalayas
2. The tunnel will connect Baltal in Kashmir with Minamarg in Ladakh.

**Which of the statements given above is/are not correct?**

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

**ANS: D**

**Explanation: About the Zoji La Tunnel**

- Zoji La Tunnel is a single-tube road tunnel under Zoji La pass in the Himalayas
- The tunnel will connect **Baltal in Kashmir with Minamarg in Ladakh**. This will reduce travel time by two-and-a-half hours.
- Once completed, Zojila tunnel will be India’s longest road tunnel and Asia’s longest bidirectional tunnel.

**Strategic significance of the Zoji La Tunnel**

The need for Zoji La tunnel was first felt during the 1999 Kargil war, and the recent incursions by China made it an urgent necessity. The tunnel will provide logistics flexibility and operational mobility to the Army.

**About the Zoji La Pass**

- Zoji La is a high mountain pass located in the Kargil district of Ladakh. Zoji la is also known as the “Mountain Pass of Blizzards”.
- The pass links Leh and Srinagar and provides an important link between the Union Territories of Ladakh and Kashmir.
- Zojila pass remains closed during winters due to heavy snowfall, cutting off the Ladakh region from Kashmir.

**Source:** [Infrastructure and Energy](#)

**Q.7) National Generic Document Registration System has been launched by which of the following?**

- a) NITI Aayog
- b) Ministry of Rural Development
- c) Ministry of Home Affairs
- d) Ministry of Finance

**ANS: B**

**Explanation:**

**Launched by:** Department of Land Resources, Ministry of Rural Development

**Purpose:** It is a common, generic, and configurable application developed for registration departments across the country.

**The application is specifically designed for the use of** sub registrars, citizens, and apex users from registration departments. It also facilitates states to create state-specific instances and configure the software as per requirements.

**Significance:** After NGDRS, a person had to go only once or twice to the office to complete the registration of the properties, whereas earlier he was expected to visit 8 to 9 times different offices to complete the registration process.

**Source:** [land reforms and agriculture](#)

**Q.8) Consider the following statement about the Unique Land Parcel Identification Number (ULPIN) scheme:**

1. Under the scheme, authorities issue a 10-digit identification number to every plot of land in the country.
2. The longitude and latitude of a land parcel will be the basis for its identification.

**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

**ANS: B**

**Explanation:**

- **The Unique Land Parcel Identification Number (ULPIN) scheme** was launched in 10 States in 2021. It will roll out across the country by March 2022.

**Key Features of the Scheme:**

- Under the scheme, authorities issue a **14-digit identification number** to every plot of land in the country.
- Also called the “**the Aadhaar for land**”, it is a unique number to identify every surveyed parcel of land. It will prevent land fraud, especially in rural India where proper land records are not available.
- The **longitude and latitude of a land parcel will be the basis for its identification**. It will depend on detailed surveys and geo-referenced cadastral maps.
- The **land records database** will gradually integrate with the records of revenue courts and banks on a voluntary basis.
- **Significance:** The scheme might also be the next step in the Digital India Land Records Modernisation Programme (DILRMP). It began in 2008.

**Source:** [land reforms and agriculture](#)

**PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022**

**Q.9)** Consider the following statement about National Land Monetization Corporation (NLMC):

1. It will be a wholly-owned Government of India company.
2. It will be set up under the administrative jurisdiction of Ministry of Rural Development.

**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

**ANS: A**

**Explanation: About National Land Monetization Corporation (NLMC):**

NLMC will be a wholly-owned Government of India company with an initial authorized share capital of Rs 5000 crore.

**Nodal Ministry:** It will be set up under the administrative jurisdiction of the Department of Public Enterprise, Ministry of Finance.

**Composition:** A chairman will be appointed to head the NLMC through a 'merit-based selection process. The Board of Directors will comprise senior Central Government officers and eminent experts to enable professional operations and management of the company. The Board of NLMC can also hire, pay, and retain experienced professionals from the private sector.

**Functions of NLMC**

To **undertake monetization of surplus land and building assets** of Central public sector enterprises (CPSEs) as well as other government agencies.

To **own, hold, manage and monetize surplus land and building assets of CPSEs** under closure and the surplus non-core land assets of Government-owned CPSEs under strategic disinvestment.

To advise other government entities to identify their non-core surplus assets and 'generate maximum value' by monetising them 'in a professional and efficient manner'.

To act as a repository of best practices in land monetization, assist and provide technical advice to the Government in the implementation of asset monetization programs.

**Significance of NLMC**

**Firstly**, with the monetization of non-core assets, the Government would be able to generate substantial revenues by monetizing unused and under-used assets.

**Secondly**, it will speed up the closure process of CPSEs and smoothen the strategic disinvestment process of Government-owned CPSEs.

**Source:** [land reforms and agriculture](#)

**Q.10) Consider the following statement about Purple Revolution:**

1. It was launched by the Union Ministry of Science & Technology through the Council of Scientific & Industrial Research (CSIR) Aroma Mission.
2. It aims to increase lavender cultivation in Jammu and Kashmir.

**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

**ANS: C**

**Explanation: About Purple Revolution:**

Purple or Lavender Revolution was launched by the Union Ministry of Science & Technology through the Council of Scientific & Industrial Research (CSIR) Aroma Mission.

**Aim:** To increase lavender cultivation in Jammu and Kashmir.

**Objective:** To empower domestic farmers and support India's aromatic crop-based agro-economy by reducing imports of aromatic oils and increasing home-grown varieties.

**Under the mission,** first-time farmers were given free lavender saplings, while those who had cultivated lavender before were charged Rs. 5-6 per sapling.

**Source:** [land reforms and agriculture](#)



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## *Art and Culture*

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**Q.1) Ramna Kali temple, recently seen in news is located in which of the following country?**

- a) Vietnam
- b) Sri Lanka
- c) Bangladesh
- d) Nepal

**ANS: C**

**Explanation: About Ramna Kali temple:**

- Ramna Kali Temple is a temple in Dhaka. The temple is dedicated to the Goddess Kali and is believed to have been built during the Mughal period.
- The temple gained prominence in the early 20th century when the **renowned saint Ma Anandamayi** built her ashram within the temple premises.
- Anandamayi was popularly addressed as “Shahbag-er ma”, or the Mother of Shahbag.
- The temple was destroyed in 1971 by the Pakistani Army during the Bangladesh Liberation War. In 2017, the Government of India had pledged money for reconstruction efforts of the temple.
- And now the temple has been inaugurated by the President of India after reconstruction got completed.

**Source:** [Architecture of India](#)

**Q.2) Consider the following statements about Kashi Vishwanath Temple:**

1. The Hindu temple dedicated to Lord Vishnu.
2. The Temple stands on the eastern bank of the holy river Ganga.

**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

**ANS: D**

**Explanation: About Kashi Vishwanath Temple Corridor project:**

- The Kashi Vishwanath Temple Corridor project in Varanasi connects the iconic Kashi Vishwanath temple and the ghats along the river Ganga.
- The project will **ensure easy movement of pilgrims and devotees** between the ghats and the temple.
- Earlier, they had to pass through congested streets to reach the temple. The corridor will be 320 km long and 20 km wide walkway.
- This improvement of the infrastructure in Varanasi is **expected to give a boost to tourism** in the region.

**About Kashi Vishwanath Temple:**

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- Kashi Vishwanath Temple is one of the most famous Hindu temples dedicated to Lord Shiva. It is located in Varanasi, Uttar Pradesh.
- The main deity is known by the name Vishvanatha or Vishveshvara meaning *Ruler of The Universe*.
- The Temple stands on the **western bank of the holy river Ganga**.
- It is **one of the twelve Jyotirlingas**, the holiest of Shiva Temples. The temple was rebuilt and renovated by Maharani Ahilyabai Holkar of the Indore in the year 1780.
- A Jyotirlinga is a shrine where Lord Shiva is worshipped in the form of a Jyotirlingam, a holy representation of Lord Shiva. Other 11 Jyotirlingas include;
  - Somnath Jyotirlinga in Gir, Gujarat
  - Mallikarjuna Jyotirlinga in Srisailem, Andhra Pradesh
  - Mahakaleswar Jyotirlinga in Ujjain, Madhya Pradesh
  - Omkareshwar Jyotirlinga in Khandwa, Madhya Pradesh
  - Baidyanath Jyotirlinga in Deoghar, Jharkhand
  - Bhimashankar Jyotirlinga in Maharashtra
  - Ramanathaswamy Jyotirlinga in Rameshwaram, Tamil Nadu
  - Nageshwar Jyotirlinga in Dwarka, Gujarat
  - Trimbakeshwar Jyotirlinga in Nasik, Maharashtra
  - Kedarnath Jyotirlinga in Rudraprayag, Uttarakhand
  - Ghreshwar Jyotirlinga in Aurangabad, Maharashtra

Source: [Architecture of India](#)

### **Q.3) Consider the following statements about Somnath Temple:**

1. It is believed to be the first among the twelve jyotirlinga shrines of Shiva.
2. The present temple was reconstructed in the Chaulukya style of Hindu temple architecture.

**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

**ANS: C**

**Explanation: About Somnath Temple:**

- Somnath temple is located on the western coast of Gujarat. It is believed to be the **first among the twelve jyotirlinga shrines** of Shiva.
- It was reconstructed several times in the past after repeated destruction by several Muslim invaders and rulers.
- This temple is also referred to as **Ahilyabai Temple** since it was built by **Queen Ahilyabai** of Indore when she found that the old temple was in ruins.
- The present temple was reconstructed in the **Chaulukya style** of Hindu temple architecture, with a shikhara nearly 50 m tall.
- It was completed in May 1951. The reconstruction was completed by **Vallabhbhai Patel**.
- The temple's imposing architecture includes intricate carvings, silver doors, an impressive Nandi idol and the central shivalinga.

**Chalukyan Style of temple architecture:**

- It is a blend of Nagara and Dravidian styles, and evolved its own distinctive style. It is sometimes referred to as the 'Vesara' style of architecture.

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- Style included **vimana** of Dravidian style and faceted walls of Nagara style.
- The Ladh Khan and Durga temples at Aihole are the best examples of Chalukyan architecture.

**Source:** [Architecture of India](#)

**Q.4) The British Gazette states, which of the following forts, as the Gibraltar of the East?**

- a) Raigarh Fort
- b) Aguada Fort
- c) Chitradurga Fort
- d) Jaisalmer Fort

**ANS: A**

**Explanation: About Raigad Fort:**

- It is a hill fort situated in the Raigad district in Maharashtra.
- The British Gazette states the fort was known to early Europeans as the **Gibraltar of the East**.
- Its distinctive feature is a mile and a half flat top, which has adequate room for buildings. In its prime, the fort had 300 stone houses and a garrison of 2,000 men.
- **Brief history of Raigad Fort:** The fort, which was earlier called Rairi, was the seat of the Maratha clan Shirke in the 12th century.
- The fort changed hands a number of times from the dynasty of Bahaminis to the Nizam Shahis and then the Adil Shahis.
- In 1656, Chhatrapati Shivaji captured it.
- The fort not only helped Shivaji in challenging the supremacy of the Adil Shahi dynasty but also opened up the routes toward Konkan for the extension of his power.
- In 1662, Shivaji formally changed the fort's name to Raigad.

**Importance of Raigad Fort**

- Raigad fort became the seat of Chhatrapati Shivaji's government by 1664.
- Also, Shivaji was coronated as Chhatrapati at Raigad by Gagabhatt.
- Now the Maharashtra Government is also **seeking the World Heritage Site tag** for Raigad Fort along with 13 other forts from the era of 17th century Maratha king Chhatrapati Shivaji Maharaj on the theme of **Maratha Military Architecture** in Maharashtra.

**Source:** [Architecture of India](#)

**Q.5) Ministry of Culture inaugurated one of its kind conferences on Indian temple architecture, 'Devayatanam', at which of the following places?**

- a) Khajuraho Temple
- b) Hampi
- c) Mahabaleshwar
- d) Konark Temple

**ANS: B**

**Explanation: About Devayatanam**

**Organized by:** Archaeological Survey of India (ASI) of Ministry of Culture

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**Purpose:** It is a conference on the journey of Indian Temple Architecture, held at **Hampi**, Karnataka.

**Aim:** It provides a platform to discuss, deliberate and disseminate to the world the philosophical, religious, social, economic, technical, scientific, art and architectural aspects of the Indian temples.

It also aims to initiate a dialogue on the evolution and development of the various styles of temple architecture such as the Nagara, Vesara, Dravida, Kalinga and others.

**Other important aspects linked to conference**

The conference is in line with 5 V's, i.e. Vikas (development), Virasat (heritage), Vishwas (trust), Vignan (knowledge) of Prime Minister to make India a vishwaguru.

**Source:** [Architecture of India](#)

**Q.6) Consider the following statements about Perini Dance form:**

1. It is an ancient dance form from Telangana.
2. This dance form prospered during the Satvahanas dynasty.

**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

**ANS: A**

**Explanation: About Perini Dance:**

- Perini is an ancient dance form from Telangana. This dance form prospered during the **Kakatiya dynasty**.
- This dance form is also called '**Dance of Warriors**'. It is believed that in ancient times, this dance form was performed before the soldiers were sent to war.
- It is usually performed by males in honour of **Lord Shiva**.
- One can find evidence of this dance in the sculptures **near Garbha Gudi (Sanctum Sanctorum) of the Ramappa Temple at Warangal**.
- **It finds mention in Bharataarnavam by Nandikeshwara, an early medieval work.**
- This dance form was almost forgotten until the early 1970s. However, Padmasri Dr. Nataraja Ramakrishna was the person who revived this art form recently.

**About Kakatiya dynasty:**

- This dynasty ruled most of **eastern Deccan region** between 12<sup>th</sup> and 14<sup>th</sup> century.
- The region included present day Telangana and Andhra Pradesh, and parts of eastern Karnataka and southern Odisha.
- Early Kakatiya rulers served as feudatories to Rashtrakutas and Western Chalukyas. They assumed sovereignty under **Prataparudra I in 1163 CE** by suppressing other Chalukya subordinates in the Telangana region.

**Source:** [Paintings, festivals and dance forms of India](#)

**Q.7) Consider the following statements about Kaavi Art:**

1. Kaavi is a form of wall art found in Malabar region.
2. The painting is done in bright red and white shades on the walls of temples and homes that depict the ancient history of 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

**ANS: B**

**Explanation: About Kaavi Art:**

Kaavi is a form of **wall art** found in **Konkan region**, especially in temples of Goa, parts of coastal **Maharashtra** and **Karnataka**.

The art was introduced by the **Portuguese** who ruled Goa until 1961.

The art takes its name from **Kaav in Konkani** which refers to **Indian red pigment**, found in laterite soil, the only color used in this painting. The **red pigment** is obtained from the laterite soil.

The painting is done on wet plaster in a manner similar to frescoes [*Fresco is a technique of mural painting executed upon freshly laid (wet) lime plaster*].

The painting is done in **bright red and white shades**. It is usually done on the walls of temples and homes that depicts the ancient history of India.

**Source:** [Paintings, festivals and dance forms of India](#)

**Q.8) Sohrai Art Form, is popular in which of the following state/UT?**

- a) Meghalaya
- b) Himachal Pradesh
- c) Jharkhand
- d) Uttar Pradesh

**ANS: C**

**Explanation: About Sohrai Art Form:**

- A Sohrai mural is an indigenous art form practised by tribal women of Santhal community in the Hazaribagh district of Jharkhand.
- The paintings are done on mud walls to **welcome the harvest and to celebrate the cattle**.
- The women clean their houses and decorate their walls with murals of Sohrai arts.
- This art form has continued since 10,000-4,000 BC. It was prevalent mostly in caves, but shifted to houses with mud walls.

**Note:** [Sohrai Khovar](#) painting received the Geographical Indication (GI) tag in 2020.

**Key Features of Sohrai Art Form**

- The Sohrai murals can be **monochromatic or colorful**. The colours used in this picture (red, black, yellow, and white) are natural earth colours. Chewing twigs are used as paint brushes, while cloth rags are used to apply the base coat.
- Popular Sohrai motifs are animals, birds, lizards, elephants and Pashupati (the creator of all animals), who is usually riding on the back of an animal.

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- The artists are spontaneous in their drawings. The designs are usually drawn from the artist's memory. The personal experience of the artist and their interaction with nature are the biggest influence.

**Source:** [Paintings, festivals and dance forms of India](#)

**Q.9) Consider the following statements about National Gallery of Modern Art:**

1. It is a premium art gallery under the Ministry of Culture.
2. It is headquartered at Jaipur, Rajasthan.

**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

**ANS: A**

**Explanation: About Kala Kumbh:**

- Kala Kumbh is organized by the **National Gallery of Modern Art (NGMA)**.

**Purpose:** It is an artist workshop for painting scrolls representing the tales of valour of unsung heroes of India's freedom movement.

**Aim:** To amalgamate varied forms of visual and performing arts of the country to represent the true essence of unity and diversity in India.

The works of art done on the gigantic scrolls **will form an integral part of the Republic Day celebrations 2022**. This workshop marks a unique collaboration between the **Ministry of Culture and the Ministry of Defence**.

The paintings at these workshops were done by more than **five hundred artists spread over two locations, Odisha and Chandigarh**.

**Significance:** The workshop will garner the interest of each individual to dig deep into the history of the unsung heroes of India's freedom struggle. It would also draw attention towards the unified visual aspects of modern, indigenous and contemporary arts of India.

**About the National Gallery of Modern Art**

It is a premium art gallery under the Ministry of Culture.

It was established in 1954 by then vice-president **Dr. S Radhakrishnan** in the presence of Prime Minister **Jawaharlal Nehru**.

It is a repository of the cultural ethos of the country and showcases the changing art forms through the passage of the last hundred and fifty years, starting from about 1857 in the field of Visual and Plastic arts.

**Headquarters:** Jaipur House, New Delhi.

**Source:** [Paintings, festivals and dance forms of India](#)

**Q.10) Namda Craft, recently seen in news, hails from which of the following region?**

- a) Andhra Pradesh
- b) Uttarakhand
- c) Arunachal Pradesh
- d) Kashmir

**ANS: D**

**Explanation: About Namda Craft:**

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It is widely thought to have originated in the 11th century during the reign of Mughal emperor Akbar. It is a rug made of sheep wool through a felting technique instead of the normal weaving process.

It is extensively used in Kashmir households for floor covering and mattresses.

### **Reasons for Decline of Namda Craft**

The export of Namda craft declined almost 100% between 1998 and 2008 due to the low availability of raw materials, lack of skilled manpower, and marketing techniques.

**Source:** [Paintings, festivals and dance forms of India](#)



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## *Art and Culture*

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**Q.1) Which of the following pairs are correctly matched?**

**Mathematicians**

**Contribution**

- |                |   |
|----------------|---|
| 1. Madhava     | Discovered the infinite series for pi ( $\pi$ )                   |
| 2. Aryabhata   | Pythagorean theorem   |
| 3. Brahmagupta | Law of composition for solving quadratic indeterminate equations. |

**Select the correct answer using the codes given below:**

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

**ANS: B**

**Explanation:**

**Contributions of Indian Mathematicians**

**Sulbasutras (~ 800 BCE):** It is the oldest extant text. It explicitly states and makes use of the so-called Pythagorean theorem, besides giving various interesting approximations to surds.

**Pingala's Chandassastra (~ 3rd cent. BCE):** It lays foundations for various combinatorial techniques. (Knowledge of combinatorics is necessary to build a solid command of statistics).

**Aryabhata (c. 499 CE):** He described algorithms for extracting square root and cube root based on the decimal place-value system. He also presented the differential equation of the sine function in its finite-difference form and a method for solving the linear indeterminate equation.

**Brahmagupta (c. 628):** He discussed the arithmetic operations with zero. He also introduced the profound 'bhavana' law of composition for solving quadratic indeterminate equations.

**Madhava (c. 1340–1420):** He pioneered the Kerala School of astronomy and mathematics. He also discovered the infinite series for pi ( $\pi$ )—the so-called Gregory-Leibniz series—and other trigonometric functions.

**Source:** [Literature and Other important aspects](#)



**Q.2) Consider the following statements about Kohima War Cemetery:**

1. It is a memorial dedicated to the soldiers of the British Division of the Allied Forces who died in World War II.
2. It has been identified as the only cemetery on the Earth which incorporates a tennis court.

**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

**ANS: C**

**Explanation: About Kohima War Cemetery:**

- Kohima War Cemetery is a memorial dedicated to the soldiers of the British Division of the Allied Forces who died in **World War II** at Kohima in April 1944.
- It has been identified as the **only cemetery on the Earth which incorporates a tennis court**.
- It is also one of 23000 World War graves across the continents maintained by the CWGC.

**Sequence of events that led to the formation of Kohima War Cemetery**

- In 1944, Japanese forces attacked Kohima and its strong British force.
- This led to fighting as the British forces were pushed back to the former house of the British Deputy Commissioner. The lawn of this house had a tennis court where the British officers played for recreation.
- The British forces who were around the garden tennis court prepared for their final stand. As the Japanese forces prepared to attack, they were attacked in turn by the lead tanks, saving the defenders and pushing the attackers back.
- Despite this setback, the Japanese force continued to fight for Kohima before they were finally forced to withdraw in May 1944. Those who had fallen in the defense of Kohima were buried on the battlefield, with further burials from the surrounding areas.

**Significance of Kohima in World War II**

- Present Day Kohima (Nagaland) and adjoining Imphal (Manipur) comprised the **only theatre of World War II** in the Indian subcontinent.
- The occupation of these areas could have meant that the Japanese could strike further into India.

**About Commonwealth War Graves Commission (CWGC)**

- It is an intergovernmental organization of six member-states (Australia, Canada, India, New Zealand, South Africa, and the United Kingdom) that ensure the men and women who died in the wars will never be forgotten.
- It was formed in 1917 as the Imperial War Graves Commission. However, the present name was given in 1960.

**Headquarters:** Maidenhead, UK

**Source:** [Modern History Events in News](#)

**Q.3) Consider the following statements about Indian Home Rule Society:**

1. It was founded in London in 1905.
2. It was open to Indians only and found significant support amongst Indian students and other Indian populations in Britain.

**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

**ANS: C**

**Explanation: About Indian Home Rule Society (IHRS):**

**Founded in:** London in 1905

**Founded by:** **Shyamji Krishna Varma** with support from a number of prominent Indian nationalists in Britain at the time including Bhikaji Cama, Dadabhai Naoroji, and Sardarsinh Ji Ravaji.

**Aim:** To promote the cause of self-rule in British India.

**Membership:** Open to Indians only and found significant support amongst Indian students and other Indian populations in Britain.

**Significance:** The organization was intended to be a rival organization to the **British Committee of the Indian National Congress** which was the main avenue of the loyalist opinion at the time.

- The organization was modeled after **Victorian public institutions** of the time.
- It had a written constitution and the stated aims to secure Home Rule for India and to carry on genuine Indian propaganda by all practicable means.
- The IHRS was open for membership “to Indians only”, and found significant support amongst Indian students and other Indian populations in Britain.

**Source:** [Modern History Events in News](#)

**Q.4) Consider the following statements with respect to modern history:**

1. Netaji Subhash Chandra Bose hoisted the national flag for the first time on Indian soil, at Port Blair on 30 December 1945.
2. He also renamed Andaman as Shaheed and Nicobar as Swaraj Island.

**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

**ANS: C**

**Explanation: About Sankalp Smarak:**

- Sankalp Smarak is a monument dedicated to **Netaji Subhas Chandra Bose**.
- The smarak is a tribute to the resolve of the soldiers of the Indian National Army and their innumerable sacrifices. It also reminds us of the values enshrined by

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Netaji “**Nishtha, Kartavya aur Balidan**” or “**Commitment, Duty and Sacrifice**”. These values continue to underscore the ethos of the Indian Armed Forces and the resolve of the Indian Soldier.

- **Netaji Subhash Chandra Bose & Andaman and Nicobar Islands**

- Netaji escaped British surveillance from Kolkata on 16th Jan 1941.
- During World War II (1942–45), Japan had conquered the Andaman and Nicobar Islands from the British and handed them over to Netaji and his army, the **Azad Hind Fauj**.
- Netaji then arrived at Andaman and Nicobar Island on 29th December 1943 and declared the island free from British rule, much before India got its Independence in 1947.
- On the next day, i.e. 30 December 1943, **Netaji hoisted the national flag for the first time on Indian soil**, at Port Blair.
- During his visit, he also visited the Cellular Jail and met the freedom fighters lodged there.
- Before his departure, he renamed **Andaman as Shaheed** (“*Martyrs*”) Island, and **Nicobar as Swaraj** (“*Freedom*”) Island.

### **What is the significance of Netaji’s visit to the Andaman and Nicobar Islands?**

- **Firstly**, Netaji’s visit to the Andaman and Nicobar Islands as the Head of the Provisional Government of Azad Hind and Supreme Commander of the Indian National Army marked a symbolic fulfillment of his promise that the Indian National Army would stand on Indian soil by the end of 1943.
- **Secondly**, this historic visit also marked a declaration of Andaman and Nicobar Islands as the “first liberated territory of India”.

**Source:** [Modern History Events in News](#)

### **Q.5) Consider the following statements about Pal- Dadhvav massacre:**

1. Pal – Dadhvav massacre took place in 1922, in Pal-Chitariya and Dadhvaav villages of Sabarkantha district, then part of Idar state.
2. Villagers gathered on the banks of River Heir as part of the ‘Eki movement’ led by one Motilal Tejawat.

### **Which of the statements given above is/are not correct?**

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

**ANS: D**

### **Explanation: About Pal – Dadhvav massacre:**

- Pal – Dadhvav massacre took place on March 7, 1922, in Pal-Chitariya and Dadhvaav villages of Sabarkantha district, then part of Idar state (present-day Gujarat).
- On this day, villagers from Pal, Dadhvav, and Chitariya had gathered **on the banks of River Heir** as part of the ‘Eki movement’ **led by one Motilal Tejawat**.
- The movement was to protest **against the land revenue tax (Lagaan)** imposed on the peasants by the British and feudal lords.
- However, the British Paramilitary force was on the hunt for Tejawat. They heard of this gathering and reached the spot.

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- Nearly 2000 Bhil Tribals under the leadership of Tejawat lifted their bows and arrows. But the Britishers opened fire on them. More than 1,000 tribals (Bhils) fell to bullets. But Tejawat was taken safely from there, and later he returned to the spot to christen it 'Veer Bhumi'.
- **Recognition of the Pal-Dadhvav massacre:** The Pal-Dadhvav massacre was brought into focus at the Republic Day parade this year. The **Republic Day tableau** featured a seven-ft statue of Tejawat, inspired by the statue at the memorial. A song describing Tejawat as 'Koliyari no Vanio Gandhi' was also sung at the tableau.

**Source:** [Modern History Events in News](#)

**Q.6) Who among the following is given the name, 'Jhansi Rani of Travancore' by Mahatma Gandhi?**

- a) Aruna Asaf Ali
- b) Accamma Cherian
- c) Rani Gaidinliu
- d) Jhalkari Bai

**ANS: B**

**Explanation:**

<b>Women Freedom Fighters</b>	<b>Contribution to Freedom Movement</b>
Rani Abakka	She was the Queen of Ullal, Karnataka. She fought and defeated the mighty Portuguese in the 16th century.
Velu Nachiyar	She was the Queen of Sivaganga and was the first Indian queen to wage war against the British East India Company.
Matangini Hazra	She was a brave freedom fighter from Bengal, who laid down her life while agitating against the British.

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Gulab Kaur	She was a freedom fighter who abandoned her own hopes and dreams of a life abroad to fight for and mobilise the Indian people against the British Raj.
Chakali Ilamma	She was a revolutionary woman who fought against the injustice of zamindars during the Telangana rebellion in the mid-1940s.
Subhadra Kumari Chauhan	One of the greatest Hindi poets, who was also a prominent figure in the freedom movement.
Durgawati Devi	Brave woman who provided safe passage to Bhagat Singh after the killing of John Saunders and much more during her revolutionary days.
Sucheta Kripalani	A prominent freedom fighter who became the independent India's first woman Chief Minister of UP Government.
Accamma Cherian	She is an inspirational leader of the freedom movement in Travancore, Kerala. She was given the name 'Jhansi Rani of Travancore' by Mahatma Gandhi.
Aruna Asaf Ali	She was an inspirational freedom fighter who is perhaps best remembered for hoisting the Indian National flag in Mumbai during the Quit India Movement in 1942.

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Durgabai Deshmuk	She was a tireless worker for the emancipation of women in Andhra Pradesh and was also an eminent freedom fighter and member of the Constituent Assembly.
Rani Gaidinliu	Naga spiritual and political leader, she led an armed uprising against the British in Manipur, Nagaland and Assam.
Usha Mehta	She was a freedom fighter from a very young age, who is remembered for organising an underground radio station during the Quit India Movement of 1942.
Parbati Giri	She was one of Odisha's most prominent women freedom fighters who was called the Mother Teresa of Western Odisha for her work in the upliftment of her people.
Tarkeshwari Sinha	She was a prominent freedom fighter during the Quit India Movement, she went on to become an eminent politician in the early decades of independent India.
Snehlata Varma	She was a freedom fighter and tireless worker for the education and upliftment of women in Mewar, Rajasthan.

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Tilleshwari Baruah	She was one of India's youngest martyrs, she was shot at the age of 12 by the British, during the Quit India Movement, when she and some freedom fighters tried to unfurl the Tricolour atop a police station.
Jhalkari Bai	She was a woman soldier who grew to become one of the key advisors to the Rani of Jhansi and a prominent figure in the First War of Indian Independence, 1857.
Padmaja Naidu	She was the daughter of Sarojini Naidu and a freedom fighter in her own right, who would later become Governor of West Bengal and a humanitarian after Independence.
Bishni Devi Shah	She inspired a large number of people in Uttarakhand to join the freedom movement.

**Source:** [Important Historical Personalities in news](#)

**Q.7) Which of the following statements about Ramanujacharya is/are correct?**

1. Statue of unity is dedicated to social reformer and saint Ramanujacharya.
2. He propagated the concept of "vasudhaiva kutumbakam", which translates as "all the universe is one family".

**Select the correct answer using the codes given below:**

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

**ANS: B**

**Explanation: About Statue of Equality:**

Statue of Equality is a 216-foot-tall statue dedicated to 11th-century social reformer and saint, Ramanujacharya. The statue will be in a sitting position.

It is composed of '**panchaloha**', a combination of five metals comprising gold, silver, copper, brass, and zinc. The statue will be the second-highest sitting statue in the world [the tallest is the Great Buddha in Thailand at 302 ft.]



### About Ramanujacharya

- **Born:** Sriperumbudur in Tamil Nadu in 1017.
- He was also referred to as **Ilaya Perumal**, which means the radiant one.
- Ramanujacharya was a Vedic philosopher and social reformer.
- **He revived Bhakti Movement** and considered to be the inspiration for poets like Annamacharya, Ramdas, Thyagaraja, Kabir, and Meerabai. His preaching inspired other Bhakti schools of thought.
- He is also credited with establishing the correct procedures for rituals performed in temples throughout India, the most famous being Tirumala and Srirangam.
- He appealed for the **protection of nature and its resources like air, water, and soil**.
- He propagated the **concept of “vasudhaiva kutumbakam”**, which translates as “all the universe is one family”.
- **Literary contribution:** He wrote **nine works** that came to be known as the **Navratnas** including three major commentaries, the **Vedartha-Sangraha**, the **Sribhasya** and the **Bhagavadgita-bhasya** aimed at providing a philosophical foundation for devotional worship.

### About Vishistadvaita

- Ramanujacharya is famous as the chief proponent of **Vishishtadvaita subschool** of **Vedānta**. Vishishtadvaita is a non-dualistic school of Vedanta philosophy. It is non-dualism of the qualified whole, in which Brahman alone is seen as the Supreme Reality, but is characterized by multiplicity.
- It can be described as qualified monism or qualified non-dualism or attributive monism. It is a school of Vedanta philosophy that believes in all diversity subsuming to an underlying unity.

**Source:** [Important Historical Personalities in news](#)



**Q.8) Government has declared 23rd January as Parakram Diwas to commemorate birth anniversary of whom among the following?**

- a) Subhash Chandra Bose
- b) Jawahar Lal Nehru
- c) Bhagat Singh
- d) Captain Vikram Batra

**ANS: A**

**Explanation: Decisions taken by the Govt to honour Netaji Subhash Chandra Bose**

1. Government has declared 23rd January as **Parakram Diwas** to commemorate the 125th birth anniversary of Netaji Subhas Chandra Bose,
2. Government has instituted the **annual Subhas Chandra Bose Aapda Prabandhan Puraskar**. It will recognize and honour the invaluable contribution and selfless service rendered by individuals and organisations in India in the field of disaster management. The award is announced every year on 23rd January.
3. Republic Day celebrations from this year will start on January 23 instead of January 24 to include the birth anniversary of Netaji Subhas Chandra Bose.

**Source:** [Important Historical Personalities in news](#)

**Q.9) Consider the following statements about National Youth Festival:**

1. It is celebrated to commemorate the birth anniversary of Swami Dayanand Saraswati.
2. It is organized by Ministry of Youth Affairs and Sports.

**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

**ANS: B**

**Explanation:**

**About National Youth Festival (NYF)**

- National Youth Festival is an annual gathering of youth with various activities including competitive ones.
- The festival has been conducted since the year 1995. It is celebrated to commemorate the birth anniversary of **Swami Vivekananda**.
- **Objective:** To provide a platform to bring the youth of the country together in an attempt to provide them with the opportunity to showcase their talents in various activities.
- **Organized by:** **Ministry of Youth Affairs and Sports** in collaboration with one of the State Governments.

**Source:** [Important Historical Personalities in news](#)

**Q.10) Consider the following statements about Adi Shankaracharya:**

1. He propounded the philosophy of Advaita Vedanta.
2. Shankaracharya established Mathas in Sringeri, Dwaraka, Puri, and Joshimath.

**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

**ANS: C**

**Explanation: About Adi Shankaracharya:**

- He was an 8th-century Indian spiritual leader and philosopher. He is said to have been born in Kaladi village on the bank of the Periyar, the largest river in Kerala.

**Philosophy of Adi Shankaracharya**

- **Advaita Vedanta:** He propounded the philosophy of Advaita Vedanta which articulates a philosophical position of **radical non dualism**, a revisionary worldview which it derived from the ancient Upanishadic texts.
- According to the philosophy, the whole world is a manifestation of the one and only God (brahman) and all diversity we see is delusion (maya) as the result of ignorance (advidya).
- **Mathas:** Shankaracharya established **Mathas** in Sringeri, Dwaraka, Puri, and Joshimath for the spread of Advaita Vedanta.

**Major Works of Adi Shankaracharya**

- He **authored 116 works**. Among them, the celebrated commentaries (bhashyas) are on Upanishads, the Brahma Sutra, and the Gita. His famous poetic works include **Maneesha Panchakam and Saundaryalahiri**.
- He authored the **Vivekachudamani** which spells out the qualifications required in a student of Vedanta.
- He also composed the **Kanakadhara Stotram**, following which there was a rain of golden amlas which brought prosperity to the household.
- Further, he also composed texts like **Shankara Smrithi** which seeks to establish the social supremacy of Nambuthiri Brahmins.

**Source:** [Important Historical Personalities in news](#)

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## *Science and Technology*

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**Q.1) Consider the following statements about mWRAPR:**

1. It is India's first indigenous bio-sample collection kit.
2. The kit helps to preserve genetic content in all types of biological samples including microbiomes, saliva, cells, tissues, blood, body fluids, and fecal tubes.

**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

**ANS: C**

**Explanation: About mWRAPR:**

It is India's first indigenous bio-sample collection kit.

**Application:**

- It can be used as a biosample collection kit and storage medium for samples destined for genomic sequencing labs, biobanks, and research labs handling biological samples for molecular analysis.
- The kit helps to preserve genetic content in all types of biological samples including microbiomes, saliva, cells, tissues, blood, body fluids, and fecal tubes.

**Significance of this development:** It is the only Molecular Transport Medium to be manufactured in India that competes with other notable foreign bio-sample collection kits.

**Source:** [Biology and Biotechnology](#)

**Q.2) Consider the following statements about Lassa fever:**

1. It is caused by Bacteria.
2. It spreads by rats.

**Which of the statements given above is/are not correct?**

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

**ANS: A**

**Explanation: About Lassa fever:**

Lassa fever-causing virus **is found in West Africa**. It was first discovered in 1969 in Lassa, Nigeria. The Lassa virus is named **after a town in Nigeria** where the first cases were discovered.

**Transmission:** The virus spreads by rats.

**Human Transmission** can be caused by:

- Contact with household items or food that is contaminated with the urine or feces of an infected rat.
- Contact with a sick person's infected bodily fluids or through mucous membranes such as the eyes, nose or mouth.
- Person-to-person transmission in healthcare settings.

**Symptoms:** Symptoms typically appear 1-3 weeks after exposure. Mild symptoms include slight fever, fatigue, weakness, headache, and more serious symptoms include bleeding, difficulty breathing, and vomiting, facial swelling, pain in the chest, back, abdomen, and shock.

**Deaths:** The death rate associated with this disease is low, at around 1%. But the death rate is higher for certain individuals such as pregnant women among others.

**Treatment:** The antiviral drug ribavirin seems to be an effective treatment for Lassa fever if given early on in the course of clinical illness.

**Source:** [Biology and Biotechnology](#)

**Q.3) Which among the following are possible applications of synthetic biology?**

1. It is used for the treatment of malaria
2. It delivers fixed nitrogen to plants
3. Develop **synthetic organisms for vaccination**
4. To make natural compounds

**Select the correct answer using the codes given below:**

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

**ANS: D**

**Explanation:**

**About synthetic biology:** Synthetic biology refers to the science of using genetic sequencing, editing, and modification to create unnatural organisms or organic molecules that can function in living systems.

**Applications of Synthetic biology**

Synthetic biology enables scientists to design and synthesize new sequences of DNA from scratch.

It has applications in various fields. For instance, It can help in

- a) Developing **synthetic organisms for vaccination**,
- b) Creating **natural products in a lab** such as vanillin, extracted from vanilla seeds, can be grown in yeasts with additional plant genomes,
- c) Use of gene editing systems such as CRISPR will allow defective genes in animals, plants and even people to be silenced, changed.

**Pharmaceutical industry:** Synthetic biology can be used to make natural compounds such as artemisinin. It is used for the treatment of malaria and CAR T cell therapy for cancer treatment.

**In the fashion industry:** Some companies are exploring the possibility of dyeing jeans without producing hazardous waste using synthetic biology.

**In Agriculture:** Companies using synthetic biology to deliver fixed nitrogen to plants instead of using fertilisers, engineering microbes to create food additives or brew proteins.

**Source:** [Biology and Biotechnology](#)

**Q.4) Consider the following statements about Superbugs:**

1. Superbugs are pathogens that are not resistant to multiple antimicrobial drugs.
2. Patients infected with any of these bugs often have to be treated with last-line drugs, which are both expensive and toxic.

**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

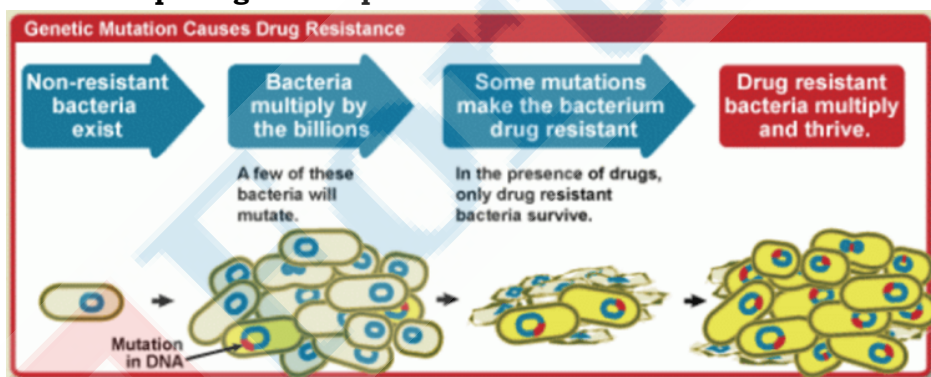
**ANS: B**

**Explanation:**

**About Superbugs:** Superbugs are pathogens that are resistant to multiple antimicrobial drugs, thus making it harder to treat.

Patients infected with any of these bugs often have to be treated with last-line drugs, which are both expensive and toxic. And many of them succumb.

**How are superbugs developed?**



Like any living organism, bacteria can mutate as they multiply. Also like any living organism, bacteria have a strong evolutionary drive to survive. So, over time, a select few will mutate in particular ways that make them resistant to antibiotics. Then, when antibiotics are introduced, only the bacteria that can resist that treatment can survive to multiply further, proliferating the line of drug-resistant bugs.

**Cause of worry:** Basically, superbugs are becoming more powerful and widespread than ever. Medical experts are afraid that humans are just one step away from deadly, untreatable infections since the MCR-1 E.coli is resistant to that last-resort antibiotic Colistin.

**Source:** [Biology and Biotechnology](#)

**Q.5) Consider the following statements about xenotransplantation:**

1. It involves the transplantation, implantation, or infusion of non-human tissues or organs into human recipients.
2. There are no successful attempts of animal-to-human heart transplants.

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

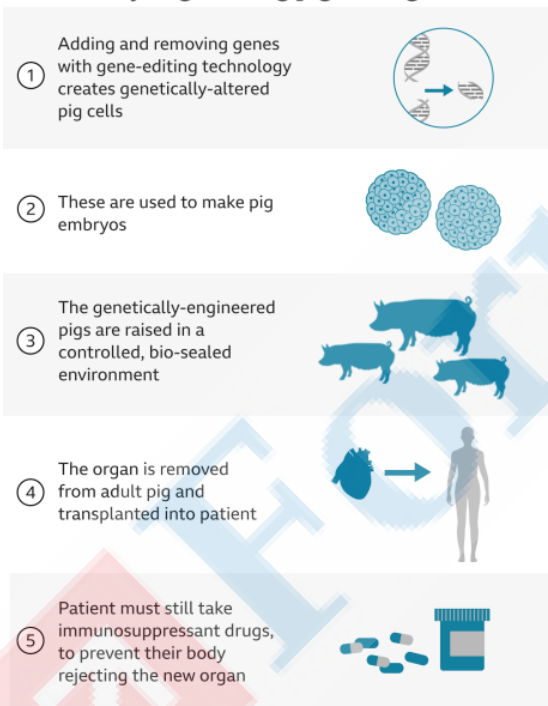
- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

**ANS: A**

**Explanation:**

**About the recent Xenotransplantation Operation:** The earlier attempts of animal-to-human heart transplants have failed, largely because patients' bodies rapidly rejected the animal organs. The most notable example was that of American infant Baby Fae, a dying infant in 1984 who lived 21 days with a baboon heart.

**Genetically engineering pigs as organ donors**



Source: University of Maryland School of Medicine, NYU Langone Health **BBC**

This time, the surgeons used a heart from a **pig that had undergone gene editing to remove sugar** in its cells that's responsible for the hyper-fast rejection of organs.

**About xenotransplantation**

Xenotransplantation involves the **transplantation, implantation, or infusion** of non-human tissues or organs into human recipients.

**About the potential advantages of Pigs in Xenotransplantation**

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- Pig **organs have similarities** to human organs in respect of anatomy and physiology. For instance, physiologically, cardiac output and stroke volume, which are major indicators of cardiac function, have been reported to be comparable in pigs and humans,
- Pigs **could provide an unlimited supply of organs, tissues, and cells**, e.g., it is easy to raise and achieve adult human organ size in six months from pigs.
- Pigs are **easy to breed and have large litters**,
- From a scientific viewpoint, pigs are **genetically modifiable to reduce the chances of rejection** by the human body,
- When bred and housed under 'clean' conditions, pigs **could provide exogenous infection-free organs, tissues, and cells**, For instance, there are now companies breeding genetically modified pigs. One such U.S.-based company, Revivicor supplied the pig heart for the New York transplant,
- Pigs are produced for food, so **using them for organs raises fewer ethical concerns**.

**Source:** [Biology and Biotechnology](#)

**Q.6) Consider the following statements about Mud Crab Reovirus (MCRV):**

1. The virus mainly infects connective tissue cells of the hepatopancreas, gills and intestine in mud crabs.
2. It is zoonotic disease.

**Which of the statements given above is/are not correct?**

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

**ANS: B**

**Explanation:**

**About Mud Crab Reovirus (MCRV):** Mud Crab Reovirus (MCRV) is also known as Sleeping Disease. The virus belongs to the "Reoviridae" family. The virus mainly infects connective tissue cells of the hepatopancreas, gills and intestine in mud crabs.

*Note: Reoviridae is a family of double-stranded RNA viruses. This virus has a wide host range including vertebrates, invertebrates, plants, protists, and fungi.*

**About Mud Crab:** *Scylla Serrata* commonly known as the Mud crab, Green crab, or Mangrove Crab, is an economically important species of crab found in the estuaries and mangroves of India.

There has been a huge interest in the aquaculture of this species due to their high demand/price, high flesh content and rapid growth rates in captivity.

In India, crab culture is developing very fast in the states of AP, Kerala, West Bengal, and Odisha.

**Source:** [Biology and Biotechnology](#)

**Q.7) Consider the following statements about Ambergris:**

1. Ambergris is a solid, waxy, flammable substance of a dull grey or blackish color.
2. It is produced in the digestive system of sperm whales.
3. It is referred to as floating gold.

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

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

**ANS: D**

**Explanation:**

**About Ambergris**



**Ambergris** is a solid, waxy, flammable substance of a dull grey or blackish color. It is produced in the digestive system of **sperm whales**.

- German physician Franz Schwediawer in 1783 called it “**preternaturally hardened whale dung**”. This excretion is so valuable it is referred to as **floating gold**.
- However, Ambergris is produced only by an estimated 1% of sperm whales.

**Formation:** It is incorrectly referred to as **whale vomit**. This is because one of the theories about its formation suggests that it is produced in the **gastrointestinal tract of some of the sperm whales** for the passage of hard, sharp objects that are ingested when the whale eats large quantities of marine animals.

**Uses:** Ambergris is **used to produce perfumes** that have notes of musk. There are also records of it being used to flavor food, alcoholic beverages, and tobacco in some cultures in the past. Ancient Egyptians used it as **incense**. It is also believed to be used in some **traditional medicines**.

**Protection to sperm whales**

**There is a ban on possession and trade of ambergris** in countries like the USA, Australia and India. In several other countries, it is a tradable commodity but with limitations.



**In the Indian context**, sperm whales are a protected species under **Schedule 2 of the Wildlife Protection Act**, and possession or trade of its by-products, including Ambergris and its byproducts, is illegal under provisions of the Wildlife Protection Act, 1972.

**Source:** [Biology and Biotechnology](#)

**Q.8) Consider the following statements about Neurocysticercosis (NCC):**

1. It is a zoonotic disease.
2. It is a neurologic infection caused when a human consumes meat of an infected pig.

**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

**ANS: C**

**Explanation: About Neurocysticercosis(NCC) :**

Neurocysticercosis(NCC) is a zoonotic disease. It is a neurologic infection caused when a human consumes meat from — or is indirectly in contact with — a pig infected with tapeworm.

The eggs of the tapeworm invade the muscles of the human body to make cysts. Sometimes these cysts get into people's brains, triggering epileptic seizures, headaches, difficulty with balance, and excess fluid around the brain.

**Transmission:** Those with NCC cannot spread the disease to other people. But people with taeniasis (tapeworm infection in the intestine) may spread tapeworm eggs to other people if they do not practice good hygiene (e.g. handwashing after they use the toilet).

**Source:** [Biology and Biotechnology](#)

**Q.9) Consider the following statements about Canine Parvovirus:**

1. It is a highly contagious fungal disease.
2. The virus impacts dogs' gastrointestinal tracts.

**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

**ANS: B**

**Explanation: About the Canine Parvovirus:**

**Canine Parvovirus is a highly contagious viral disease** that can be life-threatening in puppies and dogs. **The virus impacts dogs' gastrointestinal tracts** and has a 90% mortality rate.

**Symptoms:** Bloody diarrhea, vomiting, drastic weight loss, dehydration, and lethargy are some of its symptoms.

**Transmission among Dogs:** The virus spreads through direct contact with an infected dog or by indirect contact with a contaminated object, including the hands and clothing of people who handle infected dogs.

**Treatment:** Parvovirus has **no cure** and vaccinating a puppy or a dog gives them a fighting chance against the infection.

**Source:** [Biology and Biotechnology](#)

**Q.10) Consider the following statements about Norovirus:**

1. It is an animal-borne disease.
2. It is easily transmitted through close contact with people who have been infected.

**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

**ANS: C**

**Explanation: About the Norovirus**

- Norovirus is an **animal-borne disease**. It causes gastrointestinal illness including inflammation of the lining of the stomach and intestines, severe vomiting, and diarrhea.
- Norovirus is resistant to many disinfectants and can heat up to 60°C. Therefore, merely steaming food or chlorinating water does not kill the virus.
- The virus can also survive many common hand sanitizers.

**Transmission:** Norovirus is **easily transmitted through close contact with people** who have been infected, or by touching contaminated surfaces. It can also be spread by eating food that has been prepared or handled by someone with a stomach bug.

**Impact:** Norovirus does not significantly affect healthy people, but it can be serious in young children, the elderly, and people with comorbidities.

**Treatment:** No specific treatment for the infection. Recovery generally depends on the health of the immune system. In most people, the illness usually resolves within a few days.

**Source:** [Biology and Biotechnology](#)

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## *Science and Technology*

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**Q.1) Consider the following statements about Perovskite Solar Cell:**

1. Perovskites materials offer excellent light absorption, charge-carrier mobilities, which act as the light-harvesting active layer.
2. Perovskite materials are stable towards humidity and oxygen.

**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

**ANS: A**

**Explanation: About Perovskite Solar Cell (PSC):**

- Perovskite Solar Cell (PSC) is made by a perovskite-structured compound. Perovskites materials offer excellent light absorption, charge-carrier mobilities, which act as the light-harvesting active layer.
- PSCs have become commercially attractive because of the potential of achieving even higher efficiencies and very low production costs.
- However, the challenge lies in its short- and long-term stability. Similarly, perovskite materials are unstable towards humidity and oxygen, which restricts their commercialization.

**Present solar cell tech:**

- Currently, silicon-based inorganic solar cells are a major player in the market.
- However, this technology requires high-temperature processing that results in the high price of solar panels. Further, the recycling of solar panels is perilous and complicated.

**Source:** [Chemistry and related aspects](#)

**Q.2) Consider the following statements about Gallium Nitride Ecosystem Enabling Centre and Incubator (GEECI):**

1. It is established by The Ministry of Science and Technology and IISc Bengaluru, jointly.
2. It aims to establish Gallium Nitride (GaN) based Development Line Foundry facility, especially for Radio Frequency and power applications, including strategic applications.

**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

**ANS: B**

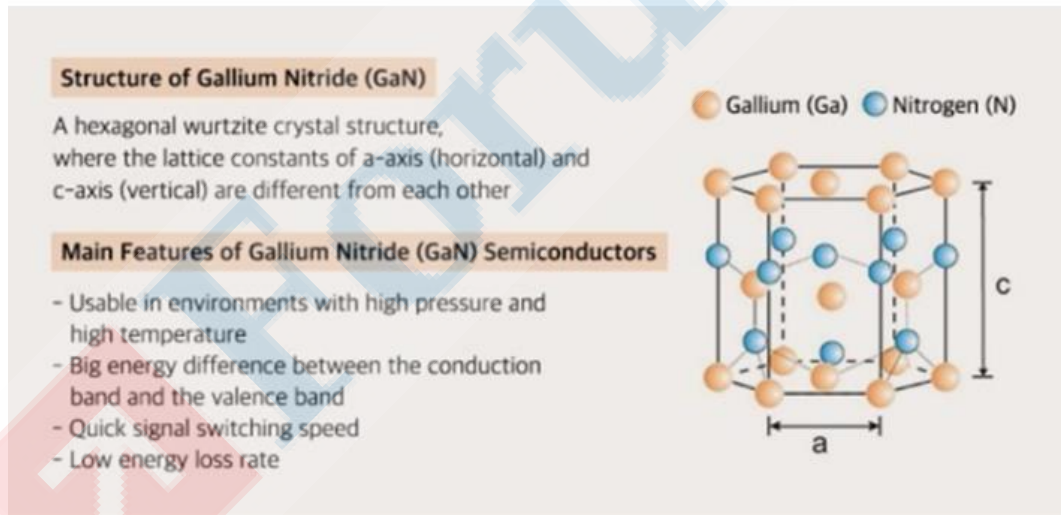
**Explanation: About Gallium Nitride Ecosystem Enabling Centre and Incubator (GEECI):**

**Established by:** The Ministry of Electronics and Information Technology and IISc Bengaluru, jointly.

**Aim:** To establish **Gallium Nitride (GaN)** based Development Line Foundry facility, especially for Radio Frequency and power applications, including strategic applications.

**About Gallium Nitride (GaN):** Gallium Nitride (GaN) is a very hard, mechanically stable wide bandgap semiconductor material.

**Properties of Gallium Nitride:** High heat capacity, Sensitivity to ionizing radiation is low, faster-switching speed, higher thermal conductivity, and lower on-resistance.



**Applications of Gallium Nitride**

- **LEDs and lasers:** GaN-based violet laser diodes are used to read Blu-ray Discs.
- **Transistors and Power ICs:** GaN transistors are suitable for high frequency, high voltage, high temperature and high-efficiency applications.
- **Space and Strategic Applications:** Its sensitivity to ionizing radiation is low, making it a suitable material for solar cell arrays for satellites. Military and space applications could also benefit, as devices have shown stability in radiation environments.

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- **Nanoscale:** GaN nanotubes and nanowires are proposed for applications in nanoscale electronics, optoelectronics, and biochemical-sensing applications.
- **5G Devices:** Due to high power density and voltage breakdown limits, GaN is emerging as a promising candidate for 5G cellular base station applications. It will also play a key role in enabling e-vehicles and wireless communication.

**Source:** [Chemistry and related aspects](#)

### **Q.3) Which of the following statement about Boltzmann Medal is/are correct?**

1. It is awarded by the Commission on Statistical Physics (C3) of the International Union of Pure and Applied Physics (IUPAP).
2. The award is given only once to a person and on the condition that person has won the Nobel prize.

**Select the correct answer using the codes given below:**

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

**ANS: A**

**Explanation: About Boltzmann Medal:**

**Initiated in:** 1975.

**Awarded by:** The Commission on Statistical Physics (C3) of the International Union of Pure and Applied Physics (**IUPAP**).

**Award conditions:** The award is given to physicists that obtain new results concerning statistical mechanics.

- The award is given only once to a person and on the condition that person has not won the Nobel prize so far.

**Note:** Ludwig Eduard Boltzmann was an Austrian physicist and philosopher. His greatest achievements were the development of statistical mechanics and the statistical explanation of the second law of thermodynamics.

**About Professor Deepak's achievement:** He has been given the award for his seminal contributions to several areas of statistical physics. Some highlights are exact solutions of self-organized criticality models, inter-facial growth, and universal long-time relaxation in disordered magnetic systems among others.

**Source:** [Chemistry and related aspects](#)

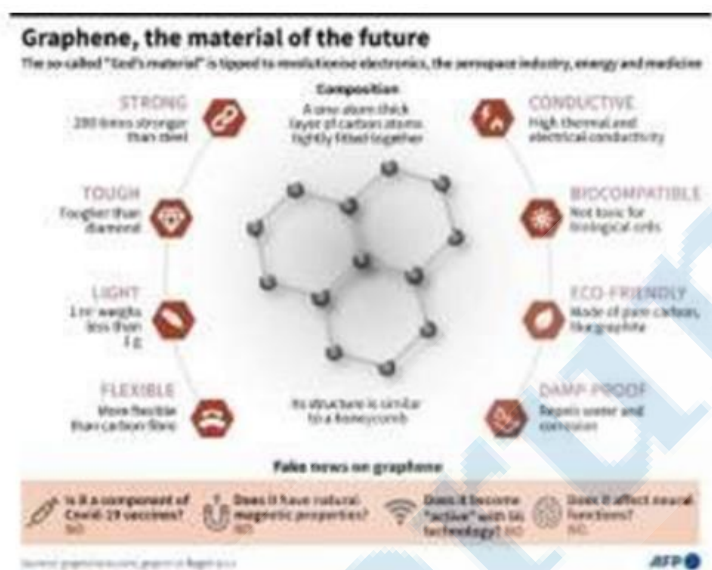
**Q.4) With respect to Graphene, which of the statements given above is not correct?**

- a) Graphene is a one-atom-thick layer of carbon atoms arranged in a heptagonal lattice.
- b) It is the thinnest, most electrically and thermally conductive material in the world.
- c) Graphene could increase the lifespan of a traditional lithium-ion battery.
- d) Graphene oxide membranes are capable of forming a perfect barrier when dealing with liquids and gases.

**ANS: A**

**Explanation:**

**About Graphene:** Graphene is a one-atom-thick layer of carbon atoms arranged in a hexagonal lattice. It is the thinnest, most electrically and thermally conductive material in the world. It is also flexible, transparent, and incredibly strong.



### **Application of Graphene**

**Biomedical:** Targeted drug delivery; improved brain penetration; DIY health-testing kits and 'smart' implants.

**Composites and Coatings:** One of the simplest and most effective ways of harnessing the potential of graphene is to combine it with existing products – so-called composite materials.

**Electronics:** Graphene has the potential to create the next generation of electronics, currently limited to sci-fi. Faster transistors; semiconductors; bendable phones and other electronics.

**Battery:** Graphene could dramatically increase the lifespan of a traditional lithium-ion battery, meaning devices can be charged quicker – and hold more power for longer.

**Graphene Membranes:** Graphene oxide membranes are capable of forming a perfect barrier when dealing with liquids and gases. They can effectively separate organic solvent from water and remove water from a gas mixture to an exceptional level.

**Sensors:** Ultra-sensitive sensors made from graphene could detect minute dangerous particles, helping to protect potentially dangerous environments.

**Source:** [Chemistry and related aspects](#)

**Q.5) Consider the following statements about Digital Embossing Technology:**

1. It is a process that eliminates the need for printing plates, moulds, chemicals, and solvents.
2. It emits no pollutants or waste and reduces overall energy usage.

**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

**ANS: C**

**Explanation: About Digital Embossing Technology:**

- It is a process that eliminates the need for printing plates, moulds, chemicals, and solvents. It emits no pollutants or waste and reduces overall energy usage.

**Introduced by:** introduced, designed, and implemented for the first time in India by **National Atlas & Thematic Mapping Organisation (NATMO)**.

**Significance:** The maps produced using this technology are not only useful for high-speed production of the maps. It can also produce Braille Maps that can be used by more people for years together.

**About National Atlas & Thematic Mapping Organisation(NATMO)**

NATMO was established in 1997. It is a subordinate department under the Department of Science & Technology, Ministry of Science & Technology.

**Functions:**

- Compilation of the National Atlas of India in Hindi, English and other regional languages
- Preparation of thematic maps based on socio-economic, physical, cultural, environmental, demographic and other issues
- Preparation of maps/atlasses for visually impaired
- Digital mapping and training using Remote sensing, GPS and GIS technology
- Training and
- Research & Development.

**Headquarter:** Kolkata

**Significance:** NATMO has become popularized with the publication of Braille Atlas for Visually Impaired (India), edition 2017 in English Braille Script. It was developed with an indigenous manual embossing method. For this, it was also conferred the National Award on “Science & Technology Intervention for Physically Challenged”.

**Source:** [Chemistry and related aspects](#)

**Q.6) Consider the following statements about Giant Metrewave Radio Telescope(GMRT):**

1. GMRT is an array of thirty fully steerable parabolic radio telescopes of 45-meter diameter, observing at meter wavelengths.
2. It is operated by the National Center for Radio Astrophysics (NCRA).

**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

**ANS: C**

**Explanation:**

GMRT is an array of thirty fully steerable parabolic radio telescopes of 45-meter diameter, observing at meter wavelengths.

**Purpose:** It is a very versatile instrument for investigating a variety of radio astrophysical problems ranging from the nearby Solar system to the edge of the observable Universe

**Operated by:** It is operated by the National Center for Radio Astrophysics (NCRA), a part of the Tata Institute of Fundamental Research, Mumbai.

**Location:** Pune

**Source:** [Space Technology](#)

**Q.7) Which of the statements given about India-based Neutrino Observatory (INO) is not correct?**

- a) It is a proposed Pure-Science underground laboratory.
- b) The proposed site of the observatory is in Bodi West Hills, in Theni district.
- c) The observatory is jointly supported by the Department of Atomic Energy (DAE) and Department of Science & Technology (DST) with DST acting as the nodal agency.
- d) Its primary goal is to study the properties and interactions of neutrinos.

**ANS: C**

**Explanation: About India-based Neutrino Observatory (INO):**

- The [India-based Neutrino Observatory \(INO\)](#) is a proposed Pure-Science underground laboratory. Its primary goal is to study the properties and interactions of [neutrinos](#).
- The observatory is jointly supported by the Department of Atomic Energy (DAE) and Department of Science & Technology (DST) with DAE acting as the nodal agency.
- The proposed site of the observatory is in Bodi West Hills, in Theni district. The site is spread across Kerala and Tamil Nadu.

**Why is the observatory being opposed by the Tamil Nadu Government?**

**Firstly**, the observatory, if constructed, will affect the flora and fauna of the Periyar Tiger Reserve and Mathikettan Shola National Park in the Western Ghats.



**PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022**

**Secondly**, the tunneling works for the proposed project involve blasting hard and composite rock in the Western Ghats. This would impact the conservation efforts in the Western Ghats.

**Thirdly**, the project area links the Periyar Tiger Reserve in Kerala with Srivilliputhur Meghamalai Tiger Reserve. Quarrying and construction activities will upset wild animals which use the corridor for seasonal migrations.

**Source:** [Space Technology](#)

**Q.8) Which of the following statements about ISRO's Space missions is/are correct?**

1. Trishna is a joint mission of ISRO and NASA for accurate mapping of land surface temperature.
2. Disha is a twin-satellite system that will study Earth's aeronomy, the uppermost layer of Earth's atmosphere.

**Select the correct answer using the codes given below:**

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

**ANS: B**

**Explanation:**

**Disha:** It is a twin-satellite system that will study Earth's aeronomy, the uppermost layer of Earth's atmosphere.

**Trishna:** It stands for **Thermal Infrared Imaging Satellite for High-resolution Natural resource Assessment**. It is a joint mission of ISRO and CNES, the French space agency. It is meant for accurate mapping of land surface temperature. It is scheduled for a 2024 launch.

**EOS-4 and EOS-6:** These are Earth Observation Satellites. They will be launched onboard the Polar Satellite Launch Vehicle (PSLV).

**NISAR [NASA-ISRO SAR] mission:** It is scheduled for launch in 2023. It is optimized for studying hazards and global environmental change and can help manage natural resources better and provide information to scientists to better understand the effects and pace of climate change.

**X-ray Polarimeter Satellite (XPoSat):** It is an ISRO planned space observatory to study polarization of cosmic X-rays. It is planned to be launched in the second quarter of 2022. The telescope is being developed by the Indian Space Research Organisation (ISRO) and the Raman Research Institute.

**Aditya-L1:** It is India's first solar mission.

**Chandrayaan-3:** It is a third lunar mission of ISRO. It is planned to demonstrate India's capability of soft landing on a celestial body, with the rover then communicating with Earth via the existing orbiter from Chandrayaan-2. It is planned to be launched in the third quarter of 2022.

**Shukrayaan Mission:** It is expected to be launched in 2024 by ISRO. It will study Venus for four years.

**Source:** [Space Technology](#)

**Q.9) Consider the following statements about Dhawan-1:**

1. It is India's first privately developed, fully cryogenic rocket engine.
2. It runs on two high-performance rocket propellants — Compressed natural gas (CNG) and dry oxygen.

**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

**ANS: A**

**Explanation:**

**About Dhawan-1:** Dhawan-1 is **India's first privately developed, fully cryogenic rocket engine**. It runs on two high-performance rocket propellants — liquid natural gas (LNG) and liquid oxygen (LoX). The engine was developed using 3D printing with a super alloy.

**About Vikram:** Vikram is a series of launch vehicles to be launched by Skyroot space. These vehicles are specially crafted for the small satellite market.

**Vikram-1:** It is based on a solid propulsion engine. After Skyroot successfully designed and developed the solid propulsion rocket engine, it became the first private firm in the country to do so.

**Vikram-2:** This vehicle is using a cryogenic engine. It will be launched into orbit in the next 2 years.

**Source:** [Space Technology](#)

**Q.10) Consider the following statements about Imaging X-ray Polarimetry Explorer (IXPE):**

1. IXPE observatory is a joint effort of NASA and the JAXA.
2. It aims to study the most extreme and mysterious objects in the universe – supernova remnants, supermassive black holes, and dozens of other high-energy objects.

**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

**ANS: B**

**Explanation:**

**About the IXPE Mission:** IXPE observatory is a **joint effort of NASA** and the **Italian Space Agency**.

**Aim:** To study the most extreme and mysterious objects in the universe – supernova remnants, supermassive black holes, and dozens of other high-energy objects.

**Duration:** The mission's duration is **2 years**.

**Instruments used:** IXPE carries three state-of-the-art space telescopes. Each of the three telescopes hosts one light-weight X-ray mirror and one detector unit. These will help observe polarized X-rays from neutron stars and supermassive black holes.

- By measuring the polarization of these X-rays, we can study where the light came from and understand the geometry and inner workings of the light source.

**The mission will complement other X-ray telescopes** such as the Chandra X-ray Observatory and the European Space Agency's X-ray observatory, XMM-Newton.

### **Importance of the mission**

The mission will help scientists answer questions such as:

- How do black holes spin?
- Was the black hole at the center of the Milky Way actively feeding on surrounding material in the past?
- How do pulsars shine so brightly in X-rays?
- What powers the jets of energetic particles that are ejected from the region around the supermassive black holes at the centers of galaxies?

**Source:** [Space Technology](#)

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*Science and Technology*

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**Q.1) Hermetic Wiper, recently seen in news is a \_\_\_\_?**

- a) Computer virus
- b) Malware
- c) Trojan horse
- d) Side-Channel Attack

**ANS: B**

**Explanation: About Hermetic Wiper:**

- Hermetic Wiper is a data-wiper malware that was detected on hundreds of computers in Ukraine.
- This malware when downloaded can erase all the data on a device it targets in a manner that renders the data irretrievable.
- The malware is also capable of attacking data recovery tools on a system and the rebooting system of a hard drive, making it difficult for the device to reboot into its operating system, essentially making it inoperable.

**About DDoS or distributed denial-of-service attack:**

- A DDoS attack essentially floods a website with countless frivolous requests for information, eventually leading it to paralyze or crash.
- It uses bots to send these queries that bombard the site, leaving it inaccessible to legitimate users.
- Such attacks, in a conflict situation, can damage critical digital infrastructure, disable government communication and the information ecosystem in a country.

**Source:** [Computer and Information Technology](#)

**Q.2) Which of the following statement about non-fungible token (NFT) is not correct?**

- a) NFTs are unique digital items stored on a blockchain, the same network that runs cryptocurrencies.
- b) NFTs are certificates of authenticity.
- c) With NFTs, artwork cannot be “tokenized” to create a digital certificate of ownership.
- d) NFTs enable digital content creators and owners of IP to monetize their work or assets.

**ANS: C**

**Explanation: About NFT:**

- NFTs, or non-fungible tokens, are unique digital items stored on a blockchain, the same network that runs cryptocurrencies.
- NFTs are not the digital art but instead certificates of authenticity, and mostly used in the blockchain of ethereum, the second-biggest cryptocurrency.

**Note:** A fungible asset is something that can be readily interchanged like money. With money, you can swap a £10 note for two £5 notes, and it will have the same value.

**About working of NFTs:**

Traditional works of art such as paintings are valuable because they are one of a kind. But digital files can be easily and endlessly duplicated. With NFTs, artwork can be “tokenized” to create a digital certificate of ownership that can be bought and sold.

When a digital asset is tokenized as NFT, a unique code is generated and stored on the block chain network. This can be used to identify the creator as well as the future and past owners.

**Applications of NFT:**

- Anything digital – images, videos, music, online version of various articles – can be converted into an NFT and monetized.
- NFTs also enable digital content creators and owners of IP (intellectual property) to monetize their work or assets without a ‘middleman’ and earn a royalty every time the NFT is resold.
- Gives strength to the underlying idea of **direct creator-to-audience platforms**

**Source:** [Computer and Information Technology](#)

**Q.3) Consider the following statements about Open Network for Digital Commerce (ONDC):**

1. It is an initiative of the Department for Promotion of Industry and Internal Trade (DPIIT).
2. Under this, all seller and buyer platforms will work through one open protocol and can connect through ONDC.

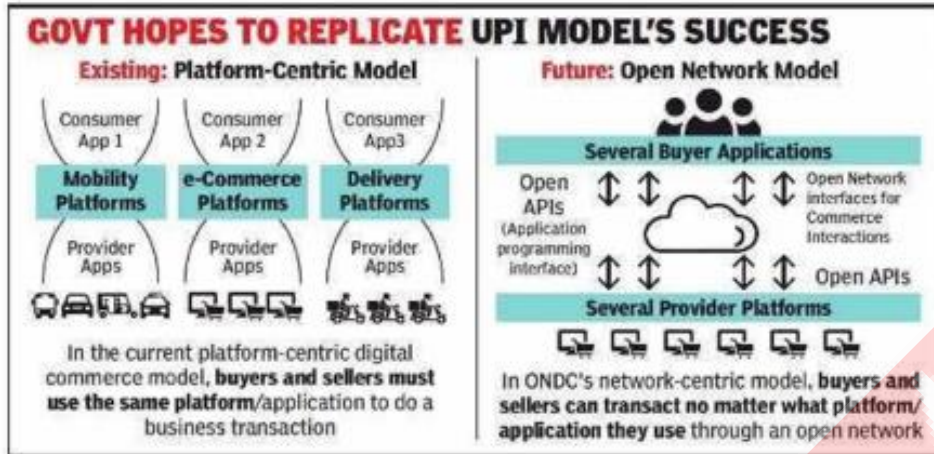
**Which of the statements given above is/are correct?**

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

**ANS: C**

**Explanation: About ONDC:**

- ONDC is a **network aimed at promoting open networks** developed on open-sourced methodology, using open specifications and open network protocols independent of any specific platform.
- It is an initiative of the **Department for Promotion of Industry and Internal Trade (DPIIT)** under the **Ministry of Commerce and Industry**.
- Under this, all seller and buyer platforms will work through **one open protocol** and can connect through ONDC.
- Even if one has to buy a product, ONDC will show all the options of various platforms for the product, and the consumer can choose what he or she wants.
- Thus, the platform will help in creating new opportunities, curb digital monopolies and support micro, small and medium enterprises and small traders and help them get on online platforms.



**Aim of ONDC:** The [Unified Payment Interface \(UPI\)](#) has disrupted the digital payments' domain. ONDC seeks to achieve something similar for e-commerce.

- It aims to democratise digital commerce by moving it away from platform-centric models like Amazon and Flipkart to an open network.
- This will enable more sellers to be digitally visible. The transactions will also be executed through an open network.

**Source:** [Computer and Information Technology](#)

**Q.4) Consider the following statements about SANT Missile:**

1. It is an indigenously designed and developed surface-to-surface missile.
2. The missile can neutralize targets in a range of up to 10 km.

**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

**ANS: B**

**Explanation:**

**About SANT Missile:** Stand-off Anti-Tank (SANT) is an indigenously designed and developed air-to-surface missile. The missile has been designed and developed by Research Centre Imarat (RCI), Hyderabad in coordination with other DRDO labs.

**Key Features of SANT Missile**

1. Firstly, the missile is equipped with a state-of-the-art Milli Metre Wave (MMW) seeker, which provides high precision strike capability from a safe distance.
2. Secondly, the missile can neutralize targets in a range of up to 10 km.

**Significance of the launch of SANT Missile**

In recent times, SANT is the third in the series of indigenous stand-off weapons which has been tested. The others were the [long-range bombs](#) and [smart anti airfield weapons](#).

Hence, the missile is expected to further strengthen the arsenal of the Indian Air Force (IAF).

**Source:** [Defence technology](#)

**Q.5) Consider the following statements about Pinaka-ER Multi Barrel Rocket Launcher System:**

1. It is used for attacking the adversary targets prior to the close-quarter battles.
2. The extended range of the new Pinaka is over 100 km.

**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

**ANS: A**

**Explanation: About Pinaka:**

Pinaka is a multiple rocket launcher. It is used for attacking the adversary targets prior to the close-quarter battles.

**About Pinaka-ER:** It is the upgraded version of the Pinaka which has been in service with the Indian Army for the last decade.

**Designed by:** The system is jointly designed by laboratories of Defence Research and Development Organisation (DRDO) – Armament Research & Development Establishment (ARDE), Pune and High Energy Materials Research Laboratory (HEMRL), Pune.

**Range:** The extended range of the new Pinaka is over 70 km, as opposed to the 45 km the system currently has.

**Moreover, it has the ability to strike** within 10 metres of where it is aimed, allowing the army to destroy a terrorist camp, or an enemy post, logistics dump or headquarters without needing to send soldiers across the border.

**Source:** [Defence technology](#)

**Q.6) Consider the following statements about VL-SRSAM missile:**

1. It has been indigenously designed and developed for Indian Coast Guard.
2. It is meant for neutralizing various aerial threats at close ranges including sea-skimming targets.

**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

**ANS: B**

**Explanation: About VL-SRSAM:**

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- VL-SRSAM missile has been indigenously designed and developed by Defense Research and Development Organization (DRDO) for the Indian Navy.

**Purpose:** It is meant for neutralizing various aerial threats at close ranges including sea-skimming targets.

**Note:** Sea skimming is a technique of flying as close as possible to the sea surface to avoid being detected by the radars onboard warships.

**Features:** The missile has an operational range of 50 to 60 km. It also features mid-course inertial guidance through a fiber optic gyroscope and active radar homing in the terminal phase.

**Source:** [Defence technology](#)

**Q.7) Which of the following statement about Zircon Missile is/are not correct?**

1. It is a Hypersonic Cruise Missile developed by North Korea.
2. The missile speed is so fast that the air pressure in front of the weapon forms a plasma cloud as it moves, absorbing radio waves and making it practically invisible to active radar systems.

**Select the correct answer using the codes given below:**

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

**ANS: A**

**Explanation: About the Zircon Missile:**

**Source:** The Sun

Zircon is a Hypersonic Cruise Missile developed by Russia. It has been called one of the invincible missiles by the Russian President.

**Special features of Zircon Missile**

- The missile flies with an **advanced fuel** that the Russians say gives it a range of up to 1,000 kilometers.
- The missile speed is also so fast that the air pressure in front of the weapon forms a plasma cloud as it moves, **absorbing radio waves** and making it practically invisible to active radar systems.

**Note:** The Zircon will join the [Avangard hypersonic glide vehicle](#) that was put into service in 2019 and the air-launched Kinzhal (Dagger) missiles in Russia's arsenal.

**Significance for India**

This successful test of Zircon is being termed as good news for India as it will hasten the development of the delayed BrahMos-II hypersonic cruise missile, a joint India-Russia project.

**Source:** [Defence technology](#)



**Q.8) Which of the following statement about Kavach system is not correct?**

- a) It is an indigenously developed Automatic Train Protection (ATP) System for Indian Railways.
- b) It needs single person to activate the train braking system.
- c) It is developed by Research Design and Standards Organisation(RDSO).
- d) It prevents trains from passing the signal at Danger (Red) and avoiding collisions.

**ANS: B**

**Explanation: About Kavach system:**

- KAVACH is an indigenously developed **Automatic Train Protection (ATP)** System for Indian Railways.

**Safety route** The indigenous Train Collision Avoidance System, also known as Automatic Train Protection system or Kavach, is to help the Railways to achieve the goal of "zero accidents"

Trains will also stop on their own when the digital system notices a manual error like "jumping" of red signal or any other malfunction

**TCAS DEPLOYMENT IN SC RLY**

MANMAD MMR PARBHANI PBN NANDED NED

The system is in operation from Manmad to Secunderabad and Parbhani to Wadi plus Vikarabad to Sanatnagar in 40 locomotives

RFID tags are provided every 1 km and at station yard for each track and signals for track identification, location of train and identification of train direction

With this, train will come to a halt automatically if another train is on the same line within a prescribed distance

**Main Function of Kavach:** It is designed to bring a train to a halt automatically when it notices another train on the same line within a prescribed distance.

**Developed by:** [Research Design and Standards Organisation\(RDSO\)](#) of the Ministry of Railways in collaboration with Indian industry.

**Features of Kavach**

- Prevents trains from passing the signal at Danger (Red) and avoiding collisions.
- Activates the train braking system automatically if the driver fails to control the train as per the speed restrictions.
- Continuous update of Movement Authority with the display of signal aspects in Driver Machine Interface(DMI)/Loco Pilot operation cum Indication Panel
- Auto whistling while approaching Level Crossing Gates
- Prevention of collision between two Locomotives equipped with functional KAVACH
- SoS Messages during emergency situations
- Centralised live monitoring of Train movements through Network Monitor System.

**Significance of Kavach: 1)** Kavach is one of the cheapest, Safety Integrity Level 4(SIL-4) certified technologies with the probability of an error being 1 in 10,000 years. **2)** It opens avenues of export of this indigenous technology for Railways. **3)** It helps the Railways to achieve the goal of "zero accidents".

**Source:** [Robotics, AI, and others](#)

**Q.9) Consider the following statements about Artificial Neural Network:**

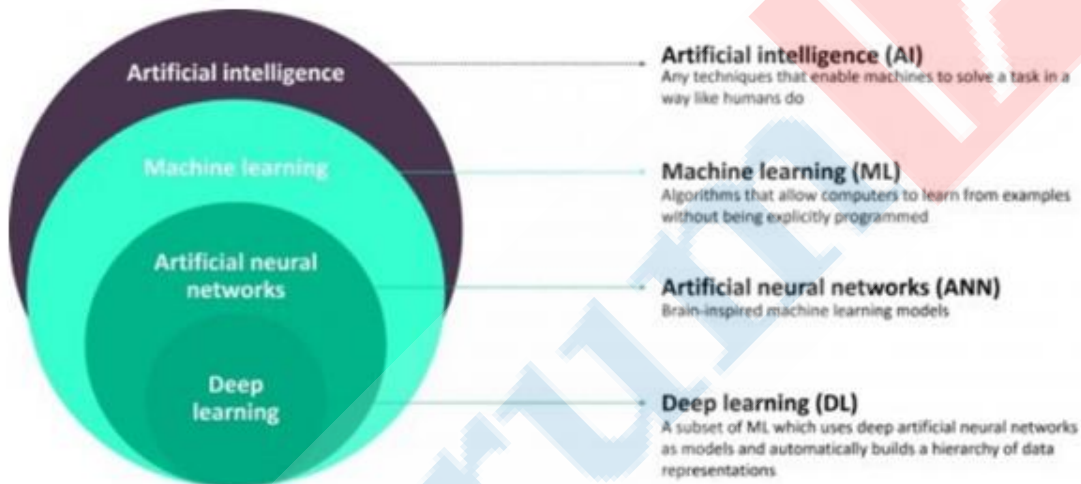
1. These are a vital subset of machine learning and are at the heart of deep learning algorithms.
2. They have the ability to fine-tune the responses, but they do not have access to the specific decision-making process.

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

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

**ANS: C**

**Explanation: About Artificial Neural Network (ANN):**



**Definition:** Artificial Neural Networks (ANN) also known as Neural Networks are a vital subset of machine learning and are at the heart of deep learning algorithms.

- Their name and structure are inspired by the human brain, mimicking the way that biological neurons signal to one another.
- They are not like other machine learning algorithms that process numbers or organize data, it is an algorithm that learns from experience and repeated tasks performed by users.
- It is fed massive volumes of data in the beginning phases. In most cases, training is done by providing input and informing the network about what should be the output.

**Note:**

Backpropagation is a commonly used method for training artificial neural networks, especially deep neural networks.

**Applications of Artificial Neural Network (ANN):**

Image Preprocessing and Character Recognition, Forecasting, Credit rating, Fraud Detection, Portfolio Management among others.

**Limitations of Artificial Neural Network (ANN)**

**Time it takes to train networks**, which frequently demand an acceptable level of computational power for even complex tasks.

## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022

- Neural networks are computer systems in which the user categorizes the trained data and gets responses. They have the ability to fine-tune the responses, but they **do not have access to the specific decision-making process.**

**Source:** [Robotics, AI, and others](#)

### **Q.10) Consider the following statements about Zariski cancellation problem:**

1. It is one of the world's greatest physics problems.
2. Professor Neena Gupta has been awarded Ramanujan Prize for solving the Zariski cancellation problem.

**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

**ANS: B**

**Explanation: About the Zariski cancellation problem:**

- It is one of the world's greatest math problems. It is a fundamental problem in Algebraic Geometry.
- The problem was posed by one of the most eminent founders of modern Algebraic Geometry, Oscar Zariski, in 1949.

**What is the problem? “**

- The cancellation problem asks that if one have cylinders over two geometric structures, and that have similar forms, can one conclude that the original base structures have similar forms?”
- Neena Gupta solved this problem which is considered as one of the best works in algebraic geometry in recent years done anywhere.

**About Ramanujan Prize for Young Mathematicians:** It is awarded annually to young mathematicians from developing countries since 2005.

**Who is the prize awarded to?** The prize is given to an eminent Mathematician who is less than 45 years of age on 31 December of the year of the award and has conducted outstanding research in developing countries

**Administered by:** The Prize is administered by the **Abdus Salam International Centre for Theoretical Physics (ICTP)** jointly with the Department of Science and Technology (DST) Government of India and the **International Mathematical Union (IMU)**.

**Sponsored by:** Department of Science and Technology, Government of India (DST).

**ICTP:** It was founded in 1964 by the late Nobel Laureate Abdus Salam. It seeks to accomplish its mandate by providing scientists from developing countries with the continuing education and skills that they need to enjoy long and productive careers.

**IMU:** It is an international non-governmental and non-profit scientific organization with the purpose of promoting international cooperation in mathematics.

**Source:** Robotics, AI, and other

## *Environment and Ecology*

**Q.1) Consider the following statements about Simlipal biosphere reserve:**

1. It is a part of the UNESCO World Network of Biosphere Reserves.
2. Erengharias and the Mankirdias inhabit the reserve's forests.

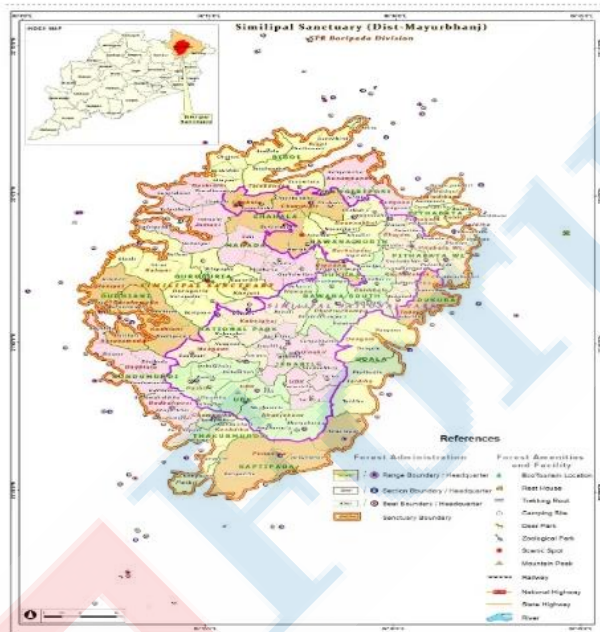
**Which of the statements given above is/are correct?**

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

**ANS: C**

**Explanation: About Simlipal Biosphere Reserve:**

- It was formally designated a tiger reserve under Project Tiger in May 1973. It was declared as a wildlife sanctuary in 1979 with an area of 2750 sq. Km.



**Origin of Name:** The park derives its name from 'Simul', which are red silk cotton trees growing in the area.

**UNESCO Biosphere Reserve:** The park was declared a biosphere reserve by the Government of India in 1994. It is a part of the UNESCO World Network of Biosphere Reserves since 2009.

**Location:** Simlipal biosphere reserve located in the Mayurbhanj district of Odisha. It is the 7th largest national park in India and Asia's second-largest Biosphere Reserve. It lies in the eastern end of the Eastern Ghat.

## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022

**Part of:** Similipal is part of the Mayurbhanj Elephant Reserve. Other Protected Areas Include:

1. Similipal Tiger Reserve,
2. Hadgarh Wildlife Sanctuary
3. Kuldiha Wildlife Sanctuary

**Flora:** The park has a high biodiversity with about 94 species of orchids and 3,000 species of plants. Among them, Sal is a dominant tree species in the park.

**Fauna:** The park is home to the Bengal tiger, Asian elephant, gaur, and chausingha. It also has a sizeable population of reptiles, which includes the longest venomous snake, the King cobra, and the Tricarinate hill turtle.

**Rivers:** At least 12 rivers cut across the plain area, all of which drain into the Bay of Bengal. The prominent among them are Burhabalanga, PalpalaBandan, Salandi, Kahairi and Deo. It is also home to some beautiful waterfalls like Joranda and Barehipani Falls.

**Tribes:** The two tribes namely Erenga Kharias and the Mankirdias inhabit the reserve's forests. Other dominant tribes include the Ho, Gonda, and Munda among others.

### **Threats:**

Forest Fires in the Simlipal National Park: The forest fires seemed to be both due to natural causes and human-made causes.

- Natural causes: lighting or even soaring temperatures can sometimes result in these fires. Moreover, the forests of Similipal are of a dry deciduous type and the fallen leaves become highly inflammable if there is no precipitation.

### Man-Made Causes:

- **Poaching and hunting:** the poachers set a small patch of forest on fire to divert the wild animals. It can lead to forest fires.
- Sometimes, Forest areas are set on fire by the villagers to clear the dry leaves on the ground for easy collection of mahua flowers. These flowers are used to prepare a drink that is addictive in nature.

**Source:** [Protected areas](#)

**PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022**

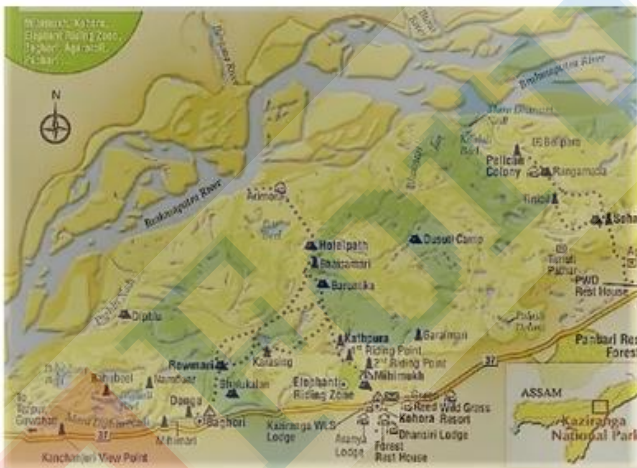
**Q.2)** "The Park is known for its rare and endangered endemic wildlife such as the roofed turtle, hispid hare, golden langur, and pygmy hog. It is also famous for its population of wild water buffalo." Which of the following is described in the above statement?

- a) Namdapha National Park
- b) Manas National Park
- c) Periyar National Park
- d) Dachingam National Park

**ANS: B**

**Explanation: Manas National Park:**

**About Manas national park:** It is a UNESCO World Heritage Site, a Tiger reserve, an elephant reserve and a biosphere reserve. It is also called Kamrup Sanctuary,



**Location:** It is located in the Himalayan foothills in Assam. It is contiguous with the Royal Manas National Park in Bhutan.

**Origin of Name:** The name of the park is originated from the Manas River.

**Flora:** The combination of Sub-Himalayan BhabarTerai and the Himalayan subtropical broadleaf forests makes Manas National Park one of the richest biodiversity in India. There are around 543 plant species recorded in the core of the national park.

## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022

**Vegetation:** There are four types of vegetation in Manas National Park namely, Sub-Himalayan Light Alluvial Semi-Evergreen forests (northern parts); East Himalayan mixed Moist and Dry Deciduous forests; Low Alluvial Savanna Woodland, and Assam Valley Semi-Evergreen Alluvial Grasslands.

**Fauna:** The Park is known for its rare and endangered endemic wildlife such as the Assam roofed turtle, hispid hare, golden langur, and pygmy hog. It is also famous for its population of wild water buffalo.

**River:** The Manasriver flows through the west of the park. Manas is a major tributary of Brahmaputra River. The river is named after the serpent goddess Manasa.

**Village:** Pagrang is the only forest village located in the core of the Manas national park. Apart from this village 56 more villages surround the park. Many more fringe villages are directly or indirectly dependent on the park.

### **Significance:**

- **Cultural services** include all non-material benefits obtained from ecosystems. Manas and Royal Manas National Parks attract several thousands of tourists, both Indian and foreign. In addition, the Bodo community living in the area and their livelihoods, culture, and food all depend on forests to a great extent.
- Manas and other protected areas also provide regulating services. These are benefits obtained from the regulation of ecosystem processes. Manas natural habitats play a significant role in climate and disease control, water regulation, as well as pollination.
  - It helps regulate floods as the water rushes down from the Himalayas. The vast green grassland in Manas is one of the most productive ecosystems and acts as a carbon sink, sequestering huge amounts of carbon each year.
- **Supporting services** are necessary for the production of all other ecosystem services. The entire range of ecosystems in Manas helps in soil formation and nutrition supplements. Manas is home to thousands of species and is a haven for securing the Himalayas' genetic diversity.

**Source:** [Protected areas](#)

**Q.3) Karlapat Wildlife Sanctuary, is located in which of the following state?**

- a) Jharkhand
- b) Assam
- c) Odisha
- d) Kerala

**ANS: C**

**Explanation: About Karlapat Wildlife Sanctuary:**

## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022

- It is a wildlife sanctuary located in the Kalahandi district in Odisha. The sanctuary is famous for the lush green dry deciduous forest.



**Flora:** The sanctuary consists of flora like Sal, Bija, Asan, Harida, Amala, Bahada, Bamboo and varieties of medicinal plants.

**Fauna:** The sanctuary is home to a plethora of wildlife animals such as leopard, gaur, sambar, nilgai, barking deer, elephants, mouse deer, soft claws ottawa, and a wide variety of birds.

**Waterfalls:** It is famous for the Phuliharan waterfall. There are other several small and big waterfalls inside the sanctuary like Ghusrigudi, Dumnijhola, Kamalajharan, Koyirupa, Kuang, and Raja Rani.

**Source:** [Protected areas](#)

**Q.4) TsoKar Wetland, is located in which of the following state/UT?**

- Ladakh
- Sikkim
- Arunachal Pradesh
- Himachal Pradesh

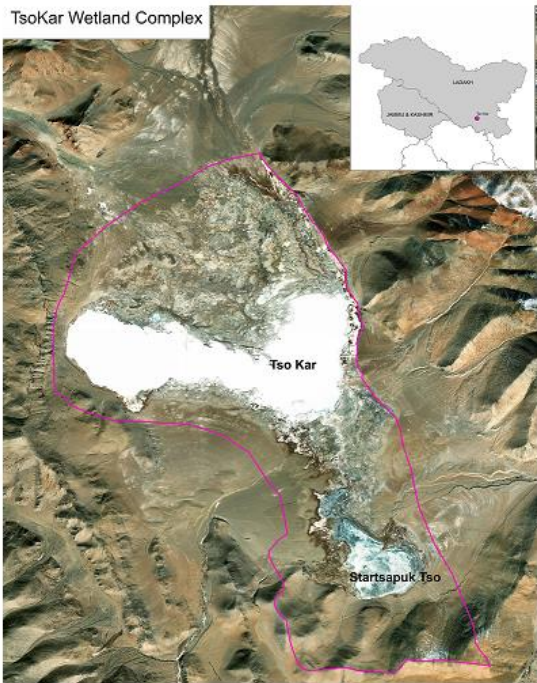
**ANS: A**

**Explanation: About TsoKar Basin:**

- It is a high-altitude wetland complex. It consists of two connected lakes; Startsapuk Tso (a freshwater lake of about 438 hectares to the south) and TsoKar (a hypersaline lake of 1800 hectares to the north).
- The name TsoKar refers to the white salt efflorescence on the margins of the lake caused by the evaporation of the saline waters.



## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022



**Location:** It is situated in the Changthang region of Ladakh, India.

**Fauna:** Numerous threatened species inhabit this wetland, including the endangered saker falcon, and Asiatic wild dog or dhole, and the vulnerable snow leopard.

**Important Bird Area:** The TsoKar Basin is an A1 Category Important Bird Area (IBA) as per Bird Life International and a key staging site in the Central Asian Flyway.

**Important Breeding Ground:** The site is one of the most important breeding areas of the Black-necked Crane in India. It is also the major breeding area for Great Crested Grebe, Bar-headed Geese, Ruddy Shelduck, Brown-headed Gull, Lesser Sand-Plover, and many other species.

**Source:** [Protected areas](#)

**Q.5) "It is home to species such as white-rumped vulture (Critically Endangered), red-headed vulture (Critically Endangered), and two waterbirds, the sociable lapwing and Baer's pochard. It is formed in the depression between River BurhiGandak and the paleochannel of River Bagmati."**

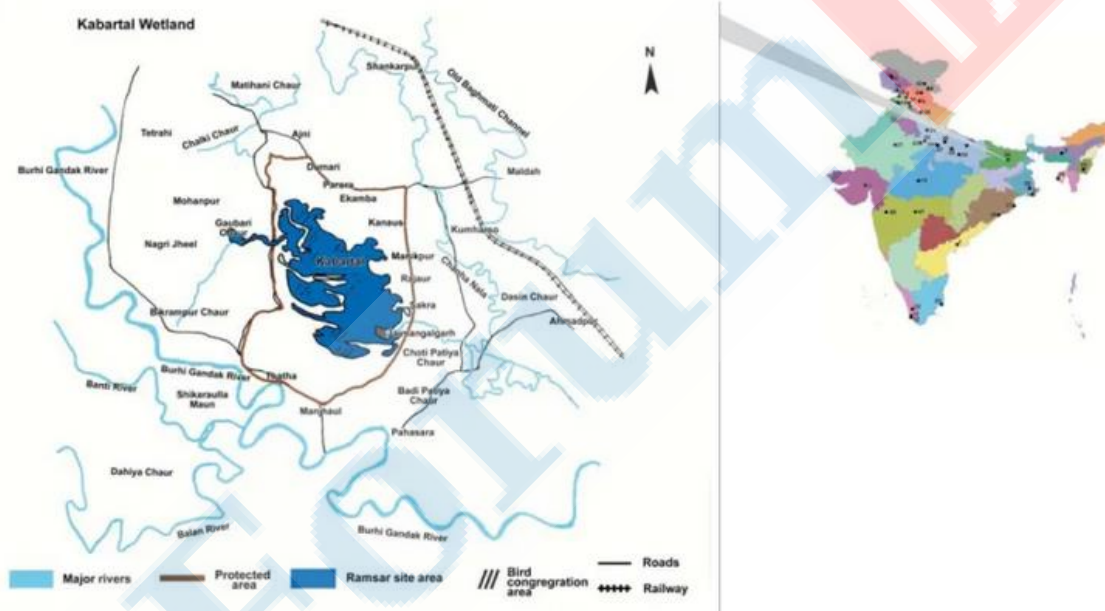
**Which of the following is described in the above statement?**

- a) Bakhira Wildlife Sanctuary
- b) Kabartal Wetland
- c) Sur Sarovar Lake wetland
- d) Lonar Lake Wetland

**ANS: B**

**Explanation: About Kabartal Wetland:**

- It is also known as KanwarJheel. It covers 2,620 hectares of the Indo-Gangetic plains in the Begusarai district of Bihar.



**Location:** It is located Begusarai district of the state of Bihar. It is formed in the depression between River BurhiGandak and the paleochannel of River Bagmati.

**Fauna:** It is home to species such as white-rumped vulture (Critically Endangered), red-headed vulture (Critically Endangered), and two waterbirds, the sociable lapwing and Baer's pochard.

**Biodiversity:** Significant biodiversity is present in the wetland. It is also an important stopover along the Central Asian Flyway for migratory waterbirds.

**Significance:** It acts as a vital flood buffer for the region besides providing livelihood opportunities to local communities.

**Source:** [Protected areas](#)

**Q.6) Consider the following statements about Ramsar Sites:**

1. Brazil has the largest area under wetland protection.
2. The countries with the most Ramsar Sites is the United Kingdom.

**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

**ANS: B**

**Explanation:**

**Ramsar Sites globally and in India**

- The countries with the most Ramsar Sites are the **United Kingdom** (175) and **Mexico** (142). **Bolivia** has the largest area under wetland protection.
- India has a total of 49 designated sites spread over 18 states and two Union Territories. Of the 49 sites, 10 are in UP, 6 in Punjab, 4 each in Gujarat and Jammu, and Kashmir among others.

**Source:** [Protected areas](#)

**Q.7) Basai Wetland, recently seen in news is located at which of the following state/UT?**

- a) Punjab
- b) Delhi
- c) Haryana
- d) Rajasthan

**ANS: C**

**Explanation: About Basai Wetland:**

**Located in:** Gurgaon, Haryana.

**Flora and Fauna:** It houses 20,000 birds of over 280 species including migratory birds and endangered birds.

**Threats:** Due to the accelerated expansion of Gurugram, the wetland continues to disappear under newly laid roads, modern housing constructions, and other infrastructure development.

Moreover, an upcoming expressway cutting through the terrain of the wetland has majorly impacted the flyway of thousands of migratory birds from Europe and Central Asia.

**Significance:**

- Recognized as a key biodiversity area by the IUCN and the Wildlife Institute of India
- Recognized globally as an Important Bird Area (IBA) by BirdLife International.
- The wetland lies in one of the paleochannels of the Sahibi River. It is a tributary of the Yamuna which originates from the Aravalli range in Rajasthan and flows through west and South Haryana into Delhi where it is also known as the Najafgarh drain.

## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022

**Note:** The Basai Wetlands have not yet been declared a protected wetland by the Government of Haryana.

**Source:** [Protected areas](#)

### Q.8) Consider the following statements about Indian Pangolin:

1. They have large, protective keratin scales covering their skin and they are the only known mammals with this feature.
2. It is protected under Schedule I of WPA, 1972.
3. It is Critically Endangered under IUCN.

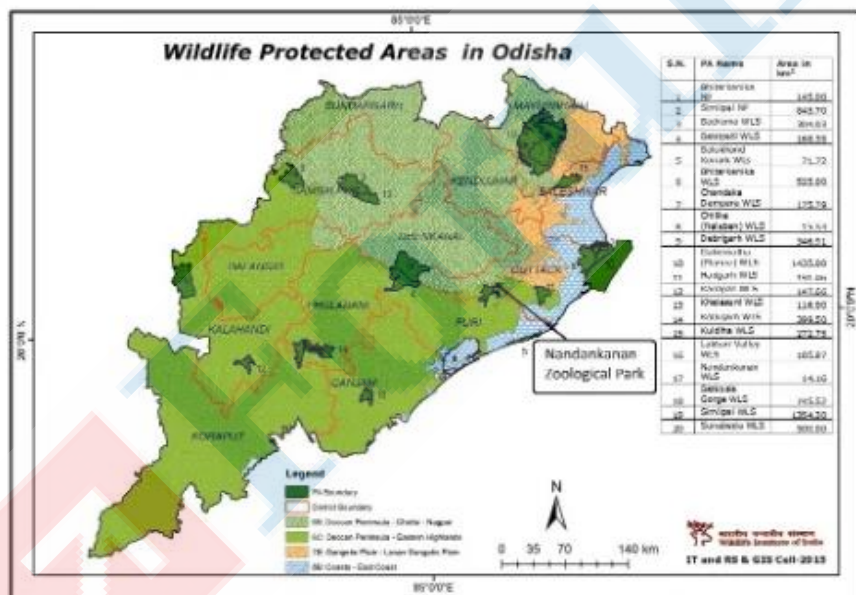
**Which of the statements given above is/are correct?**

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

**ANS: A**

**Explanation: About Nandankanan Zoological Park (NZP):**

- Unlike other zoos in the country, Nandankanan is built right inside the forest and set in a completely natural environment.



**Source:** Wildlife Institute of India

**Location:** It is located in Bhubaneswar, Odisha.

**Flora:** A diverse variety of plants, orchids, creepers, cacti, palms, and 750 species of plants are seen here.

## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022

**Fauna:** Nandankanan has been internationally acclaimed for its highest collection of white tigers in the world. Besides, gharials and white tigers, leopards, pangolin, mouse deer, lions, ratel and vultures are also bred here. It is recognized as a leading zoo for the breeding of the Indian pangolin and white tiger.

### **Significance:**

- It is the first zoo in the World to breed White tiger and Melanistic tiger and it is the only conservation breeding center of Indian Pangolins in the world.
- First captive breeding center for endangered Gharials in the year 1980.
- Kanjia Lake – A wetland of National importance (2006).
- It is the only zoological park in India to become an institutional member of World Association of Zoos and Aquarium (WAZA).
- It is the only zoo in India after which an express train Puri-New Delhi express has been named as “Nandankanan Express”.
  
- It is the first zoo in India where endangered Ratel was born in captivity.

**Source:** [Protected areas](#)

### **Q.9) Consider the following statements about Indian star tortoise:**

1. Star tortoises are carnivores.
2. Indian star tortoise is a diurnal animal that is mostly active in the morning and late in the afternoon.

**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

**ANS: B**

**Explanation: About Indian star tortoise:**

It is a species of tortoise found in dry areas and scrub forests of India, Pakistan and Sri Lanka. It is accustomed to monsoon seasons. These tortoises are easily recognizable by their star-patterned shells.



**PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022**

**Conservation Status:**

- **IUCN Status:** Vulnerable
- **CITES:** Appendix I
- **Wild Life Protection Act 1972:** Schedule IV

**Habitat:** Star tortoises come from a wide distribution in India, where they live in semi-desert grasslands and moist deciduous forest. They are also found on sand dunes, in scrub forests, humid jungles and in human-altered habitats.

**Characteristics:**

- Indian star tortoise has medium-sized head, hooked beak, and short, thick legs covered with tubercles of various sizes and shapes. Males have a long tail, while females have short and stubby tails. Indian star tortoise is a diurnal animal that is mostly active in the morning and late in the afternoon.
- **Behaviour and Temperament:** Indian star tortoises do not like being handled. They can get stressed out and get ill if handled frequently.
- **Food Habits:** Star tortoises are herbivores. They need plenty of fresh and dark leafy greens and grasses.

**Threats:** It is the single most confiscated species of freshwater tortoise in the world. It faces threats such as loss of habitat to agriculture and illegal harvesting for the pet trade.

**Source:** [Species and Biodiversity](#)

**Q.10) Consider the following statements about Asiatic Lion:**

1. Asiatic lions are slightly larger than African lions.
2. Similar to African Lion, Asiatic Lion has a longitudinal fold of skin running along its belly.

**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

**ANS: D**

**Explanation: About the Species:**

There are only several hundred Asiatic lions in the wild, and they only live in the Gir Forest, India, in an area that is smaller than Greater London.



**Conservation Status:**

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## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022

- **IUCN Status:** Endangered
- **CITES:** Appendix I
- **Wildlife (Protection) Act, 1972:** Schedule I

**Habitat:** They are confined to the Gir National Park and wildlife sanctuary and its surrounding environments in Gujarat's Saurashtra district.

**Characteristics:**

- Asiatic lions are slightly smaller than African lions.
- In contrast to African Lion, Asiatic Lion has a longitudinal fold of skin running along its belly.
- The fur ranges in colour from ruddytawny, heavily speckled with black, to sandy or buff-grey, sometimes with a silvery sheen in certain lights.
- Males have only moderate mane growth at the top of the head so that their ears are always visible.

**Food Habits:** Asiatic Lions are mainly dependent on Chital, Nilgai, Sambhar, Buffaloes and Goats for food. Sometimes they hunt smaller animals and if the need arises they kill the livestock or camel found in the neighbouring areas of Gir National Park.

**Threats:**

- Poaching
- Habitat fragmentation
- Lions die by falling into the unguarded wells around the Gir Protected Area.
- The threat of genetic inbreeding arises from a single population in one place.

**Conservation Initiatives**

- WWF supported barricading of 180 wells with local partners and Gujarat Forest Department.
- This initiative led to doubling the subsidy by the Gujarat government, and many farmers barricaded the wells with government support.
- To strengthen the efforts of Gir Protected Area towards managing conflict and poaching, WWF provided need-based support.
- WWF-India conducted a study to assess habitat change over a period of 20 years.

**Source:** [Species and Biodiversity](#)

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## *Environment and Ecology*

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**Q.1) Consider the following statements about Devi River:**

1. It is one of the principal tributaries of Mahanadi.
2. The mouth of devi river is nesting site for olive ridley turtles.

**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

**ANS: B**

**Explanation: About the mass tagging project:**

**Launched:** It is a collaborative project of the **Zoological Survey of India** in association with the Odisha Forest and Environment Department.

**Nesting Sites Covered:** The project of tagging the Olive Ridleys is being carried out at three mass nesting sites — Gahirmatha, Devi River mouth, and Rushikulya. The project is being undertaken after a span of about 25 years.

**Purpose:** The tagging of the turtles will help in finding the extent of travel and location of the turtles after congregation, nesting, etc for further research on turtle behaviour.

**The tags on the turtles are also uniquely numbered, containing details** such as the name of the organisation, country code and email address. If researchers in other countries come across the tagged turtles, they will email their location in longitude and latitude.

Moreover, the **metal tags attached to turtles are non-corrosive**, and they do not harm their body. It can be removed later.

**Note:**

**Rushikulya River:** It is one of the major rivers in the state of Odisha. The River originates in the Daringbadi hills of the Eastern Ghats range. The place from where the river originates, Daringbadi is called the '**Kashmir of Odisha**'. The river meets the Bay of Bengal at Puruna Bandha in Ganjam.

**Devi River:** It is one of the principal distributaries of Mahanadi. It flows through Jagatsinghpur district and Puri district across Odisha state in India and joins the Bay of Bengal.

**Source:** [Important Environmental Initiatives – International and Domestic](#)



**Q.2) Consider the following statements:**

1. The Gharial reintroduction in the Beas Conservation Reserve is an ambitious programme of the Himachal Government.
2. The Beas Conservation reserve hosts the only known population in India of the endangered Indus River dolphin.

**Which of Statements given above is/are correct?**

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

**ANS: B**

**Explanation: About Gharial Reintroduction in Beas River**

The Gharial reintroduction in the Beas Conservation Reserve is an ambitious programme of the Punjab government. The reptiles were commonly sighted in the Beas River till the 1960s, but later became extinct.

Now, as part of the programme, 94 gharials have been released in the reserve since 2017.

**Reason behind their extinction in Beas River**

Gharials may have gone extinct due to **a)** change in the hydrology due to the construction of dams and barrages **b)** significantly reduced water flow **c)** rapid land-use change of floodplains and **d)** rampant overfishing that slowly led to the extinction of the gharial from the Beas.

**About Beas Conservation Reserve**

It is located in Punjab and spreads over a 185-km stretch of the Beas River. The reserve has been notified as a Ramsar Site in January 2020.

The reserve hosts the only known population in India of the endangered Indus River dolphin (*Platanista gangetica minor*).

Further, threatened species in the reserve include the endangered masheer (*Tor putitora*) and hog deer (*Axis porcinus*) as well as the vulnerable smooth-coated otter (*Lutrogale perspicillata*).

**Source:** [Important Environmental Initiatives – International and Domestic](#)

**Q.3) Consider the following pairs:**

<b>Operation</b>	<b>Related to</b>
1. <b>Operation Clean Art</b>	illegal trade in Shahtoosh shawls
2. <b>Operation Softgold</b>	illegal wildlife trade in Mongoose hairbrushes
3. <b>Operation Freefly</b>	illegal trade of live birds

**Which of the pairs given above is/are correctly matched?**

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

**ANS: C**

**Explanation: Operations conducted by WCCB against illegal wildlife trade**

- **Operation Save Kurma:** It focuses on the poaching, transportation and illegal trade of live turtles and tortoises.
- **Operation Turtshield:** It was taken up to tackle the illegal trade of live turtles.
- **Operation Softgold:** To tackle illegal trade in Shahtoosh shawls (made from Chiru wool).
- **Operation Lesknow:** To bring the attention of the enforcement agencies within the country to the illegal wildlife trade in lesser-known species such as Deer, Wild Boar, Jackal, Mongoose, Monitor Lizard, Sea cucumber, and Pangolin.
- **Operation Clean Art:** To drag the attention of enforcement agencies towards the illegal wildlife trade in Mongoose hairbrushes.
- **Operation Thunderbird:** It concentrated mainly on illegal trade in species such as Tigers and other Asian big cats, Bears, Pangolins, Reptiles, Red Sanders, Sea-cucumber, and seahorses.
- **Operation Birbil:** To curb illegal trade in wild cat and wild bird species.
- **Operation Wildnet:** It was aimed to draw the attention of the enforcement agencies within the country to focus their attention on the ever-increasing illegal wildlife trade over the internet using social media platforms.
- **Operation Freefly:** It was conducted to check the illegal trade of live birds.
- **Operation Wetmark:** It was taken up to ensure the prohibition of the sale of meat of wild animals in wet markets across the country.

**Source:** [Important Environmental Initiatives – International and Domestic](#)

**Q.4) Consider the following statements about Global Methane Initiative (GMI):**

1. It is an international public-private initiative launched in 2004.
2. It is currently hosted by the U.S. Environmental Protection Agency.
3. India has been one of the members since its inception.

**Which of the statements given above are correct?**

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

**ANS: D**

**Explanation:**

**About the Global Methane Initiative (GMI)**

GMI is an international public-private initiative launched in 2004.

**Aim:** To achieve a global reduction in anthropogenic methane emission through a partnership among developed and developing countries having economies in transition.

**Members:** It is a voluntary Government and an informal international partnership having members from 45 countries including the United States and Canada. India has been one of the members since its inception.

**Secretariat:** It is currently hosted by the U.S. Environmental Protection Agency.

**Current Chairperson:** Canada

**Vice-Chairmanship:** India has taken up Vice-Chairmanship for the first time in the Steering Leadership along with the USA.

**Source:** [Important Environmental Initiatives – International and Domestic](#)

**Q.5) Consider the following statements about Project RE-HAB:**

1. It is a sub-mission of KVIC's National Honey Mission.
2. This project can prevent Elephant – Human Conflicts.

**Which of Statements given above is/are correct?**

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

**ANS: C**

**Explanation: About Project RE-HAB**

- Under this Project, “Bee-fences” are created by setting up bee boxes in the passageways of elephants to block their entrance to human territories.
- The boxes are connected with a string so that when elephants attempt to pass through, a tug or pull causes the bees to swarm the elephant herds and dissuade them from progressing further.

## PRELIMS MARATHON COMPILATION FOR THE MONTH OF APRIL, 2022

- It was earlier launched in Kodagu district of Karnataka in March 2021. In just 6 months, this project has reduced elephant attacks by over 70%.
- It is a sub-mission of KVIC's National Honey Mission.

### **Significance of this Project**

- Firstly, this project is a cost-effective way of reducing human-wild conflicts without causing any harm to the animals.
- Secondly, it is scientifically recorded that elephants are annoyed by the honey bees. Elephants also fear that the bee swarms can bite their sensitive inner side of the trunk and eyes. Hence, this project will force elephants to return and prevent Elephant – Human Conflicts.

**Source:** [Important Environmental Initiatives – International and Domestic](#)

### **Q.6) Consider the following statements about Asian Waterbird Census:**

1. It is a decadal exercise to count the water birds and monitor the wetlands for conservation of migratory birds along Central Asian Flyway.
2. In India, it is coordinated by the Wetlands International South Asia and the Bombay Natural History Society.

**Which of Statements given above is/are not correct?**

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

**ANS: A**

**Explanation:**

#### **About Asian Waterbird Census**

- Asian Waterbird Census (AWC) was started in 1987. It is an annual exercise to count the waterbirds and monitor the wetlands for conservation of migratory birds and their habitats along the Central Asian Flyway.
- **Conducted by:** Wetlands International
- In India, AWC is coordinated by the Wetlands International South Asia and the Bombay Natural History Society.
- **Significance:** It is part of a global waterbird monitoring program called the International Waterbird Census (IWC).

**Source:** [Important Environmental Initiatives – International and Domestic](#)

**Q.7) Consider the following statements about Volatile Organic Compounds (VOC):**

1. They are inorganic chemical compounds.
2. VOCs do not have origin naturally.

**Which of Statements given above is/are correct?**

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

**ANS: D**

**Explanation:**

**About Volatile Organic Compounds (VOC)**

They are **organic chemical compounds** whose composition makes it possible for them to evaporate under normal indoor atmospheric conditions of temperature and pressure.

**Common examples of VOCs:** Benzene, ethylene glycol, formaldehyde, methylene chloride, tetrachloroethylene, toluene and xylene.

**Source of VOCs:** VOCs are released by petrol and diesel vehicles. They impact air quality and human health. However, **VOCs can also have a natural origin.** Plants emit these chemicals to attract pollinators, defend themselves from pests and predators and adapt to environmental stress.

**Effect of VOCs on Health:** VOCs can irritate the eyes, nose, and throat, damage body organs, and cause cancer. Long-term exposure to VOCs is not good because the majority of the VOCs are carcinogenic (cancer-causing). It is also linked to medical conditions such as asthma and heart disease.

*Note: Benzene, a chemical that induces cancer, is the only VOC included in the ambient air-quality standards.*

**Formation of Dangerous Pollutants:** VOCs can drive the formation of other dangerous pollutants. For instance, they react with sunlight and nitrogen dioxide to form ground-level ozone.

VOCs also trigger the formation of Particulate Matter (PM<sub>2.5</sub>), a pollutant that reaches deep into the lungs, affecting their normal functioning. They also react in the air to produce secondary organic aerosols, minute particles suspended in the air.

**How shifting to EVs will reduce VOCs?**

The gases escaping out of a vehicle's exhaust account for 65-80% of an automobile's emissions. Hence, replacing all petrol, diesel, LPG, and CNG fuelled two- and three-wheelers with electric vehicles in 2030 will slash emissions of VOCs by 76%. Further, It could also lower the emissions of black carbon — a sooty black material coming from gas and diesel-powered vehicles — by 50%.

**Source:** [Important Environmental Initiatives – International and Domestic](#)

**Q.8) With respect to biosphere reserves, which of the following statement is not correct?**

- a) UNESCO designated Mura-Drava-Danube (MDD) as the world's first 'five-country biosphere reserve.
- b) MDD stretches across Austria, Slovenia, Croatia, Hungary and Serbia.
- c) Nokrek Biosphere reserve covers jaintia hills of Meghalaya.
- d) Manas Biosphere Reserve has tropical monsoon type of climate.

**ANS: C**

**Explanation: World's first 5-country biosphere reserve**

- UNESCO designated Mura-Drava-Danube (MDD) as the world's first 'five-country biosphere reserve.
- It stretches across Austria, Slovenia, Croatia, Hungary and Serbia.
- The total area of the reserve — a million hectares — in the so-called 'Amazon of Europe', makes it the largest riverine protected area on the continent.



- Source-WWF
- Rivers-The biosphere reserve covers 700 kilometres of the Mura, Drava and Danube rivers.
- Fauna:
  - It is home to continental Europe's highest density of breeding white-tailed eagle, as well as endangered species such as the little tern, black stork, otters, beavers and sturgeons.
  - it is also an important annual resting and feeding place for more than 250,000 migratory birds, according to WWF.

**Significance of the reserve:**

- The reserve is inhabited by almost 900,000 people.
- It is home to floodplain forests, gravel and sand banks, river islands, oxbows and meadows.
- The biosphere "represented an important contribution to the European Green Deal (climate action plan) and contributed to the implementation of the EU Biodiversity Strategy in the Mura-Drava-Danube region."
- The strategy's aim is to revitalise 25,000 km of rivers and protect 30% of the European Union's land area by 2030.

**Nokrek Biosphere Reserve**

- Location: Meghalaya (part of Garo Hills)

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- Rivers: Ganol, Dareng and Simsang
- Details:
  - Climate: Tropical- High humidity, Monsoon Rains, High Temperature
  - Flora:
  - Forest Type: Evergreen and semi-evergreen deciduous forests
  - Endemic Flora: Grand rasamala, White meranti, Lali, Chempaka, Wild lemon
  - Endemic Fauna: Stump tailed macaque, Pig-tailed macaque, Giant flying squirrel
  - Protected areas: Nokrek National Park

### **Manas biosphere reserve**

- Location: Assam
- Rivers: Manas-Beki
- Details:
  - Climate: Tropical Monsoon
  - Flora: The monsoon forests of Manas lie in the Brahmaputra Valley semi-evergreen forests ecoregion.
  - Main Forest types: semi-evergreen forests mixed moist and dry deciduous forests, alluvial grasslands, creeper swamp forest, Eastern seasonal Swamp Forest, Cane and bamboo brakes
  - Endemic Flora: Catechu tree, Sissoo, White siris
  - Endemic Fauna: Pygmy hog, Golden lungur , Assam roofed turtle

**Source:** [List of Biosphere Reserves in India](#)

### **Q.9) Consider the following statements about Gulf of Mannar Biosphere Reserve:**

1. It is latest marine Biosphere Reserve in India.
2. It falls within the Indo-Malayan realm.

**Which of Statements given above is/are correct?**

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

**ANS: B**

**Explanation: Gulf of Mannar**

- Location: Tamil Nadu (Indian part of Gulf of Manna)
- Details:
  - Ecosystem types: Tropical Dry Broad-leafed forest, seaweed communities, sea grass communities, coral reefs, salt marshes, and mangrove forests.
  - Endemic Flora: Endemic Flora: Morning glory, Jatropha, Halophila grass
  - Fauna: Sea Cow, Sea Anemone, Sea fans
  - Protected areas: Gulf of Mannar Marine National Park
- Note:
  - First marine Biosphere Reserve in India
  - Falls within the Indo-Malayan realm

**Source:** [List of Biosphere Reserves in India](#)

**Q.10) Consider the following statements about Agasthyamalai:**

1. River Tambraparani flows through it.
2. Peppara Wildlife sanctuary is a part of Agasthyamalai biosphere reserve.

**Which of Statements given above is/are correct?**

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

**ANS: C**

**Explanation: Agasthyamalai**

- Location: Kerala, Tamil Nadu
- Rivers: Tambraparani
- Details:
  - Climate: Tropical Monsoon
  - Flora:
    - ✓ Forest Types: thorn, moist deciduous and semi-evergreens
    - ✓ Endemic Flora: Rudraksha tree, Black plums, Gaub tree, Wild dhaman
  - Endemic Fauna: Lion-tailed macaque, Slender loris, Great pied hornbill
  - Protected areas:
    1. Neyyar Wildlife Sanctuary
    2. Peppara Wildlife sanctuary
    3. Shendumey wildlife Sanctuary
    4. KalakadMundanthurai Tiger Reserve.

**Source:** [List of Biosphere Reserves in India](#)



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## *International Relations*

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**Q.1) Consider the following statements about International Court of Justice:**

1. It is only principal UN organ not located in New York.
2. The Court has no jurisdiction to deal with applications from individuals, non-governmental organizations, corporations, or any other private entity.

**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

**ANS: C**

**Explanation: About ICJ:**

- It was established under UN Charter 1945 (which also established UNSC) to act as a principal judicial organ of the UN. It acts as a Civil court.
- As it is the UN principal judicial organ it is called as “world court”.

**Headquarters:** Hague, The Netherland (Only principal UN organ not located in New York)

**Cases that ICJ Handles**

- ICJ Settles legal disputes between Nations only. ICJ settles disputes on issues of Sovereignty, trade, treaty violations, and interpretations, etc.
- The Court has **no jurisdiction to deal with applications from individuals, non-governmental organizations, corporations,** or any other private entity. It cannot provide them with legal advice or help them in their dealings with national authorities.
- The Court can only hear a dispute in the case of a request by one or more States. It cannot deal with a dispute on its own initiative. It is also not permitted to investigate and rule on acts of sovereign States.

**Member Countries:** Members of UN automatically becomes the member of ICJ.

**Composition:** 15 members elected for 9 years. Of the 15 judges, the composition is mandated to be as follows –

- 3 from Africa
- 2 from Latin America and the Caribbean
- 3 from Asia
- 5 from Western Europe and other states
- 2 from Eastern Europe

**Qualification and conditions for appointments**

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- To get elected candidate has to get absolute majority in UNGA and UNSC
- 5 Judges are elected for 3 years once
- No two Judges can be of the same nationality
- Members can be re-elected
- The President and Vice-President are elected by secret ballot to hold office for 3 years.
- The P5 members of the UNSC always have a judge on the Court. The exception was China, which did not have a judge on the Court from 1967 to 1985 because it did not put forward a candidate. More recently Britain too lost an election to India thereby failing to get even a single judge in ICJ in 2017.

India is a member of the UN so it is also a member of ICJ. Indian Judge Dalveer Bhandari was re-elected in 2018.

### **Rulings:**

- Once the country accepts UN intervention then the judgment is binding.
- Judgments given in contentious cases between states are also binding in nature
- Court also gives advisory opinions to the Council, the General Assembly and other authorized bodies on legal questions referred to it by these entities.
- Judgments are final and without appeal. The only possibility is filing an application for any Issue related to the scope and interpretation of the judgment before the Court for interpretation.

**Source:** [important United Nations Organisations](#)

### **Q.2) Consider the following statements about institutions of World Bank Group:**

1. The International Finance Corporation (IFC) provides insurance against certain types of risk, including political risk, primarily to the private sector.
2. The International Development Association (IDA) provides various forms of financing without sovereign guarantees, primarily to the private sector.

**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

**ANS: D**

### **Explanation: About World Bank group:**

The World Bank Group With 189 member countries is one of the world's largest sources of funding and knowledge for developing countries. It consists of 5 institutions that share a commitment to **reducing poverty, increasing shared prosperity, and promoting sustainable development.**

**Its five institutions:**

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- **The International Bank for Reconstruction and Development (IBRD):** IBRD is a global development cooperative owned by 189-member countries and it is the largest development bank in the world. It is headquartered in Washington, D.C. It was established in 1944 with the mission of financing the reconstruction of European nations devastated by World War II. IBRD finances investments across all sectors and provides technical support and expertise at each stage of a project.
- **The International Development Association (IDA):** It was established in 1960. It aims to reduce poverty by providing loans (called “credits”) and grants for programs that boost economic growth, reduce inequalities, and improve people’s living conditions.
- **The International Finance Corporation (IFC):** It was established in 1956. It provides various forms of financing without sovereign guarantees, primarily to the private sector
- **The Multilateral Investment Guarantee Agency (MIGA):** MIGA was established in 1988. It provides insurance against certain types of risk, including political risk, primarily to the private sector.
- **The International Centre for Settlement of Investment Disputes (ICSID):** It was established in 1966. It works with governments to reduce investment risk by providing settlement of disputes.

### **Members:**

- To become a member of IBRD, a country must first join the International Monetary Fund (IMF).
- Only the members of IBRD are allowed to join other institutions within the Bank such as IDA, IFC, MIGA, and ICSID.
- At present, there are 189 member countries that are shareholders in the IBRD

**UN and World Bank Group –** IBRD, IFC, and IDA are Specialized Agencies of the UN. ICSID and MIGA are not Specialized Agencies

- While five institutions have their own country membership, governing boards, and articles of agreement, they work as one to serve the partner countries.
- The IBRD and IDA provide loans at preferential rates to member countries, as well as grants to the poorest countries.
- IFC, MIGA, and ICSID focus on strengthening the private sector in developing countries by providing financing, technical assistance, political risk insurance, and settlement of disputes to private enterprises, including financial institutions.

### **India and the World Bank Group**

- India is a member of four of the five constituents of the World Bank Group except for ICSID.
- India is one of the founder members of IBRD, IDA, and IFC.

### **World Bank**

- IBRD and IDA are collectively known as the World Bank. WB provides loans to countries for capital programs.

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- They were created at the 1944 Bretton Woods Conference, along with the International Monetary Fund (IMF).

**Objective:** Currently, the aim of the World Bank is to end extreme poverty, reducing the share of the global population that lives in extreme poverty to 3 percent by 2030. Further, it aims to promote shared prosperity by increasing the incomes of the poorest 40 percent of people in every country and Provide sustainable development.

### **Structure:**

- The World Bank is like a cooperative, made up of 189 member countries.
- These member countries, or shareholders, are represented by a Board of Governors, who are the ultimate policymakers at the World Bank.
- The governors are member countries' ministers of finance or ministers of development.
- They meet once a year at the Annual Meetings of the Boards of Governors of the World Bank Group and the International Monetary Fund.

**Headquarters:** Washington, D.C., United States

### **Member Countries:**

- There are 189 member countries that are shareholders in the IBRD, the primary arm of the WBG.

**Shareholdings:** The size of the World Bank's shareholders, like that of the IMF's shareholders, depends on the size of a country's economy. Thus, the cost of a subscription to the World Bank is a factor of the quota paid to the IMF.

### **Reports Published by World Bank:**

- Ease of Doing Business
- World Development Report
- Global Economic Prospect Report
- Remittance Report
- Ease of Living Index
- India Development Update
- Global Financial Development Report
- Energy Efficiency Implementation Readiness
- Human Capital Index
- Logistics Performance Index

### **Functions:**

- World Bank Group is affiliated with the United Nations (UN) and designed to finance projects that enhance the economic development of member states.
- The World Bank is the **largest source of financial assistance** to developing countries.

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- It also provides **technical assistance and policy advice**. The World Bank also supervises on behalf of international creditors about the implementation of free-market reforms.
- Together with the International Monetary Fund (IMF) and the World Trade Organization, it plays a central role in overseeing economic policy and reforming public institutions in developing countries, and defining the global macroeconomic agenda.

**Source:** [Important United Nations Organisations](#)

### **Q.3) Consider the following statements about International Labour Organization (ILO):**

1. ILO publishes Logistics Performance Index.
2. ILO became the first specialized agency associated with the UN in 1946.

**Which of the statements given above is/are not correct?**

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

**ANS: A**

#### **Explanation: About:**

The only tripartite U.N. agency, since 1919 the ILO brings together governments, employers, and workers of 187 member States. They together set labor standards, develop policies and devise programs promoting decent work for all women and men. After the demise of the League of Nations, the ILO became the first specialized agency associated with the UN in 1946.

**Headquarters:** Geneva, Switzerland

**Objectives:** The main aim of the ILO are to **promote rights at work, encourage decent employment opportunities, enhance social protection and strengthen dialogue on work-related issues.**

**Member Countries:** 187 member states. India is a founding member of the ILO.

ILO functions through three main bodies

1. The **International labour Conference** sets the International labor standards and the broad policies of the ILO. It meets annually in Geneva. Often called an international parliament of labour.
2. The **Governing body** is the executive council of the ILO. It meets three times a year in Geneva.
3. Lastly, The **International Labour Office** is the permanent secretariat of the International Labour Organization.

#### **Reports Published:**

- World Employment and Social Outlook
- Global Wage Report
- World Social Protection Report

**Significance:**

- It received the **Nobel Peace Prize in 1969** for improving peace among classes, pursuing justice for workers, and for technical assistance to other developing nations.
- ILO designates some member countries as nations of “Chief Industrial Importance”. The designated nations are Brazil, China, France, Germany, India, Italy, Japan, the Russian Federation, the United Kingdom, and the United States. The industrial population is the criteria for chief Industrial Importance.
- In 1988, the international labor conference adopted the “Declaration on Fundamental Principles and Rights at Work”. The declaration aims to eliminate all forms of forced or compulsory labour, abolition of child labour, and elimination of discrimination in employment and occupation.

**Source:** [Important United Nations Organisations](#)

**Q.4) Consider the following statements about the Humanitarian Trust Fund for Afghanistan:**

1. The fund will be set up under the New Development Bank to channel aid to Afghanistan in coordination with other groups.
2. It aims to address the growing economic crisis in Afghanistan, which has left millions facing hunger over the winter.

**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

**ANS: B**

**Explanation: About the Humanitarian Trust Fund for Afghanistan:**

The fund will be set up under the **Islamic Development Bank** to channel aid to Afghanistan in coordination with other groups.

**Aim:** To address the growing economic crisis in Afghanistan, which has left millions facing hunger over the winter.

**Significance:** This fund is crucial, as allowing Afghanistan access to financial resources would be pivotal to preventing economic collapse.

**About Islamic Development Bank**

It is a multilateral development finance institution that is focused on Islamic finance. It is located in Jeddah, Saudi Arabia. There are 57 shareholding member states with the largest single shareholder being Saudi Arabia.

**About Organisaion of Islamic Cooperation**

It is the second-largest intergovernmental organization after the United Nations.

**Established:** 1969

**Aim:** To safeguard and protect the interests of the Muslim world in the spirit of promoting international peace and harmony among various people of the world.

**Members:** 57 states.

**Headquarters:** Jeddah, Saudi Arabia

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India is **not a member of the OIC**. However, India was invited as a guest of honor at the 46th Session of the Council of Foreign Ministers in 2019.

**Source:** [international organizations, groupings, and initiatives](#)

**Q.5) Consider the following statements about Global Gateway Plan:**

1. USA has announced an international infrastructure plan called Global Gateway Plan.
2. The plan aims to invest \$340 billion globally in infrastructure, digital and climate projects by 2027.
3. The plan will require buy-ins from international institutions and the private sector.

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

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

**ANS: C**

**Explanation: About the Global Gateway Plan:**

- The plan aims to **invest €300 billion (\$340 billion) globally in infrastructure, digital and climate projects by 2027**. This will help strengthen health, education, and research systems across the world.
- The investment will be made in projects that can be delivered with high standards, good governance, and transparency while ensuring financial sustainability at the same time.
- **Implementation of the Global Gateway Plan**
- The Plan will be implemented in a Team Europe approach that brings together funding from the EU, its Member States and European financial institutions.
- The plan will require buy-ins from international institutions and the private sector.

**Significance of the Global Gateway Plan**

- **Firstly**, the Plan is considered an offshoot of the Build Back Better World (B3W) Initiative.
- **Secondly**, the plan is being seen as a European effort to challenge China's Belt and Road Initiative which was launched in 2013 and funds infrastructure projects in the developing world.

**Source:** [international organizations, groupings, and initiatives](#)

**Q.6) Consider the following statements about Asian Clearing Union (ACU):**

1. It was established in 1974 at the initiative of the United Nations ESCAP.
2. It is headquartered in Colombo, Sri Lanka.

**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

**ANS: A**

**Explanation: About Asian Clearing Union (ACU):**

Asian Clearing Union (ACU) was established in 1974 at the initiative of the United Nations Economic and Social Commission for Asia and Pacific (ESCAP).

**Objective:** To facilitate payments among member countries for eligible transactions on a multilateral basis, thereby economizing on the use of foreign exchange reserves and transfer costs, as well as promoting trade among the participating countries.

**Members:** The Central Banks and the Monetary Authorities of Bangladesh, Bhutan, India, Iran, Maldives, Myanmar, Nepal, Pakistan, and Sri Lanka are currently members of the ACU.

**Headquarters:** Tehran, Iran.

**About Currency Swap**

A **currency swap** between the two countries is an **agreement or contract to exchange currencies** with predetermined terms and conditions.

As per the arrangements, both countries pay for import and export trade at the pre-determined rates of exchange, without bringing in third-country currency like the US Dollar. In such arrangements no third country currency is involved, thereby eliminating the need to worry about exchange variations.

**Source:** [international organizations, groupings, and initiatives](#)

**Q.7) Consider the following statements about UN Security Council:**

1. It has 10 elected members who have tenure of three years.
2. All permanent members have veto power whereas all the members have one vote.

**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

**ANS: B**

**Explanation: About UNSC:**

The UN Security Council is **one of the UN's 6 main organs**. The other 5 organs are; the General Assembly, the Trusteeship Council, the Economic and Social Council, the International Court of Justice, and the Secretariat. It is aimed at maintaining international peace and security. It held its first session on 17 January 1946 in Westminster, London.

**Headquarters:** New York, United States

**Members Countries:** The UNSC has 15 members consisting of permanent and non-permanent members.

- 5 members — US, UK, Russia, China, and France — are **permanent members**. These permanent members have veto rights.
- The other **10 elected or non-permanent members** have a **tenure of two years**. At present, the non-permanent members are Estonia, India, Ireland, Kenya, Mexico, Niger, Norway, Saint Vincent, and the Grenadines, Tunisia, and Vietnam.



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- Initially, the strength of non-permanent members was six which was extended to ten in 1965.
- All permanent members have veto power whereas **all the members have one vote**. To decide on any matter in the UNSC, **9 votes out of 15 are required**. However, **if any of the 5 permanent members votes against** or veto the matter or resolution, it cannot be passed.
- Veto powers of P5 countries have been **used most frequently by Russia**, blocking more than 100 resolutions since the council's founding.
- A UN member, which is not a member of UNSC can participate in the UNSC discussion without any voting power. However, it is only possible if the matter in discussion will affect the interest of the country.

**Presidency:** The Presidency of the UNSC rotates alphabetically among 15 members every month.

**Powers:** Among all the United Nations Organisations, only UNSC has the **power to make binding decisions** on member states.

### **Objectives:**

- **Maintain international peace** and security in accordance with the principles and purposes of the United Nations;
- **Investigate any dispute** or situation which might lead to international friction;
- Recommend methods of **adjusting such disputes** or the terms of settlement;
- **Formulate plans** for the establishment of a system to regulate armaments;
- Determine the **existence of a threat to the peace** or act of aggression and to recommend what action should be taken;
- **Call on Members to apply economic sanctions** and other measures not involving the use of force to prevent or stop aggression;
- Recommend to the General Assembly the appointment of the Secretary-General. The UNSC along with the Assembly it elects the Judges of the International Court of Justice(ICJ).

### **Reforms and associated organisations:**

- **G4 Nations** – Established in 2005 it is a group of 4 countries bidding for permanent seats in the UNSC. They are Brazil, Germany, India, and Japan.
- **Uniting for Consensus (Coffee Club)** – This is the group of countries opposing the expansion of permanent seats in the UNSC under the leadership of Italy. It was established in 1995 and includes – Italy, Spain, Malta, San Marino, Pakistan, South Korea, Canada, Mexico, Argentina, Colombia & Turkey.

**Source:** [Important United Nations Organisations](#)

**Q.8) Consider the following statements:**

1. Barbados removed Queen Elizabeth II as the head of the state.
2. Barbados will be the first former British colony in the Caribbean to become a republic.

**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

**ANS: A**

**Explanation: About Barbados**

- Barbados first became an English colony when a ship arrived at the Caribbean in 1625.
- On November 30, 1966, Barbados gained its independence however Elizabeth II continued as the Queen of Barbados.
- Now it will become the world's newest republic. However, it will continue to be one of the 54 Commonwealth nations.
- Barbados will not be the first former British colony in the Caribbean to become a republic.
- Guyana took that step in 1970, less than four years after gaining independence from Britain. Trinidad and Tobago followed suit in 1976 and Dominica in 1978.

**Note:** Commonwealth of Nations is a loose association of former British colonies and current dependencies, along with some countries that have no historical ties to Britain.

**Source:** [Defense Exercises](#)

**Q.9) Consider the following statements about Exercise Sea Dragon:**

1. It is an annual China-led multinational exercise.
2. Participating countries include China, Pakistan, Russia, South Korea and Japan.

**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

**ANS: D**

**Explanation: About Exercise Sea Dragon:**

It is an annual US-led multinational exercise.

**Aim:** To practice and discuss anti-submarine warfare tactics so as to operate together in response to traditional and non-traditional maritime security challenges in the Indo-Pacific region.

**Participating Countries:** United States, India, Australia, Canada, Japan and South Korea.

**Note:** India, Japan, Australia and America are also part of the Quad and also participate in the Malabar exercise.

**Source:** [Defense Exercises](#)

**Q.10) Salami-slicing tactics of acquiring new territories, recently seen in news is being used by which of the following country?**

- a) Russia
- b) Belarus
- c) China
- d) Afghanistan

**ANS: C**

**Explanation: About the salami-slicing tactics:**

- Salami slicing is described as a strategy that involves the divide and conquer process of threats and alliances to overcome opposition and acquire new territories.
- The term was coined by Stalinist dictator Mátyás Rákosi during the 1940s. He used the term to justify the actions of the Hungarian Communist Party to grab complete power in Hungary.
- The acquisition of Tibet, the capture of Aksai Chin and the annexation of Paracel Islands are some of the examples where China used salami-slicing tactics.

**Source:** [Defense Exercises](#)