

ForumIAS

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Prelims Marathon

9th to 15th Aug, 2021

*HISTORY
ECONOMICS
POLITY
SCIENCE AND TECHNOLOGY
GEOGRAPHY AND ENVIRONMENT*

Awareness in Defence

Q.1) The “Advanced Technology Vessel (ATV) Project” is related to which of the following?

- a) INS Arihant
- b) Tejas aircraft
- c) Air-craft carrier
- d) Brahmos Missile project

ANS: A

Explanation: The plan for the Advanced Technology Vessel (ATV) until the late 1980s was to build an SSN - a fast-moving deep-diving nuclear-powered attack submarine, which would hunt surface ships.

- Around the time India leased a Charlie-I class nuclear-powered attack submarine from the Soviet Union, which happened in 1988, planning veered towards building a submarine carrying ballistic missiles.
- The hull design was lengthened and the SSN quietly transformed into an SSBN. The Project code named Advanced Technology Vessel (ATV) Project took 25 years for completion.
- It spawned a new era in the field of cooperation between DRDO, BARC, Navy, PSUs and private industry in which these organizations synergized their efforts to achieve a significant technological and strategic milestone.
- The Arihant class(nuclear-powered ballistic missile submarines)- INS Arihant (S73), INS Aridhaman (S74) are built for the Indian Navy by Navy Shipbuilding Centre, Visakhapatnam.
- The miniaturised naval version of the reactor was designed and built by the Bhabha Atomic Research Centre (BARC) at the Indira Gandhi Centre for Atomic Research (IGCAR) in Kalpakkam.

Source: The Hindu

Q.2) Which of the following statements is/are correct about the Airborne Warning and Control System (AWACS)?

1. It is an airborne radar system designed to detect aircraft at short range and command and control, battle space management and communications.
2. PHALCON AWACS is used by Indian Air Force was developed by Israel.

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: AWACS is distinctive radar domes mounted on the fuselage of the aircraft, which provide the Alliance with air surveillance, command and control, battle space management and communications.

PHALCON AWACS is developed by Israel and it is used by Indian Air Force.

Source: Indian Express

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

Q.3) Consider the following statements regarding the Prithvi-II missile:

1. It is a surface-to-air tactical missile with a strike range of 350 km.
2. It is capable of carrying 500 to 1,000 kg of warheads, both conventional as well as nuclear.

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: Prithvi-II missile is a surface-to-surface tactical missile with a strike range of 350 km.

- It is developed by DRDO under Integrated Guided Missile Development Program (IGMDP).
- It is capable of carrying 500 to 1,000 kg of warheads, both conventional as well as nuclear.
- The state-of-the-art missile is powered by liquid propulsion twin engines.
- It uses an advanced inertial guidance system with maneuvering orbit to hit its target.
- It was inducted into armour of the defence forces in 2003.

Source: ForumIAS factly

Q.4) The Spike missile is newly acquired from Israel by Indian government is related to which of the following?

- a) Inter Continental Ballistic Missile
- b) Torpedo
- c) Nuclear payload capable missile
- d) Anti-tank missile

ANS: D

Explanation: The Indian Army successfully tested two newly acquired Spike long-range (LR) anti-tank guided missiles at the Infantry School at Mhow, Madhya Pradesh.

- The Army has recently procured a small batch of 12 launchers and 250 missiles from Israel using its new financial powers to make emergency procurements sanctioned by the Defence Ministry.
- “Spike-LR is a fourth generation missile, which can engage a target with precision at ranges up to 4 km.
- In addition to the fire-and-forget capability, the missile has the ability to fire, observe and update, providing substantial flexibility to the firer to pinpoint the impact point, as also the ability to switch to a different target mid-flight,” the manufacturer, Rafael Advanced Defense Systems, of Israel.

Source: ForumIAS factly

Q.5) The term “Losharik”, sometimes seen in news is related to which of the following?

- a) Onshore oil field
- b) Nuclear powered submarine
- c) Arctic Research Vessel
- d) Hypersonic Aircraft

ANS: B

Explanation: Losharik is a highly advanced nuclear powered submarine of Russia.

- Recently a fire accident was reported on the submarine within the Russian territorial waters.
- It is a deep-diving special mission's ship, operated by the Russian Navy.
- It is capable of withstanding high pressures at great depths, enabling it to survey the ocean floor.

Source: ForumIAS factly

Q.6) The "Project 15B" often seen in news is related to which of the following?

- a) Stealth frigates
- b) Stealth guided missile destroyers
- c) Anti-tank guided missiles
- d) Drones

ANS: B

Explanation: Project 15B is a class of stealth guided missile destroyers.

- Warships built under Project 15Bravo, with a length of 163 metres and 17.4 metres at the beam and a displacement of 7.300 tonnes, are propelled by four gas turbines to achieve speeds in excess of 30 knots.
- Ships under this project can carry and operate two multiple role helicopters.
- Enhanced stealth features have been achieved through the shaping of hull and use of radar transparent deck fittings which make these ships difficult to detect.

Source: The Hindu

Q.7) Consider the following statements regarding the NIRBHAY Missile:

1. It is a sub-sonic cruise missile.
 2. It has a range more than 3000km.
- 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: NIRBHAY, the long-range, sub-sonic, cruise missile was successfully tested today with a sharper 'terrain hugging capability'.

- The NIRBHAY missile has a range of 700 km to 1,000 km.
- After its launch in typical missile style, it can be controlled in aircraft mode.
- Travelling at sub-sonic speeds of different Mach (speed of sound), the hit capacity is enhanced by control and by homing in on targets at different altitudes.

Source: The Hindu

Q.8) The "Project NETRA" is often seen in news is related to which of the following?

- a) Early warning system in space to detect debris
- b) Earth observation satellite constellation system
- c) Early warning system of Tsunamis
- d) Low Altitude Defense System

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

ANS: A

Explanation: The Indian Space Research Organisation (ISRO) initiated 'Project NETRA' – an early warning system in space to detect debris and other hazards to Indian satellites.

- The space agency says our SSA (space situational awareness) will first be for low-earth orbits or LEO which have remote-sensing spacecraft.
- Under NETRA, or Network for space object Tracking and Analysis, the ISRO plans to put up many observational facilities: connected radars, telescopes; data processing units and a control centre.
- They can, among others, spot, track and catalogue objects as small as 10 cm, up to a range of 3,400 km and equal to a space orbit of around 2,000 km.

Source: ForumIAS factly

Q.9) Which of the following is/are NOT an air – craft carrier?

1. INS Vikrant
2. INS Viraat
3. INS Arihant

Select the correct answer using the code given below:

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

ANS: C

Explanation: INS Vikrant - Initially laid down as HMS Hercules for the British Navy, but construction was put on hold. India purchased the incomplete carrier in 1957, and construction was completed in 1961 and inducted as first aircraft carrier of India.

- It was decommissioned in 1997, scrapped in 2014.
- INS Vikrant (2013) - First domestically built aircraft carrier expected to join service by 2020.
- INS Viraat - A Centaur-class aircraft carrier commissioned in 1959 as the British Navy's HMS Hermes and later sold to India in 1987 and it was decommissioned in 2017.
- INS Vikramaditya - Originally built as Baku for Soviet Navy and it was entered into Indian Navy in 2013.

Source: The Hindu & ForumIAS factly

Q.10) The famous “Transition to Triumph” book is related to which of the following defense force of India?

- a) Army
- b) Navy
- c) Air-force
- d) Coastguard

ANS: B

Explanation:

Transition to Triumph book is the history of the Indian navy covers the period from 1965 to 1975.

- Indian Naval history (Transition to Triumph) also records that “by themselves the ships of the Eastern Fleet were too few and too slow to enforce contraband control and help would be needed from Vikrant’s aircraft.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

- But the extraordinary extent to which Vikrant's aircraft actually succeeded in assisting ships in contraband control and apprehending merchant ships, over and above their air strikes against East Pakistan, came to be fully realised only after the war."

Source: The Hindu

ForumIAS

Awareness in Science & Technology

Q.1) Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI) is located in which of the following state?

- a) Tamil Nadu
- b) Kerala
- c) Andhra Pradesh
- d) Karnataka

ANS: A

Explanation: Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI) is a Government Company under the administrative control of the Department of Atomic Energy (DAE) incorporated on 22nd October 2003 as Public Limited Company under the Companies Act, 1956.

With the objective of constructing and commissioning the first 500 MWe Fast Breeder Reactor (FBR) at Kalpakkam in Tamilnadu and to pursue construction, commissioning, operation and maintenance of subsequent Fast Breeder Reactors for generation of electricity in pursuance of the schemes and programmes of Government of India under the provisions of the Atomic Energy Act,1962.

Source: The Hindu

Q.2) Which of the following country launched the “PICARD Mission” to monitor the solar diameter, the differential rotation, the solar constant, and to study the long-term nature of their interrelations?

- a) United States of America
- b) France
- c) Italy
- d) United Kingdom

ANS: B

Explanation: Picard is a CNES solar-terrestrial microsatellite mission of the Myriade series with French multi-institutional and international cooperation.

- The overall objective is to monitor the solar diameter, the differential rotation, the solar constant (simultaneous measurement of the absolute total and spectral solar irradiance), and to study the long-term nature of their interrelations.

Source: ForumIAS factly

Q.3) The “C-17 Globemaster” is often seen in news is related to which of the following?

- a) Fighter aircraft
- b) Submarine
- c) Military transport aircraft
- d) Aircraft carrier

ANS: C

Explanation:

Explanation: The C-17 Globe-master military transport aircraft was originally built by Boeing and McDonnell Douglas together for the US Air Force.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

- A high-wing, 4-engine, T-tailed military-transport aircraft, the multi-service C-17 can carry large equipment, supplies and troops directly to small airfields in harsh terrain anywhere in the world day or night.
- The Indian Air Force has a fleet of 11 C-17 Globe-master IIIs.

Source: ForumIAS factly

Q.4) Consider the following statements regarding Indian Institute of Remote Sensing (IIRS):

1. It is located at Dehradun.
2. It is a premier institute with the objective of capacity building in Remote Sensing and Geo-informatics.

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: Indian Institute of Remote Sensing (IIRS) at Dehradun is a premier institute with the objective of capacity building in Remote Sensing and Geo-informatics and their applications through education and training programmes at postgraduate level.

- The Institute also hosts and provides support to the Centre for Space Science and Technology Education in Asia and the Pacific (CSSTE-AP), affiliated to the United Nations.
- The training and education programmes of the Institute are designed to meet the requirements of various target / user groups, i.e., for professionals at working, middle and supervisory levels, fresh graduates, researchers, academia, and decision makers. The duration of courses ranges from one week to two years.

Source: The Hindu

Q.5) Consider the following statements regarding Yuva Vaigyanik Karyakram (YUVIKA):

1. It was launched by NITI Aayog.
2. It was launched for XI standard students to imparting basic knowledge on Space Technology, Space Science and Space 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: D

Explanation: Indian Space Research Organisation has launched a special programme for School Children called “Young Scientist Programme” “YUva VIGyani KARYakram” (युविका) from the year 2019.

The second session of the programme is scheduled to be held during the month of May 2020.

- The Program is primarily aimed at imparting basic knowledge on Space Technology, Space Science and Space Applications to the younger ones with the intent of arousing their interest in the emerging areas of Space activities.
- The program is thus aimed at creating awareness amongst the youngsters who are the future building blocks of our Nation. ISRO has chalked out this programme to “Catch them young”.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

- The programme will be of two weeks duration during summer holidays (May 11-22, 2020) and the schedule will include invited talks, experience sharing by the eminent scientists, facility and lab visits, exclusive sessions for discussions with experts, practical and feedback sessions.
- 3 students each from each State/ Union Territory will be selected to participate in this programme covering CBSE, ICSE and State syllabus.
- 5 additional seats are reserved for OCI candidates across the country. Those who have finished 8th standard and currently studying in 9th standard (in the academic year 2019-20) will be eligible for the programme.
- Students who are studying in India including OCI (Overseas Citizen of India) are eligible for the programme. The selection is based on the 8th Standard academic performance and extracurricular activities.

Source: ForumIAS factly

Q.6) Consider the following statements regarding Agni 5 Missile:

1. It is a two stage nuclear-capable ballistic missile developed by DRDO.
2. Range of Agni 5 Missile is 10000km.

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: India's defence scientists have successfully launched Agni 5, the nuclear-capable ballistic missile, with over 5,000 km range.

- It is a three stage missile, 17 metres tall, and two metres wide and capable of carrying upto 1.5 tonne of payload, especially nuclear warheads.
- It is developed by labs (DRDO) under the Missile Complex in Hyderabad and several industries across the country were first flight tested in 2012.

Source: ForumIAS factly

Q.7) Which of the following is NOT a member of Australia Group?

- a) France
- b) Germany
- c) India
- d) South Africa

ANS: D

Explanation: The 42 states participating in the Australia Group are Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, India, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States. The European Union also participates.

Source: <https://www.armscontrol.org/factsheets/australiagroup>

Q.8) India is NOT a member of which of the following export control regime?

- a) Nuclear Suppliers Group
- b) Australia Group

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

- c) Wassenaar Arrangement
- d) Missile Technology Control Regime

ANS: A

Explanation: NSG consists of 48 members which include the five nuclear weapon states US, UK, France, China, and Russia.

- It is not a formal organization, and its guidelines are not binding. Decisions, including on membership, are made by consensus.
- India is not a member of NSG.

Source: The Hindu

Q.9) “GLONASS” or Global Navigation Satellite System developed by which of the following country?

- a) USA
- b) China
- c) European Union
- d) Russia

ANS: D

Explanation: GLONASS is an acronym, which stands for Globalnaya Navigazionnaya Sputnikovaya Sistema, or Global Navigation Satellite System.

- GLONASS is Russia’s version of GPS (Global Positioning System).
- Soviet Union started the development of GLONASS in 1976.
- GLONASS is the most expensive program of the Russian Federal Space Agency, consuming a third of its budget in 2010.

Source: ForumIAS factly

Q.10) In which of the following city, South Asia's first “proton therapy centre” was launched?

- a) Amravati
- b) Chennai
- c) Bangalore
- d) Cochin

ANS: B

Explanation: South Asia's first proton therapy centre was launched in Chennai. Apollo Proton Cancer Centre, equipped with the path-breaking pencil beam technology, offers hope to cancer patients from India and abroad.

- It is a type of radiation therapy which uses protons rather than x-rays to treat cancer.
- It is considered as one of the most advanced forms of external beam radiation therapy for cancer treatment in the world.
- It is also known as Proton Beam Therapy and offers high levels of precision as compared to other treatment options.

Source: The Hindu

Other Technological Developments

Q.1) 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: The Hindu

Q.2) “National Gene Fund” is constituted by Government of India is related to which of the following Act?

- a) Plant varieties Act, 2001
- b) Biological Diversity Act, 2002
- c) Forest conservation Act, 1980
- d) The Regional Centre for Biotechnology Act, 2016

ANS: A

Explanation: The National Gene Fund constituted by Government of India under section 45 of the Plant varieties Act, 2001. Amongst other things, the fund is also utilized for supporting the conservation and sustainable use of genetic resources including in-situ and ex-situ collections.

- As per provisions of section 70 (2)(a) of the PPV&FR Rules, 2003, the Govt. of India in consultation with the Authority instituted the Plant Genome Savior Community Award (five awards of Rs.10 lakhs each).
- This is being awarded since 2009-10, to the farming community / farmers, particularly of the tribal and rural areas engaged in conservation, improvement and preservation of genetic resources of economic plants and their wild relatives in the

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

areas of agro-biodiversity hotspots (22 Agro-biodiversity hotspots distributed over 7 agro-ecological zones).

- The Government of India has notified the Protection of Plant Varieties and Farmers Rights (Recognition and Reward from the Gene Fund) Rules, 2012, whereby a farmer who is engaged in the conservation of genetic resources of land races and wild relatives of economic plants and their improvement through selection and preservation shall be entitled to “Plant Genome Saviour Farmer Reward & Farmer Recognition” along with cash prize from National Gene Fund.
- There are 10 rewards each comprising of citation, memento and cash of Rs. One and half lakh each and 20 recognitions each consisting of a cash prize of Rs. One Lakh, citation and memento in a year.

Source: Ministry of Science & Technology

Q.3) “Project Kautilya” is related to which of the following?

- a) Financial Reforms
- b) Water Conservation
- c) Electronic Intelligence
- d) River Conservation

ANS: C

Explanation: According to the Ministry of Defense’s annual report of 2013-14, Kautilya for space-borne ELINT System involves the development of Electronic Intelligence payload for integration on an indigenous mini satellite.

The ELINT includes recordings and analysis of intercepted signals and helps create an RF signature of a radar which can in turn be used for locating and quickly identify the radar in subsequent encounters.

Source: Ministry of Defense

Q.4) Consider the following statements regarding New India Space Limited (NISL):

1. It is a wholly owned Government of India undertaking.
2. It is under the administrative control of Department of Space

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 Union Government has set up New Space India Limited (NSIL), a wholly owned Government of India undertaking/ Central Public Sector Enterprise (CPSE), under the administrative control of Department of Space (DOS) on 06th March 2019 to commercially exploit the research and development work of Indian Space Research Organization (ISRO) Centre’s and constituent units of DOS.

Source: Agraphari

Q.5) ICESat mission is launched by which of the following space agency?

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

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

ANS: D

Explanation: The Ice, Cloud and land Elevation Satellite-2, or ICESat-2, will measure the height of a changing Earth – one laser pulse at a time, 10,000 laser pulses a second.

- Launched in 2018, ICESat-2 will carry a laser altimeter that detects individual photons, allowing scientists to measure the elevation of ice sheets, sea ice, forests and more in unprecedented detail.
- Our planet's frozen and icy areas, called the cryosphere, are a key focus of NASA's Earth science research.
- ICESat-2 will help scientists investigate why, and how much, our cryosphere is changing in a warming climate.
- The satellite will also measure heights across Earth's temperate and tropical regions, and take stock of the vegetation in forests worldwide.

Source: NASA

Q.6) Consider the following statements regarding National Innovation Fund (NIF):

1. It is established with assistance of Department of Biotechnology.
2. Its mission is to help India become a creative and knowledge-based society by expanding policy and institutional space for grassroots technological innovators.

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 National Innovation Foundation (NIF) - India was set up in March 2000 with the assistance of Department of Science and Technology, Government of India.

- It is India's national initiative to strengthen the grassroots technological innovations and outstanding traditional knowledge.
- Its mission is to help India become a creative and knowledge-based society by expanding policy and institutional space for grassroots technological innovators.

Source: Agraphari

Q.7) Which of the following is the implementing agency of National Initiative for Development and Harnessing Innovations (NIDHI)?

- a) NITI Aayog
- b) Department of Science & Technology
- c) CSIR
- d) DPIIT

ANS: B

Explanation: NIDHI (National Initiative for Development and Harnessing Innovations), an umbrella program is pioneered by the Department of Science & Technology (DST), Government of India, for nurturing ideas and innovations (knowledge-based and technology-driven) into successful startups.

- To take forward student innovations in IEDC / NewGen IEDC programme to commercialization stage.
- To promote student startups.
- To accelerate the journey of idea to prototype by providing initial funding assistance.

Source: Agraphari

Q.8) “RAISE 2020” is related to which of the following?

- a) CoVID-19
- b) Environmental Conservation
- c) Artificial Intelligence
- d) Organic farming

ANS: C

Explanation: Responsible AI for Social Empowerment 2020 (RAISE 2020) is a global meeting of minds to use Artificial Intelligence (AI) for social empowerment, inclusion and transformation in key areas like Healthcare, Agriculture, Education and Smart Mobility amongst other sectors.

Source: The Hindu

Q.9) Which of the following is covers under TRIPS PLUS provisions?

- a) Automobiles
- b) Marine products
- c) Pharmaceuticals
- d) Data Exclusivity

ANS: D

Explanation: TRIPs Plus are higher level of protection norms demanded by the developed countries that are not prescribed by the WTO’s TRIPs regime.

- Although they are named as ‘TRIPs-Plus,’ they are not formally related to TRIPs. Rather, the term is used to indicate that these requirements go beyond the minimum standards imposed by TRIPs.
- Many developing countries who are members of FTAs are under pressure to enact these tougher conditions in their patent laws.
- An example for advanced norms under TRIPs Plus is the protection demanded by developed countries for data exclusivity.

Source: The Hindu

Q.10) Fast Breeder Test Reactors (FBTR) is located in which of the following place?

- a) Kaiga
- b) Kundankulam
- c) Kalpakkam
- d) Tarapur

ANS: C

Explanation: Indira Gandhi Centre for Atomic Research (IGCAR) has been carrying out a comprehensive R&D on sodium cooled fast breeder reactor technology for the past 30 years.

- A test reactor, called Fast Breeder Test Reactors (FBTR), is in operation from 1985 onwards which has provided valuable feedback.
- Based on this experience and also taking into account the international experience, design of a 500MWe Prototype Fast Breeder Reactor (PFBR) has been done.
- The design has been peer reviewed by international design agencies.
- Indigenously produced Mixed Uranium & Plutonium Oxide will be used as the fuel in the Prototype Fast Breeder Reactor at Kalpakkam.

Source: Agraphari

Other Technological Developments

Q.1) Consider the following statements regarding the “Primordial Black Holes”:

1. PBHs were formed during the Hot Big Bang phase.
2. PBH can be massively large as 3000kms or be extremely tiny like nucleus of an atom.

Which of the following 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: Primordial Black Holes (PBH) were formed during the Hot Big Bang phase.

- PBH can be massively large as 3000kms or be extremely tiny like nucleus of an atom.
- It is believed that they are formed as a result of collapsing radiations as opposed to the collapse of massive stars, which is the case of any other black holes.
- A recent study on Primordial black holes has confirmed that this marginal rise in potential energy resulted in birth of several PBHs and also emitted very powerful gravitational waves.
- Inter University Centre for Astronomy and Astrophysics (IUCAA), has studied primordial black holes that were born as a result of a tiny bump in the potential energy levels of the universe, at a time when it was expanding rapidly.

Source: The Hindu

Q.2) The “Artemis (human spaceflight programme)” is recently in news is launched by which of the following space agency?

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

ANS: C

Explanation: The Artemis program is a US (NASA) government-funded crewed spaceflight program that has the goal of landing "the first woman and the next man" on the Moon, specifically at the lunar South Pole region by 2024.

Source: The Hindu

Q.3) The X-ray Polarimeter Satellite (XPoSat) is a planned space observatory to study polarization of cosmic X-rays – is going to launch by which of the following agency?

- a) ISRO
- b) NASA
- c) JAXA
- d) Both A and B

ANS: A

Explanation: The X-ray Polarimeter Satellite is a planned space observatory to study polarisation of cosmic X-rays.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

- It is planned to be launched in 2021, and to provide a service time of at least five years.
- The telescope is being developed by the Indian Space Research Organisation (ISRO) and the Raman Research Institute.

Source: Indian Express

Q.4) Which of the following country is NOT a member of Quadrilateral Security Dialogue (QSD, also known as the Quad)?

- a) Japan
- b) South Korea
- c) Australia
- d) United States of America

ANS: B

Explanation: The Quadrilateral Security Dialogue (QSD), better known as the 'Quad', started as a strategic dialogue in 2007.

- The dialogue members included India, the US, Australia and Japan.
- It was established to check the growth of Chinese power in what was still referred to as 'Asia-Pacific', and which has since become 'Indo-Pacific'.
- The Quad had its real genesis in the response to the 2004-2005 Asian Tsunami when India showed prowess in spearheading the relief and rescue effort in South East Asia.
- However, the principal aim of the Quad was strategic, with a quest to manage the consequences for the regional balance of power in the Indo-Pacific due to the scale and scope of China's rise.

Source: The Hindu

Q.5) Which of the following pair (s) is/are NOT correctly matched?

- | Operation | : | Associated with |
|---------------------------|---|---------------------------------|
| 1. Operation Samudra Setu | : | Repatriation of Indian citizens |
| 2. Operation Sanjeevani | : | Gulf of Oman |
| 3. Operation Sankalp | : | Maldives |

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: C

Explanation: Indian Navy has launched Operation Samudra Setu - meaning Sea Bridge, as a part of national effort to repatriate Indian citizens from overseas.

- Under Operation Sanjeevani an Indian Air Force (IAF) C-130J transport aircraft delivered 6.2 tons of essential medicines and hospital consumables to Maldives.
- Indian Navy launched Operation Sankalp in the Persian Gulf and the Gulf of Oman on Thursday to reassure Indian flagged vessels transiting through the area following the recent maritime incidents in the region.

Source: The Hindu

Q.6) Which of the following pair (s) is/are correctly matched?

- | Missile /Defense system | : | Origin Country |
|-------------------------|---|----------------|
| 1. Spike Missile | : | Israel |

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

2. Tsirkon missile : Russia
3. Maareech torpedo defense system : India

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: D

Explanation: Russian administration announced on Russian Navy would be equipped with hypersonic nuclear strike weapons and underwater nuclear drones.

- Tsirkon hypersonic cruise missile is designed to be carried on surface ships; it is under final phase of testing.

Spike Missile: Spike is an Israeli fire-and-forget anti-tank guided missile and anti-personnel missile.

- It was developed and designed by the Israeli company Rafael Advanced Defense Systems.

Maareech torpedo defense system: It is an Advanced Torpedo Defence System (ATDS) that is capable of being fired from all frontline ships.

- It has been designed and developed indigenously by DRDO.
- It is capable of detecting, locating and neutralizing incoming torpedoes.

Source: Indian Express & ForumIAS

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

1. It is a flagship national programme, is working for a world where no child is born with HIV/Acquired Immunodeficiency Syndrome (AIDS).
2. It is implemented by National AIDS Control Organization (NACO) with the support of World Health Organization.

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: AHANA, a flagship national programme, is working for a world where no child is born with HIV/Acquired Immunodeficiency Syndrome (AIDS).

- It focuses on the elimination of mother-to-child transmission of HIV and is implemented by Plan India with support from The Global Fund.
- AHANA is being implemented in close coordination with the National AIDS Control Organisation (NACO) and National Health Mission (NHM) to influence policies and strategies in both the design and implementation phases of the National Health Mission Programme.
- AHANA aims to cover 55% of India’s annual pregnancy load and reach 16.5 million annual pregnancies across 357 districts in 14 states each year with HIV testing.
- AHANA also provides care and support to HIV exposed babies until they are 18 months old, along with facilitating postpartum care for the lactating mother.

Source: The Hindu & ForumIAS

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

Q.8) Consider the following statements regarding the “National Biopharma Mission”:

1. It is an Industry-Academia Collaborative Mission of Department of Biotechnology (DBT).
2. It is co-funded by the Asian Development Bank and is being implemented at Biotechnology Research Assistance Council (BIRAC).

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: National Biopharma Mission is an Industry-Academia Collaborative Mission of Department of Biotechnology (DBT).

- It aims for accelerating discovery research to early development for Biopharmaceuticals approved by the Cabinet for a total cost US\$ 250 million.
- It is 50% co-funded by the World Bank is being implemented at Biotechnology Research Assistance Council (BIRAC).
- This program is dedicated to deliver affordable products to the nation with an aim to improve the health standards of India’s population.

Q.9) Consider the following statements regarding “INS Arihant”:

1. It is India’s first indigenously built nuclear submarine.
2. It is a ship submersible ballistic, nuclear (SSBN) submarine.
3. French designers assisted in building the Arihant.

Which of the statements given above is/are correct?

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

ANS: B

Explanation: INS Arihant is India’s first nuclear-powered submarine.

- The ship submersible ballistic, nuclear (SSBN) submarine was launched at the Indian Navy’s dockyard in Visakhapatnam, which is the headquarters of India’s Eastern Naval Command.
- Indian Prime Minister Manmohan Singh, who has inaugurated the vessel into the Indian Navy, asserted that the indigenously built submarine would be used for self defence.
- The name Arihant derives from two words – Ari meaning enemy and Hanth meaning destroy.
- Arihant, India’s first indigenously built nuclear submarine, cost \$2.9bn.
- It was jointly developed by the Indian Navy, Bhabha Atomic Research Centre (BARC) and Defence Research and Development Organisation (DRDO) at the naval dockyard in Visakhapatnam.
- Russian designers assisted in building the vessel.

Source: The Hindu

Q.10) Consider the following statements regarding “Lithium”:

1. It has the lowest density of all metals.
2. It is used in rechargeable batteries for mobile phones, laptops, digital cameras and electric vehicles.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

3. Lithium is abundantly available in India.

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

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

ANS: C

Explanation: Lithium is an alkali metal. It has the lowest density of all metals.

- The most important use of lithium is in rechargeable batteries for mobile phones, laptops, digital cameras and electric vehicles.
- But as well as the lithium-ion batteries for which it has grown in popularity, the highly reactive and flammable alkali mineral – sometimes referred to as “white gold” – is also used in ceramics and glass, lubricating greases, polymer production, and air treatment.
- According to the latest figures from the US Geological Survey (USGS), global lithium production in 2018 reached around 85,000 tonnes – up from 69,000 in the previous year.
- Continued exploration efforts have seen global lithium resource estimates reach 62 million tonnes – a significant proportion of which are located in South America’s “lithium triangle” – an area encompassing Chile, Argentina and Bolivia.
- India currently imports all its lithium needs.
- It imported lithium batteries worth \$1.2 billion in fiscal 2019, up from \$384 million in FY17.
- Recently researchers at the Atomic Minerals Directorate, a unit of India’s Atomic Energy Commission, have estimated lithium reserves of 14,100 tonnes in a patch of land surveyed in Mandya, 100 km from Bengaluru.

Source: The Hindu

Indian Society & Welfare

Q.1) Which of the following is/are NOT correctly matched?

Organization	:	Founder/President
1. South India Liberal Federation	:	C N Annadurai
2. Bahishkrit Hitkarni Sabha	:	Jyotirao Phule
3. Sree Narayana Dharma Paripalana Yogam	:	Narayana Guru

Select the correct answer using the code given below:

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

ANS: B

Explanation: The Justice Party, earlier South Indian Liberal Federation, was a political party in the Madras Presidency of British India. It was established in 1916 by Natesa Mudaliar and co-founded by T. M. Nair and P. Theagaraya Chetty as a result of a series of non-Brahmin conferences and meetings in the presidency.

- Bahishkrit Hitakarini Sabha is a central institution formed by Dr. Babasaheb Ambedkar for removing difficulties of the untouchables and placing their grievances before government.
- S.N.D.P. means Sri Narayana Guru Dharma Paripalana Yogam or sangam. Narayana Guru through his socio religious teachings and writings has become so famous in the socio-religions and political scenario of Kerala during 19th century that all the young people turned towards the reformative movements of Sri Narayana Guru and voluntarily they have redesignated their former youth association (it's called Vivatu sangha) as S.N.D.P. It was registered as a joint stock company in January 1903 with Sri Narayana Guru as life time president.

Source: NCERT

Q.2) The Prerana MyTree, an eco-initiative by students is started in which of the following state?

- a) Kerala
- b) Karnataka
- c) Andhra Pradesh
- d) Tamil Nadu

ANS: B

Explanation: In the wake of 16-year-old Greta Thunberg's call for standing up for climate action, students all over the world are heeding her clarion call.

- On Children's Day, students in Bengaluru and Karnataka are doing their bit for the environment by planting trees.
- Prerana MyTree, an eco-initiative by students from 48,000 government schools across Karnataka will plant about 2.5 lakh trees across the state.
- Prerana MyTree is supported by the state government, the NGO Sikshana Foundation, Dell and Bengaluru-based startup, Eyeris Media.

Source: The Hindu

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

Q.3) The term Principle of Non-Refoulement often seen in news is related to which of the following?

- a) Economic offender
- b) Refugees
- c) Right to property
- d) Polluter pay principle

ANS: B

Explanation: Non-refoulement is a fundamental principle of international law.

- It prohibits states from forcibly returning refugees to conditions that caused them to flee their homes in the first place, where they would be likely in danger of persecution based on race, religion, nationality, membership of a particular social group or political opinion.
- It is also in charge of the exchequer control and internal audits.

Source: The Hindu

Q.4) Which of the following pair (s) is/are correctly matched?

Organization	:	Founder
1. Dharma Sabha	:	Raja Radhakant Deb
2. Tattvabodhini Sabha	:	Rabindranath Tagore
3. Brahmo Samaj of India	:	Rammohan Roy

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: Dharma Sabha: The orthodox Hindu led by Raja Radhakant Deb organised the 'Dharma Sabha' with the object of countering the propaganda of BrahmoSamaj.

- Tatvabodhini Sabha: Debendranath Tagore, father of Rabindranath Tagore founded the Tatvabodhini Sabha in 1839 to propagate Rammohun Roy's ideas. The Tatvabodhini Sabha and its organ the Tatvabodhini Patrika promoted a systematic study of India's past in Bengali language and helped spread rational outlook.
- Brahmo Samaj of India: Keshubsen and his followers broke away from Brahmo samaj in 1866 and established what was called the 'Brahmo Samaj of India'.

Source: e-gyankosh

Q.5) The "Global Social Mobility Index" is released by which of the following International Institution?

- a) UNESCO
- b) United Nations Development Programme (UNDP)
- c) World Economic Forum (WEF)
- d) UNICEF

ANS: C

Explanation: India has been ranked very low at 76th place out of 82 countries on a new Social Mobility Index compiled by the World Economic Forum, while Denmark has topped the charts.

The report, released ahead of the 50th Annual Meeting of the WEF, also lists India among the five countries that stand to gain the most from a better social mobility score that seeks

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

to measure parameters necessary for creating societies where every person has the same opportunity to fulfill his potential in life irrespective of socioeconomic background.

Source: The Hindu

Q.6) Consider the following statements regarding the World Population Prospects 2019 report:

1. It is published and released by World Economic Forum.
2. According to the report, India is projected to overtake China as the world's most populous country by 2027.

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 key message from the UN's World Population Prospects 2019 report is that national leaders must redouble their efforts to raise education, health and living standards for people everywhere.

- India is projected to become the most populous country by 2027 surpassing China, and host 1.64 billion people by 2050;
- The world as a whole could be home to 8.5 billion people in just over a decade from now, and the number could go up to 9.7 billion by mid-century.
- The largest increases in population between 2019 and 2050 will take place in: India, Nigeria, Pakistan, the Democratic Republic of the Congo, Ethiopia, the United Republic of Tanzania, Indonesia, Egypt and the United States of America (In descending order of the expected increase).
- The UN report shows migration to countries with a falling ratio of working-age people to those above 65 will be steady, as those economies open up to workers to sustain economic production.
- Japan has the lowest such ratio, followed by Europe and the Caribbean; in over three decades, North America, Eastern and Southeastern Asia will join this group.
- India meanwhile will have a vast number of young people and insufficient natural resources left for exploitation. Preparing for the changes and opportunities migration offers will depend on a skills revolution.

Source: The Hindu

Q.7) According to the International Labour Organization (ILO) report, working on a warmer planet: The impact of heat stress on labour productivity and decent work, which of the following sector is the most affected?

- a) Agriculture sector
- b) Manufacturing sector
- c) Construction business
- d) Service sector

ANS: A

Explanation: According to the International Labour Organization (ILO) report, Working on a warmer planet: The impact of heat stress on labour productivity and decent work, Globally two sectors projected to be hit worst are agriculture and construction, with agriculture worse affected.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

- The ILO says 940 million people around the world work in the agricultural sector, which is projected to account for 60% of working hours lost due to heat stress by 2030.
- In construction, an estimated 19% of global working hours are likely to be lost.

Source: The Hindu

Q.8) Which of the following indicators used by Global Hunger Index for ranking countries?

1. Undernourishment
2. Child wasting
3. Child stunting
4. Child mortality

Select the correct answer using the code given below:

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

ANS: D

Explanation: The 14th Global Hunger Index (GHI) 2019 was released recently and it had ranked India a lowly 102 among the 117 countries it had mapped.

- The GHI has been brought out almost every year by Welthungerhilfe (lately in partnerships with Concern Worldwide) since 2000.
- A low score gets a country a higher ranking which implies a better performance.
- The reason for mapping hunger is to ensure that the world achieves –Zero Hunger by 2030 - one of the Sustainable Development Goals of the United Nations.

Four indicators of GHI –

- Undernourishment (which reflects inadequate food availability)
- Child Wasting (which reflects acute under nutrition)
- Child Stunting (which reflects chronic under nutrition)
- Child Mortality (which reflects both inadequate nutrition and unhealthy environment)

Source: The Hindu

Q.9) The “Nagpur Resolution” is often seen in news is related to which of the following?

- a) Green corridors
- b) Public participation
- c) Organic farming
- d) Electoral reforms

ANS: B

Explanation: Nagpur Resolution is a holistic approach for empowering citizens adopted during regional conference organized by DARPG in Nagpur.

- The conference was organized by the Department of Administrative Reforms and Public Grievances (DARPG), in collaboration with the Government of Maharashtra.
- The resolution aims to empower the citizens by policy interventions for better service delivery through timely updating of citizens charters, implementation of enactments and benchmarking standards for continuous improvement.
- It also aims to ensure timely publication of Good Governance Index to identify the quality of governance in 10 sectors especially those pertaining to welfare and infrastructure at the Union, State and District levels.

Source: ForumIAS factly

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

Q.10) The “Spandana initiative” is often seen in news is related to which of the following state?

- a) Tamil Nadu
- b) Kerala
- c) West Bengal
- d) Andhra Pradesh

ANS: D

Explanation: It is an initiative of Andhra Pradesh Government to make police stations more approachable for the public, especially women.

- Spandana (means response) centers have been established within the premises of all District Collector offices and police stations.
- These centers mostly have a female receptionist and other staff members who are trained, briefed and sensitized in handling women victims and complainants.
- Spandana centres spread across the district, and each have video conferencing facility, it is easier and cheaper for people to lodge complaints.

Source: The Hindu

Revision

Q.1) With respect to World Economic Forum's Global Gender Gap Report 2020, India has improved its ranking in which of the following indicators?

- a) Political Empowerment
- b) Health and survival
- c) Educational attainment
- d) Economic participation

ANS: A

Explanation: Global Gender Gap Report, 2020 by World Economic Forum benchmarks 153 countries on their progress towards gender parity across four thematic dimensions:

- Economic Participation and Opportunity
- Educational Attainment
- Health and Survival, and
- Political Empowerment.

India slipped four places to 112th rank and has closed two-thirds of its overall gender gap (score of 66.8%).

While India has improved in political empowerment, it has fallen in other three indicators.

India is the only country among the 153 countries studied where the economic gender gap is larger than the political one.

Source: ForumIAS factly

Q.2) Consider the following statements regarding the Commission on the Status of Women (CSW):

1. It is the principal global intergovernmental body exclusively dedicated to the promotion of gender equality and the empowerment of women.
2. It is a functional commission of ECOSOC.
3. It monitors and reviews the progress and problems in the implementation of the Beijing Declaration and Platform for Action.

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: D

Explanation: Commission on the Status of Women (CSW).

- The Commission on the Status of Women (CSW) is the principal global intergovernmental body exclusively dedicated to the promotion of gender equality and the empowerment of women.
- A functional commission of the Economic and Social Council (ECOSOC), it was established by ECOSOC resolution 11(II) of 21 June 1946.
- The CSW is instrumental in promoting women's rights, documenting the reality of women's lives throughout the world, and shaping global standards on gender equality and the empowerment of women.
- In 1996, ECOSOC in resolution 1996/6 expanded the Commission's mandate and decided that it should take a leading role in monitoring and reviewing progress and

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

problems in the implementation of the Beijing Declaration and Platform for Action, and in mainstreaming a gender perspective in UN activities.

Source: Laxmikanth

Q.3) Consider the following statements regarding the provisions of the Protection of Children from Sexual Offences (POCSO) Act:

1. The Act defines a child as any person below sixteen years of age.
2. It is a gender neutral law.
3. It recognizes consensual sexual acts among children or between a child and an adult.

Which of the statements given above is/are correct?

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

ANS: B

Explanation: To deal with child sexual abuse cases, the Government has brought in a special law, namely, The Protection of Children from Sexual Offences (POCSO) Act, 2012. The Act has come into force with effect from 14th November, 2012 along with the Rules framed there under.

Provisions of the Protection of Children from Sexual Offences (POCSO) Act:

- The Act defines a child as any person below eighteen years of age and regards the best interests and well-being of the child as being of paramount importance at every stage, to ensure the healthy physical, emotional, intellectual and social development of the child.
- It defines different forms of sexual abuse, including penetrative and non-penetrative assault, as well as sexual harassment and pornography, and deems a sexual assault to be “aggravated” under certain circumstances, such as when the abused child is mentally ill or when the abuse is committed by a person in a position of trust or authority vis-à-vis the child, like a family member, police officer, teacher, or doctor
- It also seeks to establish Special Courts for speedy trial of such offences. The Act stipulates that a case of Child Sexual Abuse must be disposed of within one year from the date the offence is reported.
- It also provides for relief and rehabilitation of the child, as soon as the complaint is made. The Special Juvenile Police Unit or the local police are also required to report the matter to the Child Welfare Committee within 24 hours of recording the complaint, for long term rehabilitation of the child.
- It is gender neutral law, wherein the law takes cognizance of sexual crimes committed against both girls and boys under the age of 18 years.
- It does not recognize consensual sexual acts among children or between a child and an adult. Prosecutes any person (including a child) for engaging in a sexual act with a child irrespective of whether the latter consented to it.

Source: ForumIAS factly

Q.4) The “Hague Convention” is related to which of the following?

- a) Child adoption
- b) Women empowerment
- c) International Justice
- d) None

ANS: A

Explanation: The Hague Convention protects children and their families against the risks of illegal, irregular, premature or ill-prepared adoptions abroad. To do this, the Hague Convention puts:

- safeguards in place to make sure that all inter-country adoptions are in the best interests of the child and respects their human rights,
- a system in place of cooperation among countries to guarantee that these safeguards are respected, and to prevent the abduction of, sale of, or traffic in children.

For Hague adoptions, the authorities in both countries must agree to go ahead with the adoption. For non-Hague adoptions, requirements may vary from one country to another.

The Hague Convention does not allow private adoptions in the child's home country.

Source: The Hindu

Q.5) NATIONAL LEGAL SERVICES AUTHORITY (NALSA) VS UNION OF INDIA case is related to which of the following?

- a) Sexual harassment at work place
- b) Domestic violence
- c) Transgender
- d) Child rights

ANS: C

Explanation: NATIONAL LEGAL SERVICES AUTHORITY (NALSA) VS UNION OF INDIA case was filed by the NALSA to legally recognize persons who fall outside the male/female gender binary, including persons who identify as "third gender".

- This was a landmark decision where the apex court legally recognised "third gender"/transgender persons for the first time and discussed "gender identity" at length.
- The Court recognised that third gender persons were entitled to fundamental rights under the Constitution and under International law.
- Further, it directed state governments to develop mechanisms to realise the rights of "third gender"/transgender persons.

Source: Laxmikanth

Q.6) The term "Bandicoot" is related to which of the following?

- a) Child labour Alert system
- b) Man-hole cleaning robot
- c) Risk alert app for women
- d) None

ANS: B

Explanation: Bandicoot is a robotic system for manhole and sewer line cleaning aimed at the complete elimination of manual scavenging from the face of earth.

The Greater Hyderabad Municipal Corporation (GHMC) in 2019 procured a 'Bandicoot', which would help end the practice of manual scavenging.

Source: The Hindu

Q.7) The term "Total Polar Compounds" is often seen in news is related to which of the following?

- a) Edible oils
- b) Crude oil

- c) Ocean deposits
- d) Cosmetics and Shampoos

ANS: A

Explanation: During frying, oil undergoes degradation due to their exposure to elevated temperatures which result in changes in the physico-chemical, nutritional and sensory properties of the oil.

- Polar compounds are formed during frying.
- The toxicity of these compounds is associated with several diseases such as hypertension, atherosclerosis, Alzheimer's disease liver diseases etc.
- Therefore, it is essential to monitor the quality of vegetable oils during frying.
- In order to safeguard consumer health, FSSAI has fixed a limit for Total Polar Compounds at 25% beyond which the vegetable oil shall not be used. Therefore, Vegetable Oils should not be repeatedly used for frying.
- The estimation of Total Polar Compounds (TPC) is a widely accepted parameter to decide whether the oil is safe for further use or not.
- The TPC Value is considered a better indicator since it refers to all degraded products from the initial triglycerides present in the oil.

Source: The Hindu

Q.8) Consider the following statements regarding the “five-day annual International Pulsar Timing Array (IPTA) meet”:

1. It is hosted by Pune based National Centre for Radio Astrophysics (NCRA).
2. The IPTA is a collaboration of radio astronomers from a dozen countries across the globe.
3. It uses more than 12 radio telescopes all over the world with an aim to detect ultra-low frequency gravitational waves.

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: D

Explanation: The Pune-based National Centre for Radio Astrophysics (NCRA) is all set to host the five-day annual International Pulsar Timing Array (IPTA) meet from June 17 to 21.

- The IPTA is a collaboration of radio astronomers from a dozen countries across the globe.
- It uses more than 12 radio telescopes all over the world with an aim to detect ultra-low frequency gravitational waves.
- More than 40 expert international astronomers and 30 international students are expected to participate in the event, besides several Indian participants.
- “The upgrade of the Giant Metrewave Radio Telescope (GMRT) in Pune and the Ooty Radio Telescope (ORT) has helped us meet the parameters for being a full member of the IPTA.
- The current status of the quest for ultra-low frequency Gravitational Waves and the roadmap for future technical and scientific challenges is to be the main focus of the meeting.
- These waves are wrinkles in space-time produced by two massive black holes, each revolving around the other.
- Such black holes, which weigh billion times more than our Sun, are found in the centres of colliding galaxies.

PRELIMS MARATHON COMPILATION FOR THE MONTH OF AUGUST (SECOND WEEK), 2021

- These waves affect radio pulses from 10km size stars called radio pulsars by changing ever so slightly the period of radio pulsation of these stars.

Source: Indian Express

Q.9) Consider the following statements regarding “Cell for IPR Promotion and Management (CIPAM)”:

1. It is a professional body which ensures focused action on issues related to IPRs.
2. It works under Department of Science & Technology.

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: A professional body under the aegis of Department for Promotion of Industry and Internal Trade (DPIIT) which ensures focused action on issues related to IPRs and addresses the 7 identified objectives of the policy.

- CIPAM assists in simplifying and streamlining of IP processes, apart from undertaking steps for furthering IPR awareness, commercialization and enforcement.
- Simplifying and streamlining of IP processes by formulating and implementing a focused strategy for each policy objective
- Coordination with State level agencies and Ministries/ Departments of the Government of India, industry bodies as well as international agencies; IP cells to be set up
- IPR awareness campaign across the country in schools,colleges/universities and the industry
- Training and sensitization programmes for enforcement agencies and Judiciary; coordination for effective enforcement of IPR rights.
- Study and facilitate implementation of best practices for promotion and commercialization of IP within the country

Source: ForumIAS factly

Q.10) “Lunar X Prize” is recently in news is sponsored by which of the following social media giant?

- a) Face Book
- b) Google
- c) YouTube
- d) Twitter

ANS: B

Explanation: The Google Lunar XPRIZE (GLXP), sometimes referred to as Moon 2.0, was a 2007–2018 inducement prize space competition organized by the X Prize Foundation, and sponsored by Google.

The challenge called for privately funded teams to be the first to land a robotic spacecraft on the Moon, travel 500 meters, and transmit back to Earth high-definition video and images.

Source: The Hindu