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Prelims Marathon

30th Oct, to 4th Nov, 2023

HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT

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Science

Q.1) Consider the following statements regarding solid fuel ducted ramjet:

1. It is a missile propulsion system that includes a thrust modulated ducted rocket with a reduced smoke nozzle-less missile booster.
2. The system utilizes a solid fuelled air breathing Ramjet 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: SFDR is a missile propulsion system that includes a thrust modulated ducted rocket with a reduced smoke nozzle-less missile booster.

First flight of SFDR, developed under a joint Indo-Russian R&D project, was tested in 2018. It had achieved the speed of Mach 3.

The system utilizes a solid fuelled air breathing Ramjet Engine.

Source: FORUMIAS

Q.2) Consider the following statements regarding “BrahMos”:

1. It is a universal long range supersonic cruise missile system that can be launched from land, sea and air against surface and sea-based targets.
2. BrahMos is collaboration between India and Russia.

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: BrahMos is a universal long range supersonic cruise missile system that can be launched from land, sea and air against surface and sea-based targets.

BrahMos is collaboration between India (Defence Research and Development Organisation (DRDO)) and Russia (NPO Mashinostoyenia). Name represents Brahmaputra and Moskva rivers.

Source: FORUMIAS

Q.3) The S-400 system is often seen in news developed by?

- a) Russia
- b) Israel
- c) USA
- d) Japan

ANS: A

Explanation: India on track for sanctions waiver from US for buying Russian S-400 missile system. S-400 is a mobile long-range surface-to-air missile (LR-SAM) system.

Source: FORUMIAS

Q.4) Consider the following statements Agni - 3 missiles:

- 1. It has a range of over 3000 kilometers and can carry a payload of over 1.5 tonnes.
- 2. It was conceived under Integrated Guided Missile Development Program.

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: Agni-3 has a range of over 3000 kilometers and can carry a payload of over 1.5 tonnes.

- Agni series of missiles constitute the backbone of India's nuclear weapons delivery.
- It was conceived under Integrated Guided Missile Development Program.

Source: FORUMIAS

Q.5) Consider the following statements regarding "HELINA":

- 1. It is helicopter launched Anti-Tank Guided Missile (ATGM).
- 2. It is developed by 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: Indigenously developed (by DRDO) helicopter launched Anti-Tank Guided Missile (ATGM) 'HELINA' was successfully flight tested.

- About HELINA (Helicopter based NAG): It is third generation fire and forgets class ATGM system mounted on the Advanced Light Helicopter.
- The system has all weather day and night capability.

Source: FORUMIAS

Q.6) The “INS Vikrant” is recently seen in news related to?

- a) Submarine
- b) Frigates
- c) Aircraft carrier
- d) Anti – tank missile

ANS: C

Explanation: PM commissioned India’s first Indigenous Aircraft Carrier INS (Indian Naval Ship) Vikrant.

INS Vikrant has been designed by Indian Navy’s Directorate of Naval Design, and built at Cochin Shipyard Limited, a public sector shipyard under Ministry of Shipping.

Source: FORUMIAS

Q.7) The “Carl-Gustaf M4” is recently seen in news developed by?

- a) Switzerland
- b) Sweden
- c) Israel
- d) Germany

ANS: B

Explanation: Sweden has announced plans to manufacture its Carl-Gustaf M4 weapon system in India.

- The Army has been using the Carl-Gustaf since 1976 and currently operates the Mk2 and Mk3 versions.
- The Carl-Gustaf recoilless rifle is a man-portable, multi-role weapon system.

Source: FORUMIAS

Q.8) The term “vagir” is recently seen in news related to?

- a) Submarine
- b) Frigates
- c) Aircraft carrier
- d) Anti – tank missile

ANS: A

Explanation: Vagir is the fifth Scorpène- class conventional submarine under Project-75.

- It is a Kalvari class diesel-electric attack submarine.
- Vagir was launched into water on November 12, 2020 and commenced sea trials on February 1, 2022.

Source: FORUMIAS

Q.9) The term “chinook helicopter” is often seen in news developed by?

- a) USA
- b) Israel
- c) India
- d) Germany

ANS: A

Explanation: Chinook is a multi-role, vertical-lift platform, which is used for transporting troops, artillery, equipment, and fuel even over difficult terrains.

It is also used for humanitarian and disaster relief operations. It was inducted into the Indian Air Force in 2019.

Source: FORUMIAS

Q.10) The “Satkosia Tiger Reserve” is recently seen in news located at?

- a) Tamil Nadu
- b) Karnataka
- c) Odisha
- d) Kerala

ANS: C

Explanation: Satkosia Tiger Reserve, Bhubaneswar comprises two adjoining sanctuaries of central Odisha named as Satkosia Gorge Sanctuary and Baisipalli Sanctuary.

These two sanctuaries together covering an area of 963.87 sq km were notified as Tiger Reserve in December 2007.

Source: FORUMIAS

Science

Q.1) The “genetic engineering appraisal committee” functions under?

- a) Ministry of earth sciences
- b) Ministry of consumer affairs
- c) Ministry of Environment, Forest and Climate Change
- d) Ministry of Industry

ANS: C

Explanation: The Genetic Engineering Appraisal Committee (GEAC) functions in the Ministry of Environment, Forest and Climate Change (MoEF&CC).

- As per Rules, 1989, it is responsible for appraisal of activities involving large scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle.
- The committee is also responsible for appraisal of proposals relating to release of genetically engineered (GE) organisms and products into the environment including experimental field trials.

Source: FORUMIAS

Q.2) Consider the following statements regarding CRISPR:

1. CRISPR is a genetic code or sequence found in bacteria.
2. Bacteria use CRISPR sequence to remember each specific virus that attacks them by incorporating virus DNA into their own bacterial genome.

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: CRISPR is a genetic code or sequence found in bacteria. It is formed due to the activity of the previous bacteriophages that had infected them.

- Bacteria use CRISPR sequence to remember each specific virus that attacks them by incorporating virus DNA into their own bacterial genome.
- This gives the bacteria protection when a specific virus tries to attack again.

Source: FORUMIAS

Q.3) Which of the following IIT indigenously developed the “Chemic Antigen Receptor T (CAR – T)”?

- a) IIT Madras
- b) IIT Bombay
- c) IIT Hyderabad
- d) IIT Delhi

ANS: B

Explanation: For the first time that CAR-T therapy, indigenously developed by IIT Bombay and Tata Memorial Centre, and was tested on patients in India.

Source: FORUMIAS

Q.4) The Indian Biological Data Center (IBDC) was inaugurated at?

- a) Haryana
- b) Telangana
- c) Kerala
- d) West Bengal

ANS: A

Explanation: Indian Biological Data Center (IBDC) was inaugurated at Faridabad, Haryana.

Source: FORUMIAS

Q.5) Consider the following statements regarding Biological Research Regulatory Approval Portal (BioRRAP):

1. It has developed by Department of Biotechnology.
2. It aims to track the regulatory approvals for a research proposal on a single portal.

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: Department of Biotechnology has developed BioRRAP to track the regulatory approvals for a research proposal on a single portal.

- BioRRAP provides a single route to direct the applicant to regulatory agencies providing requisite approval relevant to the biological research.
- BioRRAP ID generated through this portal is linked with the portals of various regulatory agencies.
- This will provide more credibility to such biological research and will strengthen interdepartmental synergies and increase efficacy in functioning of agencies regulating various aspect of biological research.

Source: FORUMIAS

Q.6) The “SPARK programme” is recently seen in news related to?

- a) Ayurveda research
- b) Foreign scholarship
- c) Skill development of nano technology
- d) Bioinformatics

ANS: A

Explanation: SPARK aims to support the research ideas of young undergraduate students.

- The Central Council for Research in Ayurvedic Sciences (CCRAS) will offer research fellowships to young undergraduate students enrolled in Ayurveda colleges across the country.
- CCRAS is the apex body, Under Ministry of AYUSH, for research in Ayurveda on scientific lines.

Source: FORUMIAS

Q.7) Consider the following statements regarding “Graphene”:

1. It is a single layer of carbon atoms, tightly bound in a hexagonal honeycomb lattice.
2. It is an allotrope of carbon.

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: Graphene is a single layer of carbon atoms, tightly bound in a hexagonal honeycomb lattice. It is an allotrope of carbon.

Thinnest compound at one atom thick, lightest material known, strongest compound discovered, good conductor of heat and electricity etc.

Source: FORUMIAS

Q.8) Consider the following statements regarding “Hyperloop system”:

1. It consists of a low-pressure tube, a pod, and a linear motor.
2. The tube is evacuated to create a near-vacuum, which reduces air resistance and allows the pod to travel at high speeds.

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: A Hyperloop system consists of a low-pressure tube, a pod, and a linear motor.

- The tube is evacuated to create a near-vacuum, which reduces air resistance and allows the pod to travel at high speeds.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF NOVEMBER [FIRST WEEK] 2023

- The pod is propelled by a linear motor, which uses electromagnetic fields to move the pod along the tube.

Source: FORUMIAS

Q.9) Consider the following statements regarding “Trans fats”:

1. They are unsaturated fats that have been artificially altered to make them solid at room temperature.
2. They are created by adding hydrogen to liquid vegetable oils, a process known as hydrogenation.

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: Trans fats are unsaturated fats that have been artificially altered to make them solid at room temperature.

- They are created by adding hydrogen to liquid vegetable oils, a process known as hydrogenation.
- Trans fats are often used in processed foods to improve texture, shelf life, and flavor.

Source: FORUMIAS

Q.10) The “Parambikulam Tiger Reserve” is recently seen in news related to?

- a) Kerala
- b) Tamil Nadu
- c) Karnataka
- d) Goa

ANS: A

Explanation: Parambikulam Tiger Reserve is administratively under the control of the Kerala Forest Department. KFD is a law enforcement agency for the state of Kerala and is one of the few oldest and important administrative organs of the State with its Headquarters at Thiruvananthapuram.

Source: FORUMIAS

Science

Q.1) The “Muscat Manifesto” is recently seen in news related to?

- a) Antimicrobial resistance
- b) Cloning
- c) Vaccine development
- d) GM crops

ANS: A

Explanation: The Muscat Manifesto is a declaration of intent by countries and organizations to accelerate action on antimicrobial resistance (AMR).

It was adopted at the Third Global Ministerial Conference on AMR, which was held in Muscat, Oman, in November 2022.

Source: FORUMIAS

Q.2) Which of the following international organization negotiated the pandemic treaty?

- a) WHO
- b) UNEP
- c) UNDP
- d) World Bank

ANS: A

The Pandemic Treaty is a proposed international agreement that would strengthen pandemic prevention, preparedness, and response.

The treaty is being negotiated by the World Health Organization (WHO) and its 194 member states.

Source: FORUMIAS

Q.3) Consider the following statements:

1. Bio-ethanol is derived from crops like corn and sugarcane through fermentation.
2. Bio-diesel is derived from vegetable oils, waste oils, and animal fats through transesterification.

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: Bio-ethanol: Derived from crops like corn and sugarcane through fermentation. Used as a blending agent with petrol, improving combustion performance and reducing emissions.

- Biodiesel: Derived from vegetable oils, waste oils, and animal fats through transesterification. Has lower emissions compared to diesel and can be used as an alternative fuel.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF NOVEMBER [FIRST WEEK] 2023

- Biogas: Produced by anaerobic decomposition of organic matter, such as animal and human waste. Used for heating, electricity, and in automobiles.
- Bio-butanol: Produced through the fermentation of starch, similar to bio-ethanol. Has high energy content and can be added to diesel to reduce emissions. Also used as a solvent and in the textile industry.

Source: FORUMIAS

Q.4) The “Clean Tech Exchange IC4” is recently seen in news related to?

- a) Clean technology innovation centers
- b) Hybrid energy development
- c) Sustainable agriculture
- d) Plantations

ANS: A

Explanation: Clean Tech Exchange IC4 is a global network of clean technology innovation centers. The network was launched in 2016 by the United States Department of Energy and the United Kingdom Department for Business, Energy and Industrial Strategy.

Source: FORUMIAS

Q.5) Consider the following statements:

1. Mission Innovation is a global initiative aimed at addressing the urgent need for clean energy innovation to combat climate change and promote sustainable development.
2. Mission Innovation was launched in 2015 at the United Nations Climate Change Conference (COP21).

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: Mission Innovation is a global initiative aimed at addressing the urgent need for clean energy innovation to combat climate change and promote sustainable development. Launched in 2015 at the United Nations Climate Change Conference (COP21), this collaborative effort brings together 24 countries and the European commission to double their investment in clean energy research and development.

Source: FORUMIAS

Q.6) Consider the following statements regarding ethanol blending programme:

1. It was launched in 2003 with the goal of blending 5% ethanol with petrol.
2. The government has set a target of blending 20% ethanol with petrol by 2025.

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 Ethanol Blending Program is a government-led initiative to promote the use of ethanol in India.

- The program was launched in 2003 with the goal of blending 5% ethanol with petrol.
- The program has been successful in increasing the use of ethanol in India, and the government has now set a target of blending 20% ethanol with petrol by 2025.

Source: FORUMIAS

Q.7) Consider the following statements regarding hydrogen fuel cell:

1. It utilizes hydrogen as a fuel to drive an electrochemical process that produces electricity.
2. Generating the water and heat as the sole by-products.

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: Hydrogen fuel cells are a clean, reliable, quiet, and efficient source of high-quality electric power.

- They utilize hydrogen as a fuel to drive an electrochemical process that produces electricity, generating only water and heat as the sole by-products.
- With hydrogen being one of the most abundant elements on Earth, it presents a cleaner alternative fuel option.

Source: FORUMIAS

Q.8) Consider the following statements:

1. Flex Fuel Vehicles (FFVs) are automobiles capable of running on a blend of gasoline and alternative fuels like ethanol or methanol.
2. Flex-fuel vehicles are designed to run on any blend of gasoline and ethanol up to 85% ethanol (E85).

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: Flex Fuel Vehicles (FFVs) are automobiles capable of running on a blend of gasoline and alternative fuels like ethanol or methanol.

Flex-fuel vehicles are designed to run on any blend of gasoline and ethanol up to 85% ethanol (E85).

Source: FORUMIAS

Q.9) Which of the following is called as “white gold”?

- a) Petrol
- b) Mercury
- c) Lithium
- d) Copper

ANS: C

Explanation: Months after lithium reserves were discovered in Jammu & Kashmir, Rajasthan, and Karnataka, it is now being reported that a reserve of the cosmic mineral has been discovered in Jharkhand as well.

- The eastern state—surrounded by Chhattisgarh, Bihar and West Bengal—is already known for reserves of Uranium, Mica, Bauxite, Granite, Gold, Silver, Graphite, Magnetite, Dolomite, Fireclay, Quartz, Feldspar, Coal (32 per cent of India), Iron, Copper (25 per cent of India) etc.
- Popularly known as ‘white gold’, lithium is one of the most sought-after minerals globally amid the push towards electric vehicles (EVs), owing to climate change.
- Only a handful of countries in the world have lithium reserves, be it in the form of salt lake brine or mines.
- Yet China, without having the largest lithium reserves, continues to dominate lithium mining and processing.

Source: <https://www.businesstoday.in/latest/economy/story/jharkhand-emerges-as-the-latest-hub-of-lithium-reserves-in-india-400491-2023-10-03>

Q.10) The “Dandeli-Anshi” tiger reserve is recently seen in news located at?

- a) Karnataka
- b) Goa
- c) Maharashtra
- d) Gujarat

ANS: A

Explanation: Karnataka has been declared as No.1 State in Tiger Population in the country. At present the Tiger population is estimated around 300.

- As per India Tiger estimate 2010 conducted by Ministry of Environment and Forests, Govt. of India.
- The State has 5 Tiger Reserves namely, Bandipur, Bhadra, Nagarahole, Dandeli-Anshi and BRT Tiger Reserves which is headed by Additional Principal Chief Conservator of Forests (Project Tiger), Mysuru & Shivamogga.

Source: FORUMIAS

Science

Q.1) The “Supra Thermal & Energetic Particle Spectrometer (STEPS) instrument” is recently seen in news related to?

- a) Mangalyan mission
- b) Chandrayan mission
- c) Shukrayan mission
- d) Aditya L1 mission

ANS: A

Explanation: ISRO successfully launched India’s first space-based observatory-class solar mission to study the Sun on September 2, to study the Sun.

- The Supra Thermal & Energetic Particle Spectrometer (STEPS) instrument, a part of the Aditya Solar Wind Particle Experiment (ASPEX) payload, has begun the collection of scientific data.
- STEPS comprises six sensors, each observing in different directions and measuring supra-thermal and energetic ions.
- The data collected during Earth’s orbits helps scientists to analyze the behavior of particles surrounding the Earth, especially in the presence of the magnetic field of Earth.
- STEPS measurements will continue for the rest of the life of Aditya L1 mission.

Source: FORUMIAS

Q.2) Consider the following statements:

1. The spot where the Chandrayaan-3 Vikram Lander made a soft landing would be named Shiv Shakti Point.
2. The site where the Chandrayaan-2 Lander crash-landed on the Moon's surface in 2019 would be known as Tiranga Point.

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 spot where the Chandrayaan-3 Vikram lander made a soft landing would be named Shiv Shakti Point.

- The site where the Chandrayaan-2 Lander crash-landed on the Moon’s surface in 2019 would be known as Tiranga Point.
- August 23, the day the Chandrayaan-3 Lander touched down on the lunar surface, would be celebrated as ‘National Space Day’.

Source: FORUMIAS

Q.3) The gm crop “Varuna” is recently seen in news related to?

- a) Mustard
- b) Maize
- c) Paddy
- d) Sugar cane

ANS: A

Explanation: Indian researchers developed the first ever low pungent mustard using Genome Editing (GE)

- New mustard variety is less pungent as it has lesser quantity of glucosinolate at par with the Canola quality limit (30 parts per million or PPM dry weight).
- It is produced through gene editing of ‘Varuna’, a highyielding Indian mustard variety, using CRISPR/Cas9 gene editing technology.

Source: FORUMIAS

Q.4) The “Agnibaan SOrTeD” is recently seen in news related to?

- a) Private satellite launch vehicle
- b) Missile rockets
- c) Green hydrogen
- d) Electric vehicle

ANS: A

Explanation: Agnikul Cosmos, an Indian space-tech startup, to carry out a sub-orbital test flight of its launch vehicle called Agnibaan SOrTeD.

- It is a single-stage launch vehicle powered by Agnilet engine, which is an entirely 3D-printed, single-piece, semi-cryogenic engine.
- Agnibaan can carry payloads of up to 100 kg to a low Earth orbit (LEO) of up to 700 km.

Source: FORUMIAS

Q.5) The “DRACO programme” is often seen in news related to?

- a) Mars
- b) Venus
- c) Moon
- d) Jupiter

ANS: A

Explanation: NASA and Defense Advanced Research Projects Agency (DARPA) are working on DRACO program.

DRACO program aims to create a Nuclear Powered Space propulsion system that could cut down the travel time to Mars by half.

Source: FORUMIAS

Q.6) The term “Neerakshi” is recently seen in news related to?

- a) Frigate
- b) Submarine
- c) Underwater Vehicle
- d) Solar powered drone

ANS: C

Explanation: India launched its first of its kind Autonomous Underwater Vehicle (AUV) named ‘Neerakshi.

- It can be used for mine detection, mine disposal, underwater surveys etc.
- It has an endurance of four hours and can go up to 300 metres deep.

Source: FORUMIAS

Q.7) Consider the following statements:

1. The Lunar Codex is a digitized collection of contemporary art, poetry, magazines, music, film, podcasts and books by 30,000 artists, writers, musicians and filmmakers in 157 countries.
2. The Lunar Codex is made up of 4 different time capsules to be launched on Moon.

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 Lunar Codex is a digitized (or miniaturized) collection of contemporary art, poetry, magazines, music, film, podcasts and books by 30,000 artists, writers, musicians and filmmakers in 157 countries.

- It is made up of 4 different time capsules to be launched on Moon.
- Launched via NASA Artemis / Commercial Lunar Payload Services (CLPS) program partners to the Moon.

Source: FORUMIAS

Q.8) The “Euclid mission” is recently seen in news related to?

- a) European Space agency
- b) NASA
- c) ISRO
- d) JAXA

ANS: A

Explanation: ESA’s (European Space Agency) Euclid mission lifted off. Euclid aims to investigate cosmic mysteries of dark matter and dark energy.

It will make a 3D map of the Universe by observing billions of galaxies.

Source: FORUMIAS

Q.9) Consider the following statements regarding “gravitational waves”:

1. They are ripples in the fabric of space time caused by the most energetic events in the cosmos.
2. Most powerful gravitational waves are created when objects move at very high speeds.

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: Gravitational Waves are ripples in the fabric of space time caused by the most energetic events in the cosmos, such as black hole mergers and neutron star collisions.

- Most powerful gravitational waves are created when objects move at very high speeds.
- Their presence was first given by Einstein in his Theory of Relativity.

Source: FORUMIAS

Q.10) Consider the following statements Higgs boson:

1. It is popularly known as the God particle and is a subatomic particle.
2. Its existence was proved in 2012 through the experiments in LHC at CERN.

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: Higgs Boson is popularly known as the God particle and is a subatomic particle that was first theorized in the 1960s by physicist Peter Higgs and others.

- Its existence was proved in 2012 through the experiments in LHC at CERN.
- It carries the force that a particle experiences when it moves through an energy field, called the Higgs field that is believed to be present throughout the universe.

Source: FORUMIAS

Science

Q.1) The “Outer Space Treaty” is often seen in news enacted in which of the following year?

- a) 1955
- b) 1967
- c) 1972
- d) 1992

ANS: B

Explanation: Outer Space Treaty 1967: Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies.

Source: FORUMIAS

Q.2) The “Neuralink chip” is recently seen in news related to?

- a) Satya Nadella
- b) Sundar Pichai
- c) Elon Musk
- d) Mark Zuckerberg

ANS: C

Explanation: US Food and Drug Administration (FDA) approved Elon Musk’s Neuralink chip for human trials.

It aims to build a next-generation brain implant with at least 100 times more brain connections than devices currently approved by FDA.

Source: FORUMIAS

Q.3) The “Giant Metrewave Radio Telescope (GMRT)” is recently seen in news located at?

- a) Ladakh
- b) Pune
- c) Bangalore
- d) Hyderabad

ANS: B

Explanation: GMRT is an instrument for studying astrophysical phenomena, ranging from nearby Solar system to the edge of observable Universe, at low radio frequencies (40 to 1450 MHz).

- It is operated by National Centre of Radio Astrophysics (NCRA) Pune, which is part of Tata Institute of Fundamental Research.
- GMRT is an indigenous project. Design is based on ‘SMART’ concept – for Stretch Mesh Attached to Rope Trusses.

Source: FORUMIAS

Q.4) Consider the following statements regarding “Central Drugs Standard Control Organization (CDSCO)”:

1. It is a statutory body.
2. It derives its powers from the Drugs and Cosmetics Act 1940.

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: CDSCO works under Ministry of Health & Family Welfare.

It is a statutory body and established as Central Drug Authority for discharging functions assigned to the Central Government under the Drugs and Cosmetics Act 1940.

Source: FORUMIAS

Q.5) Consider the following statements regarding “Sickle Cell Disease (SCD)”:

1. It is a type of hemoglobin disorder.
2. It is inherited blood diseases that affect how oxygen is carried in the body.

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: Sickle Cell Disease (SCD) is a type of hemoglobin disorder, inherited blood diseases that affect how oxygen is carried in the body.

SCD is characterized by a modification in the shape of the red blood cell from a smooth, doughnut shape into a crescent or half-moon shape.

Source: FORUMIAS

Q.6) The “Genetic Engineering Appraisal Committee (GEAC) is the statutory committee” is framed under?

- a) Forest act, 1927
- b) Environment (Protection) act, 198
- c) Biodiversity act, 2002
- d) National Green Tribunal act, 2010

ANS: B

Explanation: GEAC is the statutory committee that functions in the Ministry of Environment, Forest, and Climate Change.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF NOVEMBER [FIRST WEEK] 2023

- It is constituted under the “Rules for the Manufacture, Use/Import/Export and Storage of Hazardous Micro Organisms/Genetically Engineered Organisms or Cells (Rules, 1989)” framed under the Environment (Protection) Act, 1986.
- Its main function is to approve activities involving large-scale use of hazardous and recombinants in industrial production.

Source: FORUMIAS

Q.7) The “Phage Therapy” is often seen in news related to?

- a) Bio fertilizers
- b) Bacteria-killing viruses
- c) Mental disorder
- d) Covid after affects

ANS: B

Explanation: Bacteriophages, or phages, are viruses that infect and replicate only in bacterial cells.

- Phage therapy involves using phages to treat bacterial infections.
- Bacteriophages were discovered by Frederick Willian Twort in 1915 (Great Britain) and Felix d’Herelle in 1917 (France).

Source: FORUMIAS

Q.8) The “Project Taara” is recently seen in news related to?

- a) Google
- b) Facebook
- c) Apple
- d) IBM

ANS: A

Explanation: Alphabet, parent company of Google, under Project Taara is currently deploying their light beam internet technology in India, Africa, and other locations around the world.

Project Taara utilizes Free Space Optical Communication (FSOC) technology where free space acts as a communication channel between transceivers that are in line-of-sight.

Source: FORUMIAS

Q.9) The “Fattah - hypersonic Missile” is developed by?

- a) Iran
- b) UAE
- c) Saudi Arabia
- d) Pakistan

ANS: A

Explanation: Iran presented its first domestically made hypersonic Missile named “Fattah” having a target range of 1,400 km.

- A hypersonic missile refers to a type of weapon that travels at speeds that exceed five times the speed of sound typically exceeding Mach 5 or approximately 6,174 km/h.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF NOVEMBER [FIRST WEEK] 2023

- Hypersonic missiles fly at a much lower altitude than conventional ballistic missiles.

Source: FORUMIAS

Q.10) The “Simlipal Tiger Reserve” is often seen in news related to?

- West Bengal
- Assam
- Goa
- Odisha

ANS: D

Explanation: Simlipal is a tiger reserve in the Mayurbhanj district in the Indian state of Odisha covering 2,750 km².

It is part of the Mayurbhanj Elephant Reserve, which includes three protected areas—Similipal Tiger Reserve, Hadgarh Wildlife Sanctuary with 191.06 km² and Kuldiha Wildlife Sanctuary with 272.75 km².

Source: FORUMIAS

Science

Q.1) Which of the following is/are generative artificial intelligence programmes?

1. ChatGPT
2. Codex
3. GPT-3

How many of the statements given above are correct?

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

ANS: C

Explanation: Generative artificial intelligence (AI): It describes algorithms that can be used to create new content like audio, code, images, text, simulations, and videos.

- It is achieved by training machine learning models on large amounts of data using neural networks and then using these models to generate new, synthetic data that is similar to the already existing data.
- There has been increasing popularity of generative AI programs, such as OpenAI's ChatGPT, Google's BARD AI, DALLE, Codex, GPT-3 etc.

Source: FORUMIAS

Q.2) Consider the following statements regarding hydrogen fuel:

1. It has almost 2.5 times the energy per tonne compared as to natural gas.
2. It can potentially replace the coal and coke in iron and steel production.

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: Hydrogen has almost 2.5 times the energy per tonne compared as to natural gas, shifting to Hydrogen thereby reduces natural gas imports and also help in achieving our climate targets. Hydrogen can potentially replace the coal and coke in iron and steel production, de-carbonizing this sector will also have significant impact on India's climate goals.

Source: FORUMIAS

Q.3) Consider the following statements regarding “Partially Hydrogenated Oils (PHO)”:

1. They are liquid at room temperature and prolong the shelf life of products.
2. They are primarily used for deep frying and as an ingredient in baked goods.

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: Partially hydrogenated oils (PHO) are solid at room temperature and prolong the shelf life of products.

- They are primarily used for deep frying and as an ingredient in baked goods.
- PHOs were first introduced into the food supply in the early 20th century as a replacement for butter and lard.
- They are not a natural part of the human diet and are fully replaceable.

Source: FORUMIAS

Q.4) Consider the following statements about Neglected tropical diseases (NTDs):

1. They are a diverse group of 20 conditions mainly prevalent in tropical areas.
2. They are ‘neglected’ because they are almost absent from the global health agenda.

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: NTDs are a diverse group of 20 conditions mainly prevalent in tropical areas, where they affect more than 1 billion people who live in impoverished communities.

They are ‘neglected’ because they are almost absent from the global health agenda.

Source: FORUMIAS

Q.5) Consider the following statements regarding “BharOS”:

1. It is an Android Open-Source Project based operating system.
2. Major difference between BharOS and Google’s Android OS is that BharOS does not ship with Google services.

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: BharOS is an AOSP (Android Open-Source Project) based operating system with no Google apps or services.

It is developed by JandK Operations Private Limited, a non-profit organization incubated at IIT Madras.

Major difference between BharOS and Google's Android OS is that BharOS does not ship with Google services.

Source: FORUMIAS

Q.6) Which of the following country is not part of Lithium Triangle?

- a) Argentina
- b) Bolivia
- c) Chile
- d) Chad

ANS: D

Explanation: The United States Geological Survey (USGS) said in 2022 that total lithium resources globally stand at 80 million tonnes although the reserves from which it can be accessed were pegged at just over 22 mn tonnes.

Though found on each of the six inhabited continents, Chile, Argentina, and Bolivia – together referred to as the “Lithium Triangle”– hold more than 75% of the world's supply.

Source: FORUMIAS

Q.7) The “Hiten mission” is recently seen in news related to?

- a) Japan
- b) USA
- c) China
- d) Russia

ANS: A

Explanation: Hiten (originally called Muses-A) was an ISAS (Japanese Space Agency) Earth orbiting satellite designed primarily to test and verify technologies for future lunar and planetary missions.

- The spacecraft carried a small satellite named Hagoromo which was released in the vicinity of the Moon.
- Hiten itself was put into a highly elliptical Earth orbit which passed by the Moon ten times during the mission, which ended when Hiten was intentionally crashed into the Moon on 10 April 1993.

Source: FORUMIAS

Q.8) Consider the following statements regarding “NASA-ISRO SAR (NISAR)”:

1. It is a Low Earth Orbit (LEO) observatory being jointly developed by NASA and ISRO.
2. It will map the entire globe in 12 days and provide spatially and temporally consistent data for understanding changes in Earth’s 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: C

Explanation: NASA-ISRO SAR (NISAR) is a Low Earth Orbit (LEO) observatory being jointly developed by NASA and ISRO.

- NISAR will map the entire globe in 12 days and provide spatially and temporally consistent data for understanding changes in Earth’s ecosystems, ice mass, etc.
- The 2,800 kilograms satellite consists of both Lband and S-band synthetic aperture radar (SAR) instruments, which makes it a dualfrequency imaging radar satellite.

Source: FORUMIAS

Q.9) Consider the following statements regarding “small satellite launch vehicle (SSLV)”:

1. It is a 3 stage Launch Vehicle of ISRO configured with three Solid Propulsion Stages and liquid propulsion-based Velocity Trimming Module as a terminal stage.
2. It is capable of launching Mini, Micro, or Nano-satellites (10 to 500 kg mass) to a 500 km orbit.

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: Small Satellite Launch Vehicle (SSLV): It is a 3 stage Launch Vehicle of ISRO configured with three Solid Propulsion Stages and liquid propulsion-based Velocity Trimming Module as a terminal stage.

- It is capable of launching Mini, Micro, or Nano-satellites (10 to 500 kg mass) to a 500 km orbit.
- Like Polar Satellite Launch Vehicle (PSLV) and Geosynchronous Satellite Launch vehicle (GSLV), SSLV can accommodate multiple satellites, albeit smaller ones.
- Unlike PSLV and GSLV, SSLV can be assembled both vertically and horizontally.

Source: FORUMIAS

Q.10) Which of the following organization release the “International IP Index”?

- a) WEF
- b) IMF
- c) AIB
- d) US Chambers of Commerce

ANS: D

Explanation: India ranked 42nd on International IP Index released by US Chambers of Commerce. Annual Index evaluates protection of Intellectual Property (IP) rights in 55 of world's leading economies, together representing around 90% of global GDP.

Source: FORUMIAS

Science - Revision

Q.1) The Joint European Torus (JET) is recently seen in news related to?

- a) Fission energy
- b) Fusion energy
- c) Solar energy
- d) Hydro energy

ANS: B

Explanation: The Joint European Torus (JET): It is a joint European project with the main purpose of opening the way to future nuclear fusion grid energy.

Source: FORUMIAS

Q.2) Consider the following statements regarding the “Geospatial Data Promotion and Development Committee (GDPDC)”:

1. It replaces and subsumes the functions and powers of National Spatial Data Committee (NSDC).
2. It is a 17-member body to be headed by a person of repute from industry, government, or academia.

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 Geospatial Data Promotion and Development Committee (GDPDC) shall be constituted at the national level as the apex body for formulating and implementing appropriate guidelines, strategies, and programs.

- The GDPDC, a 17-member body to be headed by a person of repute from industry, government, or academia.
- GDPDC would replace and subsume the functions and powers of National Spatial Data Committee (NSDC) and Geospatial Data Promotion and Development Committee.

Source: FORUMIAS

Q.3) The treaties “PAROS and COPUOS” is recently seen in news related to?

- a) Submarines
- b) Outer space
- c) Solar technology
- d) Sustainable development funding mechanism

ANS: B

Explanation: Conference on Disarmament (CD): It is the international forum for work on disarmament, and for matters related to weapons in space and other space security issues.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF NOVEMBER [FIRST WEEK] 2023

- One of its core focus areas is the prevention of an arms race in outer space (PAROS).
- Guidelines on space sustainability: In 2019, U.N. Committee on the Peaceful Uses of Outer Space (COPUOS) has adopted a set of 21 voluntary, non-binding guidelines to ensure the long-term sustainability of outer space activities.

Source: FORUMIAS

Q.4) The “project netra” is often seen in news related to?

- a) Space debris
- b) Positioning system
- c) Rail collision avoidance system
- d) Tag free network system

ANS: A

Explanation: Project NETRA: Indian Space Research Organization (ISRO) has initiated ‘Project NETRA’ to monitor space debris.

It would provide first-hand information on the status of debris, which would aid further planning on protecting space assets.

Source: FORUMIAS

Q.5) Consider the following statements regarding “Surface Water and Ocean Topography (SWOT) Mission”:

1. It is a collaborative effort between NASA and ISRO.
2. It is first satellite mission that will measure height of water in freshwater bodies and ocean on more than 90% of Earth’s surface.

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 international Surface Water and Ocean Topography (SWOT) Mission is a collaborative effort between NASA and French space agency with contributions from Canadian and UK Space Agencies.

SWOT is first satellite mission that will measure height of water in freshwater bodies and ocean on more than 90% of Earth’s surface.

Source: FORUMIAS

Q.6) The famous “Perseverance rover mission” is often seen in news related to?

- a) Mars
- b) Moon
- c) Venus
- d) Jupiter

ANS: A

Explanation: Perseverance rover mission is part of NASA’s Mars Exploration Program, a long-term effort of robotic exploration of Mars.

It aims to look for signs of past microbial life, prepare for future human exploration and collect samples of rock and regolith (broken rock and soil) for possible return to Earth.

Source: FORUMIAS

Q.7) The “GLASS report” is recently seen in news is released by?

- a) WHO
- b) WEF
- c) UNDP
- d) UNEP

ANS: A

Explanation: Recently, WHO released Global Antimicrobial Resistance and Use Surveillance System (GLASS) report.

- GLASS was launched in 2015. GLASS-AMR provides a standardized approach to the collection, analysis and sharing of AMR data by countries
- The 2022 GLASS Report also, for the first time, included data on antibiotic consumption at the **national level.**

Source: FORUMIAS

Q.8) The “WOMB” initiative launched by Delhi government is related to?

- a) Hepatitis B
- b) Anemia
- c) After affects of Covid
- d) Malaria

ANS: A

Explanation: Launched by Institute of Liver and Biliary Sciences and Delhi government.

- Objective is to spread awareness about mother to-child transmission of Hepatitis B by appointing 100 mothers with Hepatitis B as ambassadors and educators.
- Program marks 25th year of the ‘yellow ribbon’ campaign launched in 1998 to increase public awareness about viral hepatitis.

Source: FORUMIAS

Q.9) Who among the following is the nodal ministry for online gaming?

- a) Ministry of sports
- b) Ministry of culture
- c) Ministry of home
- d) Ministry of Electronics and IT

ANS: D

Explanation: Ministry of Electronics and IT (MeitY) has become the nodal ministry for online gaming.

- Appointment of MeitY as central regulatory authority will provide clarity and certainty to investors, industry and consumers.
- In absence of a nodal ministry, online gaming intersects with multiple ministries including MeitY, Ministry of Information and Broadcasting, and Ministry of Sports.
- The decision is in line with government's initiative to push for growth of animation, visual effects, gaming and comics (AVGC) sector and making India a global hub for online gaming.

Source: FORUMIAS

Q.10) Which of the following state in India unveiled the Asia's first drone delivery hub?

- a) Meghalaya
- b) Nagaland
- c) Assam
- d) Tripura

ANS: A

Explanation: Asia's first drone delivery hub was unveiled by Meghalaya government in partnership with startup TechEagle.

It aims to deliver vital supplies like drugs, diagnostic samples, vaccines quickly and safely to different regions of state using a dedicated drone delivery network.

Source: FORUMIAS