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1. Lopinavir and Ritonavir are used to treat which of the following ailments?

A. HIV-AIDS

B. Tuberculosis

C. Malaria

D. Covid-19

Answer: A

Explanation

- Anti-HIV drugs Lopinavir and RItonavir are no longer recommended for use against COVID-19
- Instead, a combination of hydroxychloroquine (HCQ) which is drug for autoimmune disorders, and the antibiotic azithromycin are recommended for use in severe patients

2. Which of the following are true w.r.t. PM CARES?

1. PM is the proverbial 'judge, jury and executioner' of the fund

2. It was created in 1948 to mitigate the consequences of untold disasters among others

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

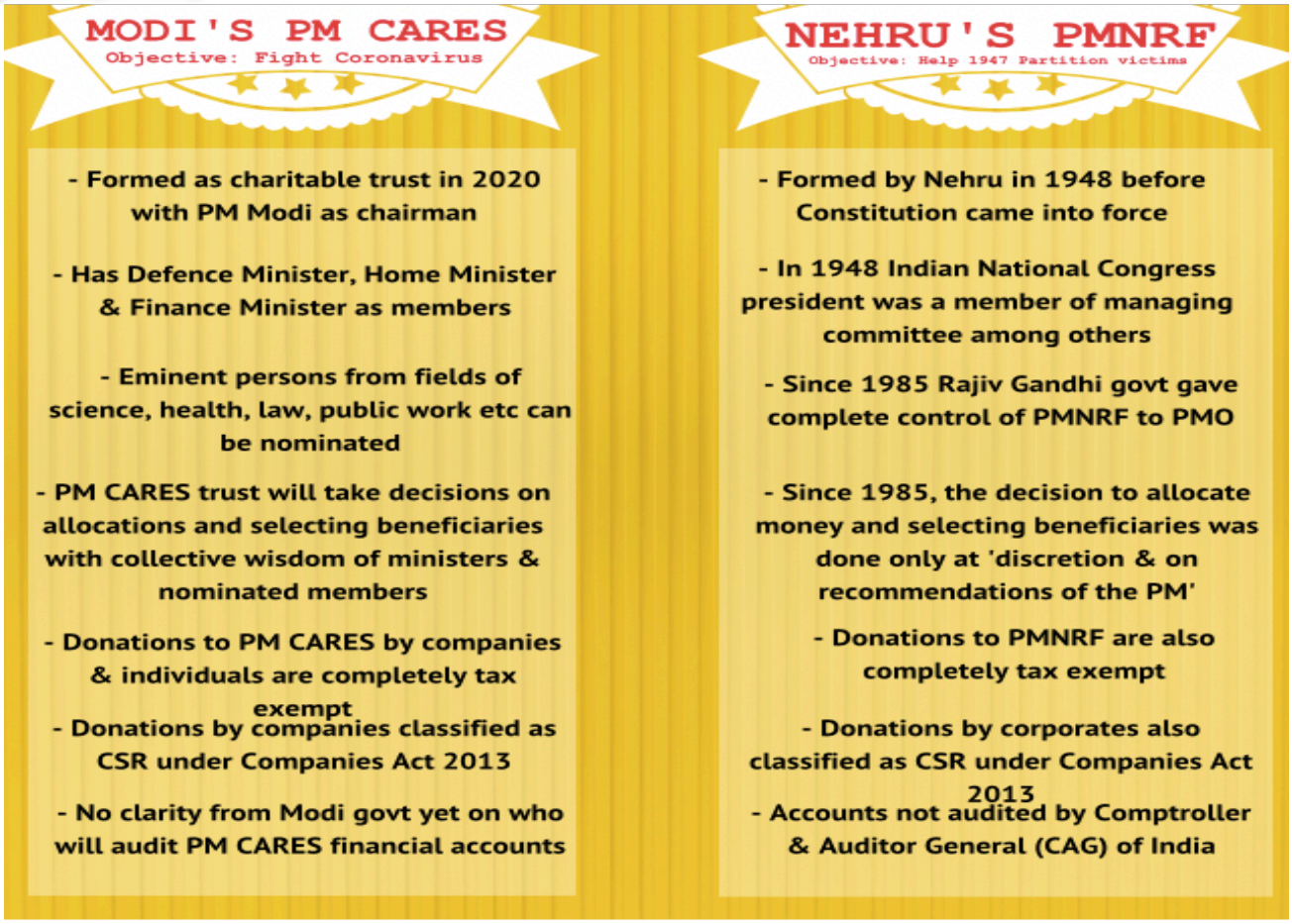
Answer: D

Explanation

- PM National Relief Fund (PMNRF) was launched in 1948 and PM Citizens Assistance and Relief in Emergency Situations (PM CARES) fund is launched by PM Modi in 2020

  ✓Both mitigating the consequences of untold disasters and consequent human flights to escape misery and destitution

- PM CARES delegates the power of deliberation and decision making to three other ministers of the government, who handle some of the most crucial portfolios. Apart from PM Modi who will chair the trust, it also has his top three ministers



3. Which of the following are true in the context of Defence Sector?

1. **Indian exports are rising and imports are on a decline**
2. **Indian defence exports have experienced a rise since last 5 years**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

- Stockholm International Peace Research Institute (SIPRI) report states that in the period between 2009-13 and 2014-18, Indian defence imports fell even as exports increase
- The period between 2012 and 2019 saw Indian defence exports experiencing a considerable jump sourced from Indian public and private sector enterprises. In the last two fiscal years, 2017-18 and 2018-19, exports have witnessed a surge from ₹7,500 crore to ₹11,000 crore, representing a 40% increase in exports

4. Under Operation Sanjeevani, India supplied essential medicines to which of the following country?

A. Maldives

B. China

C. Italy

D. Spain

Answer: A

5. World Economic Situation and Prospects report is released by

A. IMF

B. UNCTAD

C. World Bank

D. WEF

Answer: B

Explanation

- UNCTAD observed that the Covid-19 would cost $1 trillion to the global economy in 2020
- UNCTAD is a permanent intergovernmental body headquartered at Geneva and publishes
  - ✓ Trade and Development Report
  - ✓ World Investment Report
  - ✓ Technology and Innovation Report

6. Sahyog-Kaijin is a joint military exercise between India and

A. Japan

B. Bangladesh

C. Sri Lanka

D. Australia

Answer: A

7. US administration has recently cleared the sale of Harpoon missiles to India? These missiles are

A. anti-tank missiles

B. anti-ship missiles

C. anti-aircraft missiles

D. None of the above

Answer: B

Explanation

- Harpoon missiles are air-launched anti-ship missiles
- These will be integrated into the P-8I anti-submarine warfare aircraft to conduct anti-surface warfare missions in defence of critical sea lanes while enhancing interoperability with the US and other allied forces
- While the Harpoon missiles will be manufactured by Boeing

8. Draft Defence Procurement Procedure-2020 was recently unveiled. Which of the following are true in this context?

1. It proposes to raise by 10% the indigenous content stipulated in DPP 2016

2. It introduced a new procurement category entitled Buy (Global-Manufacture in India)

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

Buy (Global-Manufacture in India) category stipulates a minimum indigenous content of 50% of the value of contract. This category would be given a higher preference than the current Buy Global category

9. Which of the following are the operational aircraft carriers of Indian Navy

1. INS Virat

2. INS Vikramaditya

3. INS Vikrant

4. INS Vishal

A. 1 and 3 only

B. 2 only

C. 2, 3 and 4 only

D. All of the above

Answer: B

Explanation

- INS Viraat was decommissioned in 2017
- India's only operational aircraft carrier is Russia built INS Vikramaditya. It joined the fleet in 2013
- Cochin Shipyard Ltd (CSL) will make INS Vikrant fully operational by 2022
- Navy has proposed to build a second indigenous aircraft carrier, INS Vishal

10.Which of the following are true?

1. **India's budgetary allocations for defence sector are more for defence's revenue expenditure**
2. **The largest increase in terms of budgetary allocation for capital expenditure is for the Indian Army**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

- There is only a marginal increase in the defence budget allocation from INR 318,000 crore in Financial Year (FY) 2019-20 to INR 337,533 crore for FY 2020-21
- The allocation for the revenue head continues to be more than the capital expenditure
  - ✓Revenue allocation is essential for the maintenance of the weapons, equipment, transport and ammunition for the smooth functioning of the armed forces, apart from repairs, overhauls and procurements for the recoupment of stores and reserves
- The largest increase in terms of budgetary allocation for capital expenditure is for the IAF followed by Army

11.Kisan-Rath app relates to

A. Facilitate transport of food grains and perishables during lockdown

B. Divert industry labour stranded during lockdown to farms

C. On-field soil testing for better produce

D. None of the above

Answer: A

Explanation

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- It is an app developed by the National Informatics Centre (NIC) to facilitate farmers & traders in searching transport vehicles for Primary and Secondary transportation for movement of agriculture and horticulture produce.

12.Which of the following are true in the context of Swayam Prabha

1. **It is a group of 32 DTH channels devoted to telecasting of high-quality educational programmes on 24x7 basis**
2. **There will be new content for at least 4 hours which would be repeated 5 more times in a day**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

- Swayam Prabha is a group of 32 DTH channels devoted to telecasting of high quality educational programmes on 24X7 basis using the GSAT-15 satellite
- Every day, there will be new content for at least (4) hours which would be repeated 5 more times in a day, allowing the students to choose the time of their convenience
- It will cover
  - ✓Higher Education: Contents at post-graduate and under-graduate level covering diverse disciplines
  - ✓School Education: 9-12 levels
  - ✓Curriculum-based courses that can meet the needs of life-long learners of Indian citizens in India and abroad
  - ✓Assist students (class 11th & 12th) prepare for competitive exams

13.Which of the following is/are true in the context of e-Raktkosh Portal?

A. IT solution to standardize and streamline the standard operating procedures, guidelines and workflow of blood banks across nation

B. Provide information on availability of nearest blood bank, status of blood group etc.

C. It enforces Drug & Cosmetic Act, National Blood Policy Standards and Guidelines

D. All of the above

Answer: D

Explanation

- e-RaktKosh is a comprehensive IT solution attempting to address the problem of blood stock availability by providing means to collect, disseminate, standardize and streamline the standard operating procedures, guidelines and workflow of blood banks across the nation
- It enforces Drug & Cosmetic Act, National Blood Policy Standards and Guidelines, thus ensuring proper collection & donation, effective management and monitoring the quality and quantity of the donated blood
- Salient Features
  - ✓Web based application on open source platform
  - ✓Configurable to support varied size & flow of Blood Banks
  - ✓Enforcing Mechanism - to ensure compliance with Standard protocols
  - ✓Biometric Interfacing - to restrict professional donors
  - ✓Adhere to Drug & Cosmetic act, NACO & NABH Guidelines
  - ✓Provision of Multilingual Questionnaire & Consent Printing
  - ✓Generation of alerts, MIS Reports, trends, forecasting etc.

14.COVID India Seva falls under the purview of

A. NITI Aayog

B. Ministry of Health & Family Welfare

C. Prime Minister's Office

D. Ministry of Science & Technology

Answer: B

Explanation

- Ministry of Health & Family Welfare has launched COVID India Seva for establishing a direct channel of communication with millions of Indians during novel coronavirus pandemic
- The interactive platform is aimed at enabling transparent e-governance delivery in real-time and answering citizen queries without delay especially in crises like the ongoing COVID-10 pandemic.

15.Sahyog App relates to which of the following?

A. Geospatial application to support corona fighters

B. Complaints and grievances in context of Income tax department

C. Raising legal awareness

D. None of the above

Answer: A

Explanation

- Survey of India has developed an e-platform that will collect geotagged information on the nation's critical infrastructure in order to help the government and public health agencies take critical decisions in response to the COVID-19 pandemic.
- Survey of India has introduced the Sahyog app to compliment Aarogya Setu.

16.Which of the following are false in the context of Malaria?

1. **It attacks White blood cells**
2. **It cannot be transmitted from one person to other**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

Statement 1 is incorrect and Statement 2 is correct

- World Malaria Day is celebrated on April 25 every year and the theme for 2020 is "Zero malaria starts with me"
- It is caused by parasite called Plasmodium and spreads by the bite of female Anopheles mosquito
- The parasite matures and multiplies in the human liver and destroys red blood cells
- It cannot be transmitted form one person to another but can be passed on from the mother to the newborn

17.Which of the following are true about Tuberculosis?

1. **TB is a disease of the lungs and it spread through droplets**
2. **BCG vaccine can be administered to children not less than 5 years of age**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

Explanation

Both the statements are incorrect

- World TB day is commemorated on 24 March every year to raise awareness
- While TB is known primarily as a pulmonary (lung) disease, it can also affect other parts of the body, including the kidneys, brain, and spine.
- TB is an airborne disease

  ✓It spread through expelled droplets every time an infected person coughs, sneezes or spits
- The Bacillus Calmette-Guerin (BCG) vaccine is recommended for healthy babies, to be administered as soon as possible after they're born

18.Hepatitis is a viral infection that affects

A. Kidneys

B. Lungs

C. Reproductive organs

D. Liver

Answer: D

Explanation

- World Hepatitis day is commemorated on July 28
- Hepatitis is a viral infection that affects the liver and is a leading cause of death
- There are five different types of viral hepatitis, A, B, C, D and E
- All of them are contagious and some are life threatening too
- Hepatitis A and E are waterborne, and are self limiting and don't normally last beyond six months. However, they can be severe, incapacitating and fatal during this period
- Hepatitis B, C and D are transmitted by bodily fluids (via syringes, needles, infections, toothbrushes, razors) and HBV and HBC can give rise to acute illness like HBA and HBE but can also cause chronic liver disease (cirrhosis of liver or cancer of liver)

  ✓HBD infection occurs only if a person has HBV

19.Which of the following statement(s) is/are correct in the context of HIV AIDS?

1. **Most AIDS victims die of cancer, pneumonia, and other diseases**
2. **Girls account for more adolescent HIV infections than boys**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

- World AIDS Day is commemorated on 1 December
- HIV takes over and kills a type of white blood cell, CD4 T-cells, which protect the body from infection
- It is transmitted via exchange of body fluids. Once the immune system is shut down, the infected person has full-blown AIDS and is vulnerable to all infections. Most AIDS victims die of cancer, pneumonia, and other diseases
- An estimated 120,000 children and adolescents aged 0-19 were living with HIV in India in 2017, the highest number in South Asia, according a report by UNICEF
- The number of mother-to-child infections have fallen by around 40 percent in the last eight years, but girls still account for two-thirds of all adolescent HIV infections, and rates of infection among older children are the slowest to decline

20.DRDO has developed a microwave steriliser for coronavirus. It is named

A. Atuyla

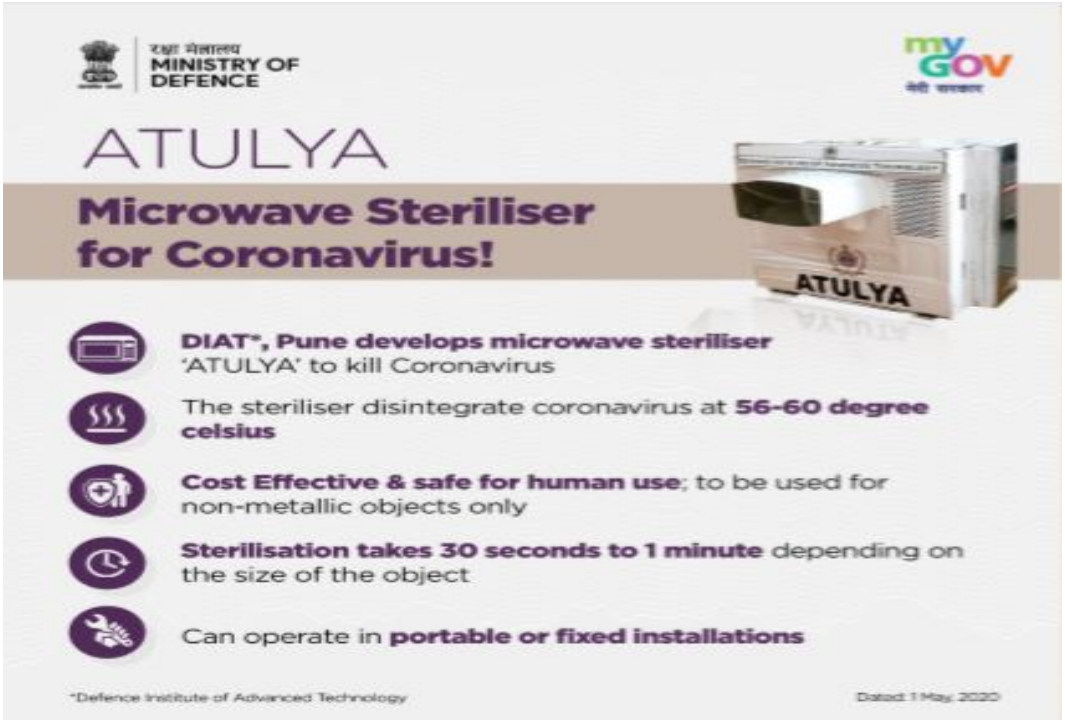
B. Kavachh

C. Aushidhi

D. Sanjeevani

Answer: A

Explanation



21.Which of the following are true in the context of PSLV?

1. **ISRO has launched more than 100 satellites aboard PSLV till date.**
2. **PSLV has "multiple burn technology" with the help of which PSLV can place satellites in multiple orbits in the same launch.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

Both the statements are correct.

- ISRO's PSLV C40 which placed 31 satellites including main payload Cartosat-2s series and 28 foreign satellites in two different orbits, marked the roll out of the 100th satellite by ISRO.
- It was the second time that ISRO had achieved the two orbits feat. This was done through the "multiple burn technology" under which the rocket's engine is switched off and then switched on to control its height.
- It reinstated India's position as a successful multiple satellite launcher.

22.Which of the following statement(s) is/are true in the context of National Family Health Survey (NFHS-4)

1. **Total fertility rate declined in India from 2.7 in 2005-06 (NFHS-3) to 1.9 in 2015-16.**
2. **Total fertility rate in rural areas is greater than that in urban areas.**
3. **The section with the lowest income had the highest number of children and the richest had the least.**

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: B

Explanation

Statement 1 is incorrect but statement 2 and 3 are correct

- Total fertility rate declined in India from 2.7 in 2005-06 (NFHS-3) to 2.2 in 2015-16 (NFHS-4).

- It is important to note that the replacement level fertility is 2.1 and India has not achieved that so far. Bihar has the highest rate at 3.41, followed by Meghalaya at 3.04 and Uttar Pradesh and Nagaland at 2.74.
- Total fertility rate in rural areas was 2.4 while in urban areas it was 1.8.
- The section with the lowest income had the highest number of children at 3.2 and the richest had the least, 1.5.
- Scheduled tribes, the least developed among social categories, had the highest fertility rate of 2.5, followed by 2.3 for scheduled castes and 2.2 for other backward classes.
- The upper castes had the lowest fertility rate of 1.9.

23.GIAN Program was launched by the Government of India in _____ sector.

A. Health

B. Education

C. Defence

D. Space

Answer: B

Explanation

- Global Initiative of Academic Networks (GIAN) in Higher Education was launched in 2015.
- GIAN aims at tapping the talent pool of scientists and entrepreneurs to engage with the institutes of higher education in India to augment the country's existing academic resources, accelerate the pace of quality reforms, and further strengthen India's scientic and technological capabilities.

24.Which of the following committee is related to bulk drugs?

A. Easwar Panel

B. Katoch Committee

C. Tapan Ray Panel

D. Shyam Benegal Committee

Answer: B

Explanation

- Easwar Panel: Direct Taxes Reform
- Katoch Committee: Bulk Drugs
- Tapan Ray Panel: Companies Act Reforms
- Shyam Benegal Committee : Cinematograph Act

25.There are six planets in our solar system with known Trojan asteroids. Choose the incorrect amongst the following.

1. **Jupiter**
2. **Neptune**
3. **Mercury**
4. **Earth**

A. All except 1

B. All except 2

C. All except 3

D. All except 4

Answer: C

Explanation

- Trojans are asteroids that are constant companions to planets in our solar system as they orbit the Sun, remaining near a stable point 60 degrees in front of or behind the planet.
- Since they constantly lead or follow in the same orbit, they will never collide with their companion planet.
- There are six planets in our solar system with known Trojan asteroids—Jupiter, Neptune, Mars, Venus, Uranus and Earth.

26.In which of the following areas can GPS technology be used?

1. Mobile phone operations
2. Banking operations
3. Controlling the power grids

A. 1 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

Explanation

All of the above Statements are Correct

- GPS is a radio navigation system. It uses radio waves between satellites and a receiver inside your phone to provide location and time information to any software that needs to use it

- It is one of the Global navigation satellite systems (GNSS) that provides geolocation and time information to a GPS receiver anywhere on or near the Earth
- Global Positioning system applications generally fall into 5 major categories
  - ✓Location – determining a position
  - ✓Navigation – getting from one location to another
  - ✓Tracking – monitoring object or personal movement
  - ✓Mapping - creating maps of the world
  - ✓Timing – bringing precise timing to the world
- Power grids increasingly rely on GPS to stay in sync, which makes them potentially vulnerable to attacks that broadcast false GPS signals
  - ✓As power grids rely less on centralised power plants and more on rooftop solar power and other distributed sources of energy , PMUs are growing increasingly more important
- The financial services sector uses GPS timing to timestamp financial transactions, match trading orders, and synchronise financial computer

27.What is the application of Somatic Cell Nuclear Transfer Technology?

A. Production of biolarvicides

B. Manufacture of biodegradable plastics

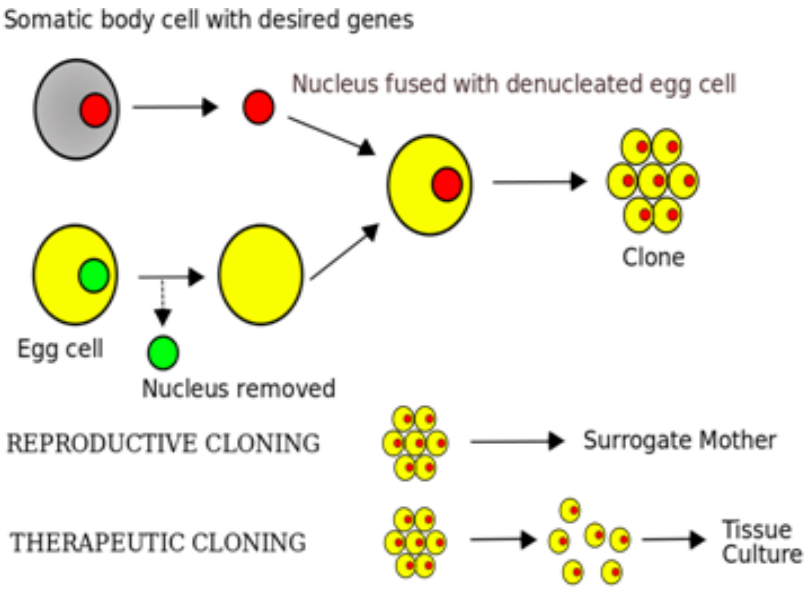
C. Reproductive cloning of animals

D. Production of organisms free of disease

Answer: C

Explanation

- In plants and animals, there are two major categories of cells
  - ✓somatic cells and
  - ✓reproductive cells (Germ cells or gametes)
    - ✤In humans and other animals, they are the egg and sperm cells.
- All other cells in the body are somatic cells
- In 1996, Dolly the sheep became famous for being the first successful case of the reproductive cloning of a



mammal.

- In genetics and developmental biology, **somatic cell nuclear transfer** (SCNT) is a laboratory strategy for creating a viable embryo from a body **cell** and an egg **cell**

28.With reference to 'LiFi', recently in the news, which of the following statements is/are correct?

1. **It uses light as the medium for high-speed data transmission.**
2. **It is a wireless technology and is several times faster than 'WiFi'.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

Both the statements are correct

- Wi-Fi (wireless fidelity) and Li-Fi (light fidelity) both are two different technologies which are used to send and receive data wirelessly.
- Li-Fi is the short form of Light Fidelity and Wi-Fi is the short form of Wireless Fidelity.
- LiFi covers distance of about 10 meters while **WiFi** covers about 30 meters
- In case of Wi-Fi we use **Routers and Radio Frequency (RF) waves to transmit data,** whereas in **Li-Fi we use LED bulbs and Light signals to transmit and receive data.**
- LiFi uses light for data transmission while WiFi uses electro-magnetic waves at radio frequencies for data transmission.

29.Consider the following statements:

1. **According to the Indian Patents Act, a biological process to create a seed can be patented in India.**
2. **In India, there is no Intellectual Property Appellate Board.**
3. **Plant varieties are not eligible to be patented under Indian laws**

Which of the above is correct?

A. 1 and 3 only

B. 2 and 3 only

C. 3 only

D. 1, 2 and 3

Answer: A

Explanation

Statement 1 and 3 are correct

- As per an amendment in 2002, biochemical, biotechnological and microbiological processes are explicitly included in patentable processes
- The Intellectual Property Appellate Board is a quasi – judicial body which was constituted in September 1958
- **Section 3(j)** – Plants and animals in whole or any parts including DNA, cells, seeds, varieties and species etc are exempt from the category of inventions.

In News

- In April, 2018, the Delhi high court had ruled Monsanto's patent over Bt cotton seeds as invalid. It ruled that some items such as seeds, animals and plants cannot be patented under Indian laws.
- Recently, however, the Supreme Court, while reversing a Delhi high court judgment, on January 8, 2019, allowed agribusiness giant Monsanto to claim patent on its genetically modified (GM) cotton seeds.

30.In the context of wearable technology, which of the following tasks is/are accomplished by wearable devices?

1. **Location identification of a person**
2. **Sleep monitoring of a person**
3. **Assisting the hearing impaired person**

A. 1 only

B. 2 and 3 only

C. 3 only

D. 1, 2 and 3

Answer: D

Explanation

Wearable technology, wearables, fashion technology, tech togs, or fashion electronics are smart electronic devices (electronic device with micro-controllers) that are worn close to and/or on the surface of the skin, where they detect, analyze, and transmit information concerning e.g. body signals such as vital signs, and/or ambient data and which allow in some cases immediate biofeedback to the wearer.

31.Which of the following relates to Arsenicum Album?

A. Disease caused by Arsenic poisoning

B. Drug resistant bacterial species present in groundwater

C. Homeopathetic drug to correct inflammation in body

D. Newly developed explosive material

Answer: C

Explanation

- It is a homeopathic drug made by heating arsenic with distilled water. It has less than 1% arsenic.
- It is considered to correct inflammation in body. It takes care of diarrhoea, cough and cold.
- Arsenicum album has become a subject of debate after several states recommended it for preventive use against COVID-19.
  - ✓This was after the Ministry of AYUSH listed the drug among "preventive and prophylactic simple remedies" against COVID-19.

32.Which of the following are true in the context of US Missile Defence system THAAD?

1. **South Korea is the only country where the THAAD missile defense system has been deployed.**
2. **It is effective against incoming cruise missile threats.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

Explanation

Both the statements are incorrect

- Terminal High Altitude Area Defense (THAAD) is a transportable, ground-based missile defense system which is coupled with space-based and ground-based surveillance stations.
- It is a ballistic missile defence .
- It has been deployed in the UAE, Guam, Israel and Romania.

33.Which of the following are correct in the context of Near Earth Objects?

1. **They are comets and Asteroids composed mostly of water ice with embedded dust particles.**
2. **They are relatively unchanged remnant debris from the solar system formation.**
3. **NEOs orbit around the earth.**

A. 1 and 2 only

B. 2 and 3 only

C. 3 only

D. 1, 2 and 3

Answer: A

Explanation

Statement 1 and 2 are correct, but statement 3 is incorrect

- Near Earth Objects are comets and asteroids nudged by the gravitation attraction of nearby planets into orbits which allows them to enter the Earth's neighbourhood.

  ✓These objects are composed mostly of water ice with embedded dust particles.

- They occasionally approach close to the Earth as they orbit the Sun.
- They are important for the scientists as they are relatively unchanged remnant debris from the solar system formation process over 4.6 billion years ago.

  ✓They offer scientists clues about the chemical mixture which formed the planets.

34.Which of the following are true?

1. **Out of the 11 SARS-CoV-2 types identified globally 3 have been identified in India.**
2. **Most dominant coronavirus clade in India is A2a.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

Statement 1 is incorrect but statement 2 is correct

- The most dominant coronavirus clade in India is the A2a and of 361 genomes analysed by the group, 45% of them were A2a
- There are 11 SARS-CoV-2 types identified globally with at least six of them identified in India

  ✓The newly identified clade, A3i, which comprised 41% of those analysed, is also present in India

- Coronavirus type or clade is a cluster of SARS-CoV-2 viruses that share evolutionary similarities and are grouped together based on characteristic mutations or similarities in parts of their genomes

35.Arrange the following parts of the respiratory system in the order of exhalation of air

1. **Alveoli**

2. **Bronchi**
3. **Larynx**
4. **Pharynx**

A. 1-2-3-4

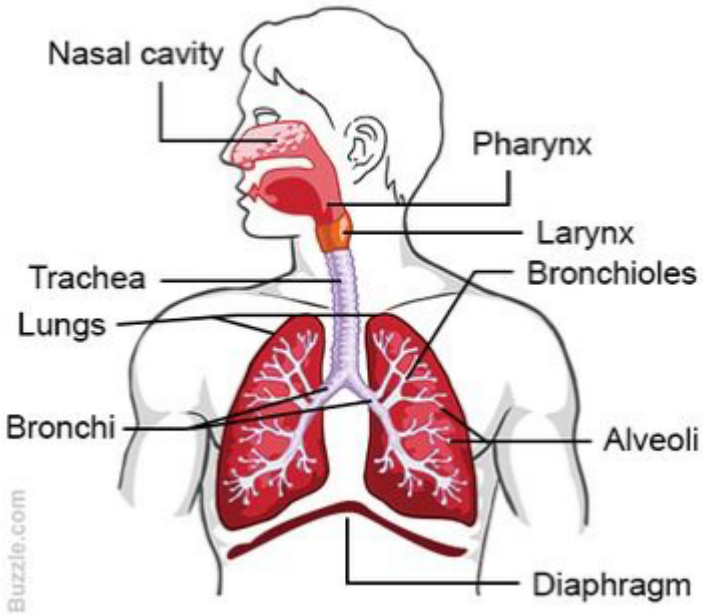
B. 4-3-2-1

C. 2-1-3-4

D. 1-2-4-3

Answer: A

Explanation



36.Litmus is obtained from

A. Bacterium

B. Fungus

C. Alga

D. Lichen

Answer: D

Explanation

- Litmus is a water-soluble mixture of different dyes extracted from lichens
- It is often adsorbed onto filter paper to produce one of the oldest forms of pH indicator, used to test materials for acidity

37.Vinegar is a solution of

A. 5 — 20% acetic acid in water

B. 25 — 30% acetic acid in water

C. 50% acetic acid in water

D. 40 — 45% acetic acid in water

Answer: A

Explanation

- It is an aqueous solution of acetic acid and trace chemicals
- Vinegar typically contains 5 — 20% acetic in water
- Usually acetic acid is produced by the fermentation of ethanol or sugars by acetic acid bacteria

38.'Micius' has been in news recently. It is

A. Humanoid

B. Quantum Satellite

C. SARS-COV-2 Test kit

D. Weapon detecting radar

Answer: B

Explanation

- It is the world's first quantum communications satellite which established the world's most secure communication link
- It was launched in 2016

39.Which of the following reports are released by UN Conference on Trade and Development (UNCTAD)

1. **World Investment Report**
2. **Least Development Countries Report**
3. **Technology and Innovation Report**

A. 1 and 2 only

B. 1 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

Explanation

- All the above mentioned reports are released by UNCTAD World Investment Report
- Global FDI flows are forecast to decrease by up to 40% in 2020
  - ✓This would bring global FDI below $1 trillion for the first time since 2005
- Developing economies are expected to see the biggest fall in FDI

40.Which of the following drugs have been used to treat COVID-19?

1. **Dexamethasone**
2. **Azithromycin**
3. **Lopinavir**

A. 1 only

B. 2 only

C. 3 only

D. 1, 2 and 3

Answer: D

Explanation

Option D is the correct answer

- All the above mentioned drugs have been used to treat COVID-19
- Dexamethasone reduces the production of the chemicals that cause inflammation and also reduces the activity of the immune system by affecting the way white blood cells function
  - ✓It falls under the category of corticosteroids and used to mimic the cortisol which is the hormone produced by adrenal glands

41.Which of the following are correct

1. **Antigen are found in the RBCs**
2. **Antibodies are present in the blood plasma**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

Both the statements are correct

- Two proteins are present in the blood, antigens and antibodies

✓The surfaces of RBCs contain genetically determined antigens

✓The blood plasma contains the antibodies

Type	A	B	AB	O
RBC Antigen	A	B	AB	None
Plasma Antibody	anti-b	anti-a	none	anti-a; anti-b

42.What is the recommended age period within which the BCG vaccine can be administered?

A. At Birth till 1 year

B. At Birth within 24 hours

C. 5 years of age

D. 7 years of age

Answer: A

Explanation

BCG	At birth or as early as possible till 1 year of age
Hepatitis B - Birth dose	At birth or as early as possible within 24 hours

43.Carbohydrates, proteins and vitamins which are responsible for energy, growth and vitality are obtained respectively from

A. Cereals, milk and vegetables

B. Milk, pulses and cereals

C. Milk, pulses and vegetables

D. Pulses, vegetables and cereals

Answer: A

44.What type of mirror is used by motorists to see the road behind them?

A. Convex

B. Concave

C. Plane

D. Concavo-Convex

Answer: A

Explanation

- A convex mirror is used because it has a very wide field of view since it is curved outwards. Thus it helps the driver to see a larger area as compared to a plane mirror
- The images produced are erect and their size is much smaller than the object.

45.Which of the following is true in the context of a person walking on the moon?

A. Mass remains the same but weight increases

B. Mass remains the same but weight decreases

C. Mass and weight both decrease

D. Weight remains the same but mass increases

Answer: B

46.Which part of the food mostly gets destroyed while processing and cooking?

A. Proteins

B. Vitamins

C. Carbohydrates

D. Fats

Answer: B

Explanation

- Cooking for longer times and in larger quantities at high temperatures might result in the loss of the nutritional value of food because water-soluble vitamins such as Vitamin C, B1, B5 etc. get leached into the cooking water and hence are lost

47.Optical fibre works on the principle of

A. Total Internal Reflection

B. Total Internal Refraction

C. Refraction

D. Reflection

Answer: A

48.When water is heated from 0°C to 10°C, its volume

A. Increases

B. decreases

C. does not change

D. first decreases and then increases

Answer: D

Explanation

- Water has maximum density at 4°C and maximum volume at 0°C.
- Initially at start of heating from 0°C to 4°C there will be a contraction as a result of which volume decreases. On further heating beyond 4°C to 10°C the molecules gain kinetic energy and start moving more randomly. Thus, intermolecular distance increases as a result of which its volume increases.

49.The approximate mean velocity with which the earth moves around the sun it its orbit is

A. 20 km/s

B. 30 km/s

C. 20 km/h

D. 30 km/h

Answer: B

Explanation

- In one orbit around the sun, the earth has travelled 940 million km.
- Earth completes one revolution in 365.256 days.

50.Low temperature (cryogenics) find application in

A. space travel, surgery and magnetic levitation

B. surgery, magnetic levitation and telemetry

C. space travel, surgery and telemetry

D. space travel, magnetic levitation and telemetry

Answer: A

51.The tail of a comet is always directed

A. towards the sun

B. away from the sun

C. towards the nearest planet

D. independent of any factor

Answer: B

Explanation

- The radiation emitted by sun exerts a radial presssure on the comet. So the tail of comet is always directed away from the sun

52.Which of the following is/are existing or proposed rocket launch stations in India?

1. **Kulasekarapattinam**
2. **Sriharikota**
3. **Thumba**

A. 2 only

B. 2 and 3 only

C. 1 and 2 only

D. 1, 2 and 3

Answer: D

Explanation

All the three are correct

- Thumba, Kerala: Sounding rockets launches
- Sriharikota, Andhra Pradesh: Launch missions for space or beyond the earth's atmosphere that cater to India's domestic scientific, military, weather, developmental and commercial needs as well as those of foreign customers

- Kulasekarapattinam, Tamil Nadu: It will mainly cater to launches of newly developed Small Satellite Launch Vehicle
    - ✓ People are protesting against land acquisition

53.Hope mission, UAE's first space mission, will be launched to study

A. Moon

B. Mars

C. Mercury

D. Climate Change on Earth

Answer: B

Explanation

- UAE's first mission to Mars (Hope Mission) was announced in 2015 with the aim of creating mankind's first integrated model of the Red planet's atmosphere
- It will orbit Mars to study the Martian atmosphere and its interaction with outer space and solar winds. Hope will collect data on Martian climate dynamics, which should help scientists understand why Mars' atmosphere is decaying into space

54.Committee headed by _____, has recently suggested, allowing the use of non-personal data, generated in India, by domestic companies and entities.

A. BN Srikrishna

B. Kris Gopalakrishnan

C. C Rangarajan

D. Uday Kotak

Answer: B

Explanation

- A government committee headed by Infosys co-founder Kris Gopalakrishnan has suggested that non-personal data generated in the country be allowed to be harnessed by various domestic companies and entities
- Non-personal data is any set of data which does not contain personally identifiable information. This in essence means that no individual or living person can be identified by looking at such data
- The committee has classified non-personal data into three main categories, namely
    - ✓ public non-personal data
    - ✓ community non-personal data and
    - ✓ private non-personal data

55.Which of the following defence equipment is correctly matched with its country of origin

1. **Spike Missile : America**
2. **Mirage 2000 : Russia**
3. **Heron Drones : Israel**

A. 1 and 3 only

B. 3 only

C. 1 and 2 only

D. 1, 2 and 3

Answer: B

Explanation

Only B is correct

- Spike Missile : Israel
- Mirage 2000 : France
- Heron Drones : Israel

56.'Project Cheetah' of the Indian defence forces is associated with the

A. S400 Missile Defence System

B. Rafale Fighter Jets

C. Armed Unmanned Aerial Vehicles

D. Supersonic Cruise Missiles

Answer: C

Explanation

- Israeli-made Heron drones have been in service with the three defence wings for several years now
- The forces are also working towards inducting an armed version of the UAV, as well as upgrading the existing fleet into combat UAVs under the ambitious 'Project Cheetah' spearheaded by the Indian Air Force.

57.Which of the following is/are correct in the context of Kakrapar Atomic Power Project?

1. **It is the country's first 1000 MWe unit, and the biggest indigenously developed variant of PHWR.**
2. **Nuclear power capacity constitutes less than 2% of total installed capacity of India.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

First statement is incorrect but the second statement is correct

- KAPP-3 is the country's first 700 MWe (megawatt electric) unit, and the biggest indigenously developed variant of the Pressurised Heavy Water Reactor (PHWR)
  - ✓ PHWRs, which use natural uranium as fuel and heavy water as moderator, are the mainstay of India's nuclear reactor fleet
- Nuclear power capacity constitutes less than 2% of the total installed capacity of 3,68,690 MW

58.Recently, Indian scientists developed a Super capacitor from

A. Industrial waste cotton

B. Silver nanoparticles in gold matrix

C. Lithium-ion

D. Graphite-diamond crystals

Answer: A

Explanation

- Scientists at the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), an autonomous organization of the Department of Science and Technology, Govt. of India have developed a simple, low-cost, environmentally friendly, and sustainable super capacitor electrode derived from industrial waste cotton which can be used as an energy harvester storage device
- Super capacitor is a next-generation energy storage device that has received extensive research attention owing to advantages such as high power density, long durability, and ultrafast charging characteristic as compared to conventional capacitors and lithium-ion batteries (LIB)

59.Which one of the following does not border Panama?

A. Costa Rica

B. Pacific Ocean

C. Colombia

D. Venezuela

Answer: D

Explanation

60.Which of the following are true in the context of ECMO machine

1. **It introduces antibodies in the patient's blood from a healthy person who has recovered**
2. **It performs the functions of heart and lungs**

A. 1 only

B. 2 only

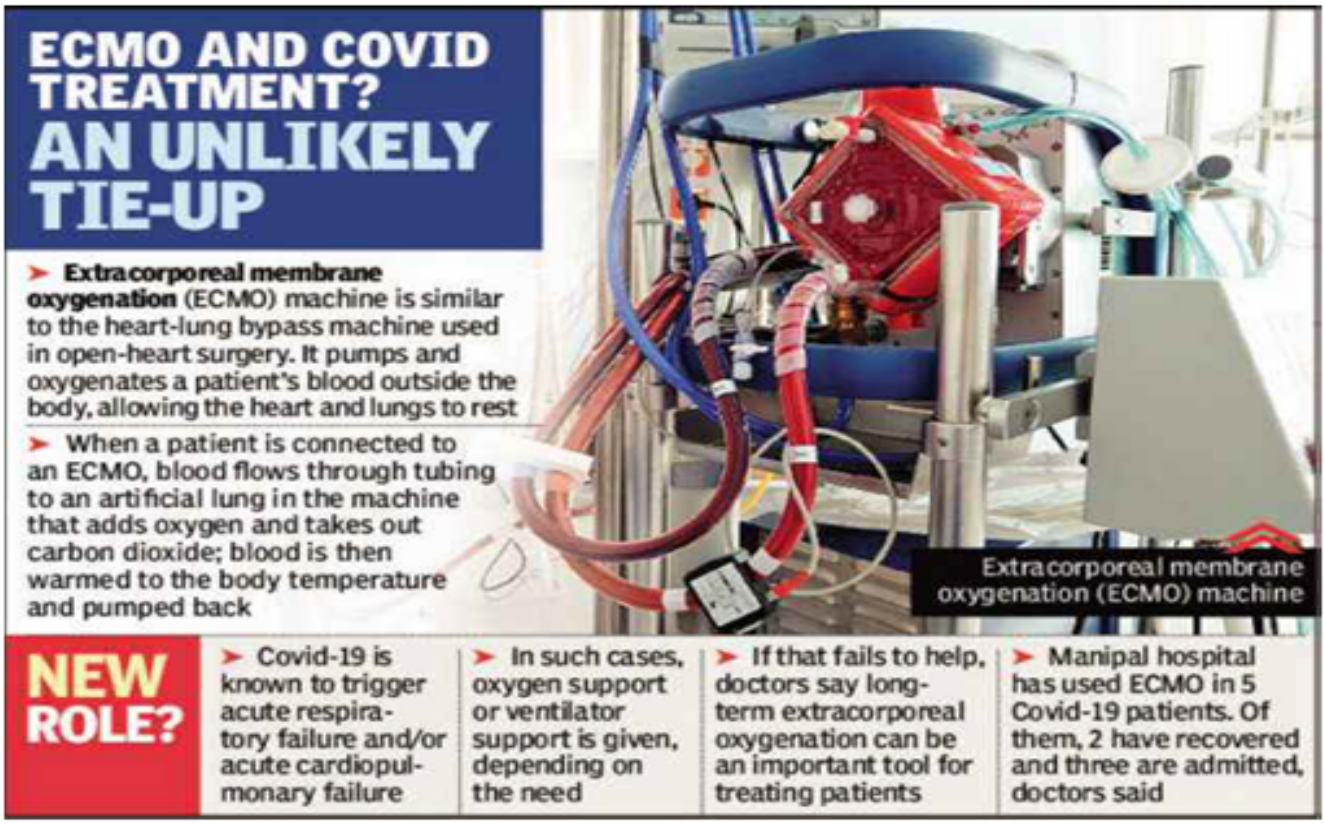
C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

Only statement 2 is correct



61.Which of the following organisms exhibit 'autotomy'?

1. **Lizards**
2. **Spiders**
3. **Snakes**
4. **Bees**

A. 1 and 2 only

B. 1, 2 and 4 only

C. 1, 3 and 4 only

D. 1 and 3 only

Answer: B

Explanation

- Autotomy or self-amputation is the behaviour whereby an animal's sheds or discards one or more of its own appendages
- Examples: Lizards, salamanders, tuatara, African spiny mice, molluscs, crustaceans, spiders, bees and wasps
- Snakes do not exhibit autotomy

62.Which of the following is/are correct?

1. **Compared to CNG, Hydrogen-CNG can reduce emission of Carbon Monoxide**
2. **CNG emits less CO2 and NOx but more particulate matter than petrol or diesel**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

First statement is correct but the second statement is incorrect

- CNG is compressed natural gas. With natural gas mainly composed of methane, CNG emits less air pollutants — carbon dioxide, carbon monoxide, nitrogen oxides and particulate matter — than petrol or diesel.
- H-CNG is a blend of hydrogen and CNG, the ideal hydrogen concentration being 18%. Compared to conventional CNG, use of H-CNG can reduce emission of carbon monoxide up to 70%, besides enabling up to 5% savings in fuel

63.Which of the following are correctly matched?

1. **Perseverance : Lander**
2. **Al Amal: Rover**
3. **Tianwen-1 : Orbital**

A. 1 only

B. 2 and 3 only

C. 3 only

D. 1 and 2 only

Answer: A

Explanation

- Tianwen-1 by China: Aims to land on the surface of Mars
- Al Amal (Hope) by UAE: Orbital mission to study the Martian atmosphere
- Perseverance Mission by US: Mars landing

64.Which of the following are correct regarding transmission of the disease?

1. **Hepatitis A: consumption of contaminated food**
2. **Hepatitis B: infective blood**
3. **Hepatitis E: Only in case of Hepatitis B**

A. 1 only

B. 1 and 2 only

C. 2 and 3 only

D. 1, 2 and 3 only

Answer: B

Explanation

Statement 3 is incorrect rest all correct

- Hepatitis A and E: contaminated food or water
- Hepatitis B: Blood, semen, from mothers to infants
- Hepatitis C: infective blood and blood products
- Hepatitis D: only in those infected with Hepatitis B

65.Which of the following causes Plague?

A. Bacteria

B. Virus

C. Protozoa

D. Fungi

Answer: A

Explanation

- Plague is caused by the bacteria Yersinia pestis which is a zoonotic bacteria
- It occurs in three forms
    - ✓ Bubonic

✓ Septicemia

✓ Pneumonic

- Most of the cases are of Bubonic plague

66.Recently, iCREST, an initiative to encourage incubator ecosystem has been launched by

A. Ministry of Skill Development & Entrepreneurship

B. NITI Aayog

C. Ministry of Science & Technology

D. ISRO

Answer: B

Explanation

- NITI Aayog' Atal Innovation Mission has launched iCREST, Incubator Capabilities Enhancement Program for a robust ecosystem focused on creating high performing Start-ups
- AIM will be joined by Bill and Melinda Gates Foundation and Wadhwani Foundation

67.Which of the following is needed by Vitamin D to perform its action?

A. Calcium

B. Iron

C. Potassium

D. Iodine

Answer: A

Explanation

- Light falling on the skin produces a precursor molecule, which is processed in the cells of the organs to make vitamin D, and if this becomes faulty due to any genetic/metabolic error, deficiency might arise
- Deficiency of Vitamin D leads to a loss of bone density, which can contribute to osteoporosis and fractures

✓ It also causes rickets

- Ca++ is also needed by vitamin D for its action

68.Deficiency of which of the following, particularly in children and pregnant women, is most common in the world?

1. Iron

2. Vitamin A

3. **Iodine**

A. 1 Only

B. 3 Only

C. 1 and 2 Only

D. 1, 2 and 3

Answer: D

Explanation

- Deficiencies in iron, vitamin A and iodine are the most common around the world, particularly in children and pregnant women
- Under nutrition is associated with 45% of child deaths worldwide

69.5G represents an evolution in telecommunications. Which of the following are correct in this context?

1. **5G will extend into higher frequencies around 3.5 GHz and up to a few tens of GHz**
2. **The higher frequencies are new to mobile phone networks, but are commonly used in other applications, such as point-to-point radio links and body-scanners for security checks.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

- The higher the frequency, the faster the data transmission and shorter the signal range
  - ✓ Wi-Fi: 2.4 GHz and 5 GHz
  - ✓ Scanners : 24–30 GHz

70.Which of the following are the bombs dropped on Hiroshima and Nagasaki?

1. **Little Boy**
2. **Fat Man**
3. **Big Man**
4. **Slim Boy**

A. 1 and 3 only

B. 1 and 2 only

C. 2 and 4 only

D. 3 and 4 only

Answer: B

Explanation

- Uranium-based design called the Little Boy was dropped on Hiroshima
  - ✓ Close to 80000 people were killed
- Plutonium-based weapon called the Fat Man was dropped on Nagasaki
  - ✓ Close to 40000 people were killed

71.WHO has recommended Artemisinin-based combination therapies (ACTs) for the treatment of

A. Tuberculosis

B. Malaria

C. COVID-19

D. HIV-AIDS

Answer: B

Explanation

- Artemisinin and its derivatives are powerful medicines known for their ability to swiftly reduce the number of Plasmodium parasites in the blood of patients with malaria
- Artemisinin-based combination therapies (ACTs) are recommended by WHO as the first-and second-line treatment for uncomplicated P. falciparum malaria as well as for chloroquine-resistant *P. vivax* malaria

72.Which of the following correctly defines the term 'Green Corridor'?

A. Highways which are carbon neutral

B. Renewable energy projects along the highways

C. Demarcated, cleared out road route for organ transport

D. None of the above

Answer: C

Explanation

- It is a demarcated, cleared out road route that enables an ambulance carrying organs to escape traffic snarls and reach the destination in the shortest possible time

- Organs have a short preservation time and green corridors require a concentrated effort from transplant coordinators, local police, traffic police and airport staff

73.Choose the correct statement(s)

1. **All fly ashes exhibit cementitious properties**
2. **Carbon and Calcium are among the constituent elements**

A. 1 Only

B. 2 Only

C. 1 and 2 Only

D. Neither 1 nor 2

Answer: C

Explanation

Both the statements are correct

- Fly ash is a byproduct from burning pulverized coal in electric power generating plants. During combustion, mineral impurities in the coal (clay, feldspar, quartz, and shale) fuse in suspension and float out of the combustion chamber with the exhaust gases.
- All fly ashes exhibit cementitious properties to varying degrees depending on the chemical and physical properties of both the fly ash and cement. Compared to cement and water, the chemical reaction between fly ash and calcium hydroxide typically is slower resulting in delayed hardening of the concrete
- Calcium and Carbon are among the constituent elements along with silica

74.'Saliva Direct' is a new entrant in the testing of COVID-19. Which of the following are true?

1. **The test has a very high specificity**
2. **Invasive technique of sample collection is used**

A. 1 only

B. 2 only

C. 1 and 2 only

D. Neither 1 nor 2

Answer: D

Explanation

Both the statements are incorrect

- The test has a very high sensitivity ranging between 88-94%

✓ Sensitivity: Measures the proportion of positives that are correctly identified

✓ Specificity: Measures the proportion of negatives that are correctly identified

- Instead of relying on nasopharyngeal specimens, the new test uses saliva, which makes the sample collection non-invasive

75.Shakuntala Devi, recently in news was born in

A. Calcutta, Bengal

B. Kochi, Kerala

C. Chennai, Tamil Nadu

D. Bangalore, Karnataka

Answer: D

Explanation

- Shakuntala Devi was born in 1929. She was an Indian writer and mental calculator, popularly known as 'Human Computer'
- She wrote the book The World Of Homosexuals, which is considered the first study of homosexuality in India

76.The movie titled 'The Man Who Knew Infinity' is based on the biography of

A. S. Ramanujan

B. S. Chandrasekhar

C. S.N. Bose

D. C.V. Raman

Answer: A

Explanation

- S. Ramanujan was an Indian mathematician who lived during the British Rule
- He had almost no formal training in pure mathematics, he made substantial contributions to mathematical analysis

77.'ACE2' has been in news lately in the context of COVID-19. What is 'ACE2'?

A. A strain or lineage of the virus

B. Spike like protein on the surface of SARS-COV-2

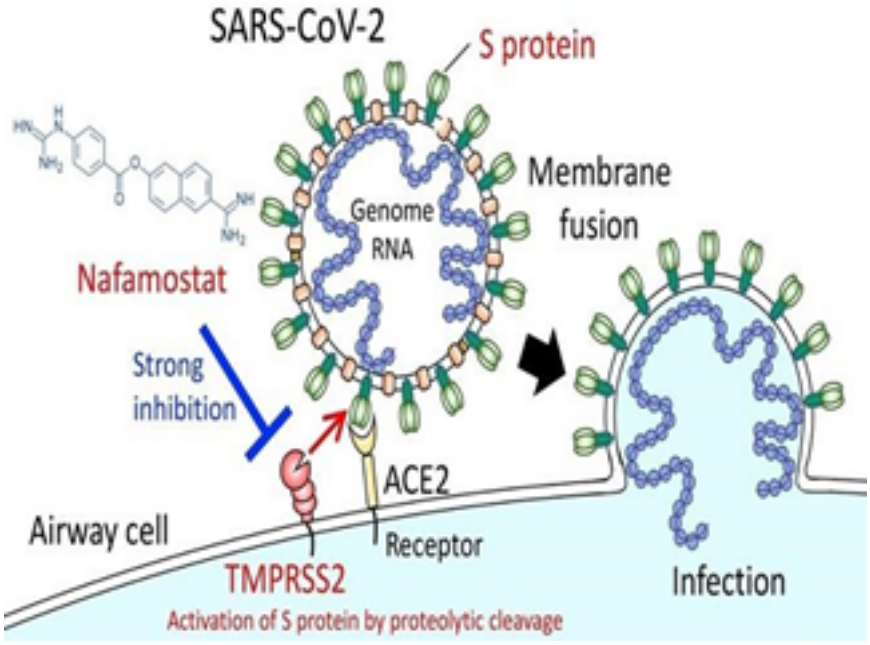
C. Cellular doorway

D. None of the above

Answer: C

Explanation

- Angiotensin-converting enzyme 2, or ACE2 is a protein on the surface of many cell types.
- It is an enzyme that generates small proteins – by cutting up the larger protein angiotensinogen – that then go on to regulate functions in the cell.
- Using the spike-like protein on its surface, the SARS-CoV-2 virus binds to ACE2 – like a key being inserted into a lock – prior to entry and infection of cells. Hence, ACE2 acts as a cellular doorway – a receptor – for the virus that causes COVID-19.
- SARS-CoV-2 virus requires ACE2 to infect cells but the precise relationship between ACE2 levels, viral infectivity and severity of infection are not well understood.



78.Which of the following is/are true in the context of T-cells?

1. **Once infected with SARS-CoV-2, the immune system elicits highly functional memory T cell responses**
2. **T-cells are a type of Monocytes**

A. 1 Only

B. 2 Only

C. 1 and 2 Only

D. Neither 1 nor 2

Answer: A

Explanation

- Statement 1 is correct but statement 2 is incorrect.
- White blood cells are the cells that help the body fight infection.
- The three major types of white blood cells are:
  - ✓Granulocytes
  - ✓Monocytes
  - ✓Lymphocytes:
  - ✓B lymphocytes (B cells)
  - ✓T lymphocytes (T cells)
- Once infected with SARS-CoV-2, the immune system elicits robust, broad and highly functional memory T cell responses.
- SARS-CoV-2-specific T cells were found even in family members who have been exposed to the virus but have tested negative on antibody blood tests. SARS-CoV-2-specific T cells were also seen in convalescent individuals with a history of asymptomatic infection and mild COVID-19 disease.

79.Which of the following is true about Kongonaphon kely?

A. Ancestor of dinosaurs

B. Plant with medicinal properties

C. Tribe in central Africa

D. Virus strain helpful against COVID-19 infection

Answer: A

Explanation

- It is a newly described species from Madagascar.
- Believed to be the ancestor of dinosaurs and pterosaurs (extinct flying reptiles), is was just 10 cm tall.
- Analysis of body size throughout the history of dinosaurs and relatives shows that ancestrally medium-sized animals evolved into very small animals, such as Kongonaphon, which would have been around 10 cm tall and about 30 cm long. This then evolved into dinosaurs and pterosaurs which could reach enormous sizes.

80.Which of the following are true?

1. **Mice share 98% of DNA with humans**
2. **Mice are used for laboratory testing of COVID-19 vaccine**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

Statement 1 is correct but statement 2 is incorrect

- An animal model for a particular disease should fulfil two criteria. It should be able to "catch" that infection (in case of infectious diseases) and show the clinical outcomes and altered physiology that accompanies the disease.
- Mice, the most widely used "models" to understand human diseases, cannot be infected with SARS-CoV-2. If you imagine the virus to be a lock, it needs a "key" (usually a protein) on the surface of a cell to enter. The "key" is present in humans, rhesus monkeys, to a lesser extent in hamsters, ferrets and cats, but not in mice. Scientists are now creating genetically altered mice that express this "key", as larger animals pose additional difficulties of housing, handling and are expensive.
- Apart from fever, sore throat, cough, pneumonia, COVID-19 infection in humans is also known to affect the heart, kidneys, intestine, and brain. While ferrets, hamsters, cats, rhesus monkeys and genetically modified mice could get infected with SARS-CoV-2, all of these develop only mild lung infection, most do not show fever, and they recover within seven–nine days.

81.Which of the following disease does not occur due to the change or mutation of sex chromosomes?

A. Downs Syndrome

B. Haemophilia

C. Muscular Dystrophy

D. Colour Blindness

Answer: A

Explanation

- Downs Syndrome is a chromosome 21 disorder. It is also known as trisomy 21
- Haemophilia is a rare disorder in which your blood doesn't clot normally because it lacks sufficient blood-clotting proteins (clotting factors)
- Muscular dystrophy is a group of inherited diseases that damage and weaken your muscles over time. This damage and weakness is due to the lack of a protein called dystrophin, which is necessary for normal muscle function

82.Which of the following statements with respect to Shaurya missile are correct?

1. **The surface-to-surface medium range Shaurya missile can reach speeds of 7.5 Mach.**
2. **The cruise missile can hit targets 400 kilometers away - its range increased from the existing 290 kilometers.**

3. **The 10 meter-long missile - weighing 6.2 tonne - can carry both nuclear and conventional warheads weighing up to 1,000 kilograms.**

Select the correct code

A. 1 and 3 only

B. 1 and 2 only

C. 2 and 3 only

D. 1, 2 and 3

Answer: D

83.What is the theme of world space week 2020?

A. Women in Space

B. Satellites Improve Life

C. Exploring New Worlds In Space

D. Space Unites the World

Answer: B

84.The term K- family frequently heard in news is related to which of the following?

A. Satellite missions to be launched by NASA

B. GIS based mapping by LATMOS

C. Missile system developed by DRDO

D. Data computing set developed by CNSA

Answer: C

85.The term CBD OIL is recently seen in news. Consider the following statements related to the same:

1. **It is an analgesic product.**
2. **CBD oil manufactured under a licence issued by the Drugs and Cosmetics Act, 1940 can be legally used.**

Select the correct statement

A. 1 only

B. 2 only

C. Both 1 and 2

D. None of the above

Answer: C

86.Which of the following are correctly matched?

1. **Cassini Spacecraft – SpaceX**
2. **HAYABUSA – JAXA**
3. **EMISAT - ISRO**

Choose the correct answer -

A. 1 and 2

B. 2 and 3

C. 1 and 3

D. All of the above

Answer: B

87.Which of the following statements regarding Recycling of Ships are correct?

1. **Under Ship Recycling Act, 2019, India has acceded to Hong Kong Convention for Ship Recycling under International Maritime Organization (IMO).**
2. **The Centre has notified the directorate general of shipping as the National authority for recycling of ships.**

Select the correct code

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

- The Centre has notified the directorate general of shipping as the National authority for recycling of ships.
- The notification was issued under the section 3 of the Recycling of Ships Act, 2019.
- The National Authority of Ship Recycling is to be set up in Gandhinagar.
- DG Shipping is authorized to administer, supervise and monitor all activities relating to ship recycling in the country.
- It will also be the final authority for the various approvals required by the ship-recycling yard owners and state governments.

- Under Ship Recycling Act, 2019, India has acceded to Hong Kong Convention for Ship Recycling under International Maritime Organization (IMO).
- IMO adopted the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships in 2009.
- The guidelines are aimed at ensuring that ships, being recycled after reaching the end of their operational lives, do not pose any unnecessary risks to human health, safety and the environment.
- The Convention is yet to come into force because it has not been ratified by 15 nations, representing 40 per cent of the world merchant shipping by gross tonnage (capacity) and a maximum annual ship recycling volume of not less than 3 per cent of the combined tonnage of the countries.

88.Identify the submarine based on the statements given below?

1. **It is the last of the four indigenously built Anti-Submarine Warfare (ASW) stealth corvettes built under Project 28 (Kamorta class).**
2. **The ship is the reincarnation of the erstwhile Arnala Class missile corvette of the same name.**
3. **It is named after the capital of the Lakshadweep group of islands.**

Select the correct code

A. INS Kamorta

B. INS Kadmatt

C. INS Kiltan

D. INS Kavaratti

Answer: D

Explanation

- Recently, INS Kavaratti has been formally inducted into the Indian Navy at the Naval Dockyard in Eastern Naval Command (ENC), Visakhapatnam.
- It is named after the capital of the Lakshadweep group of islands.
- It is the last of the four indigenously built Anti-Submarine Warfare (ASW) stealth corvettes built under Project 28 (Kamorta class)
- Built by Garden Reach Shipbuilders and Engineers (GRSE), Kolkata.
- The ship is regarded as one of the most potent ASW stealth corvettes to have been constructed in India as it joins three other ships of the same class INS Kamorta, INS Kadmatt and INS Kiltan at the ENC.
- Its induction is a game-changer in the eastern seaboard, especially with the Chinese submarines trying to increase their presence in the Indian Ocean.
- It has enhanced stealth features resulting in reduced Radar Cross Section (RCS) achieved by the superstructure along with optimally sloped surfaces

- INS Kavaratti and INS Kiltan are the first two major warships in the country to have the unique feature of the superstructure made of carbon fibre composite material.
- It has high indigenous content with the state-of-the-art equipment and systems to fight in Nuclear, Biological and Chemical (NBC) warfare conditions.
- Some of the major equipment/ systems developed indigenously include Combat Management System, Torpedo Tube Launchers and Infra-Red Signature Suppression System, etc.
- The high level of indigenisation incorporated in the production accentuates the objectives of Atmanirbhar Bharat Initiative.
- The ship is the reincarnation of the erstwhile Arnala Class missile corvette of the same name, INS Kavaratti-P 80, a ship that played an important role in the liberation of Bangladesh in 1971.

89.Which of the following statements regarding Thalassemia Bal Sewa Yojna are correct?

1. **It was launched by The Ministry of Health and Family Welfare.**
2. **It is funded by IOCL Corporate Social Responsibility (CSR).**
3. **It is regarding the treatment of renal failure.**
4. **Only patients whose monthly family income is below Rs 20,000 will be eligible for this assistance.**

Select the correct code:

A. 1 and 2 only

B. 2 and 3 only

C. 3 and 4 only

D. 1 and 4 only

Answer: D

Explanation

- The Ministry of Health and Family Welfare launched the second phase of “Thalassemia Bal Sewa Yojna” for the underprivileged Thalassemic patients.
- The Hematopoietic Stem Cell Transplantation (HSCT) program was launched in 2017 and is funded by Coal India Corporate Social Responsibility (CSR)
- It will be extended for next two years from 2020.
- Thalassemia: It is a genetic blood disorder that causes the body to have less hemoglobin than normal. Hemoglobin enables red blood cells to carry oxygen. Thalassemia can cause anemia, leading to fatigue.
- Hematopoietic Stem Cell: It is an immature cell that can develop into all types of blood cells, including white blood cells, red blood cells, and platelets. Hematopoietic stem cells are found in the peripheral blood and the bone marrow. Also called blood stem cell.

- HSCT: It refers to the transplantation of stem cells from various sources (bone marrow, growth factor–stimulated peripheral blood, and umbilical cord blood) for the treatment of various diseases like autoimmune and genetic diseases.
- Only patients whose monthly family income is below Rs 20,000 will be eligible for this assistance.
- The scheme has been extended to cover Aplastic Anaemia patients (lack of blood cell production in body).

90.Which of the following statements regarding SANT missile are correct?

1. **SANT (Stand-off Anti-tank) missile has been successfully test-fired off the coast of Odisha and is being developed by DRDO and IAF.**
2. **The missile is reported to be the upgraded version of India's Helina (Helicopter Launched Nag) missile.**
3. **SANT missile can destroy the targets from a short-range only.**
4. **The missile will have both Lock-on after Launch and Lock-on before Launch capabilities.**

Select the correct code

A. 1, 2 and 3

B. 1, 2 and 4

C. 1, 3 and 4

D. 1, 2, 3 and 4

Answer: B

Explanation

- India successfully test-fired SANT (Stand-off Anti-tank) missile off the coast of Odisha.
- The missile is being developed by Imarat (DRDO's research centre) in collaboration with the IAF.
- The missile is reported to be the upgraded version of India's HeLiNa (Helicopter Launched Nag) missile.
- The earlier version of the missile had a range of around 8 km but the upgraded variant can cover at least double the distance.
- SANT missile has a range between 15 to 20 km.
- It is equipped with a nose-mounted active radar seeker. Thus, the launch platform can be located at a safe distance from the target area.
- The missile is stated to have both Lock-on After Launch and Lock-on Before Launch capabilities.
- SANT missile will be launched from a Mi-35 helicopter (Russian helicopter) gunship in the month of December.
- The missile hit the target precisely and performed extremely complex manoeuvres.

- Unlike other missiles of this class, the SANT missile can destroy the targets from a long-range.
- As per the officials associated with the missile, SANT is one of the best airborne anti-armour guided missiles in the world.

91.Frequently heard in news OSIRIS-Rex was launched by which of the following space agencies?

A. NASA - The National Aeronautics and Space Administration

B. Roscosmos

C. ESA- European Space Agency

D. JAXA- The Japan Aerospace Exploration Agency

Answer: A

Explanation

- OSIRIS-REx was launched from Cape Canaveral, Florida on September 8, 2016.
- The OSIRIS-REx mission is not the first to ever visit an asteroid and attempt a sample return.
- Japan has done (Hayabusa Mission) before it and Europe (Rosetta Mission) has managed to land on a comet.
- Mission:
  - ✓ The Mission aims to study asteroid Bennu, collect a sample and return it to Earth in 2023.
  - ✓ The mission will spend 2.5 years, mapping its surface and studying its composition.
  - ✓ It has now collected (in October 2020) more than two kilograms of asteroid samples into a capsule for return to Earth.
  - ✓ This has been packed away in a sterile capsule to be returned to Earth in 2023.

92.Which of the following statements are correct about SERB- POWER?

1. **It is designed exclusively for school students.**
2. **SERB is a statutory body of the Department of Science and Technology.**

Choose the correct answer.

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

- SERB-POWER (Promoting Opportunities for Women in Exploratory Research) is a scheme designed exclusively for women scientists.
- The Science and Engineering Research Board (SERB), a Statutory body of the Department of Science and Technology (DST), has been contemplating to institute a scheme to mitigate gender disparity in science and engineering research in various S&T programs in Indian academic institutions and R&D laboratories.
- SERB – POWER Scheme will have two components namely (i) SERB-POWER Fellowship (ii) SERB-POWER Research Grants. The salient features of each of these are as follows:
- Salient features of the SERB-POWER Fellowship:-
  - ✓ Target: Women researchers in 35-55 years of age.
  - ✓ Up-to 25 Fellowships per year and not more than 75 at any point in time.

Salient features of the SERB – POWER Research Grant

- POWER Grants will empower women researchers by funding them under following two categories:
  - ✓ Level I (Applicants from IITs, IISERs, IISc, NITs, Central Universities, and National Labs of Central Government Institutions): The scale of funding is up to 60 lakhs for three years.
  - ✓ Level II (Applicants from State Universities / Colleges and Private Academic Institutions): The scale of funding is up to 30 lakhs for three years.
- POWER Grant will be regulated through terms of reference conforming to SERB-CRG (Science and Engineering Research Board-Core Research Grant) guidelines.
- While a Search-cum-Selection Committee constituted for the purpose will help in identifying the POWER Fellowship, the existing Programme Advisory Committee (PAC) mechanism will be used to select the POWER Research Grants.
- It is proposed to institute 25 POWER Fellowships annually.
- A total of 50 Power Grants each will be sanctioned in Level I & Level II per annum.

93.16 psyches, recently heard in news, is?

A. The first image of a black hole.

B. A giant squid sighting.

C. An exoplanet with water vapor.

D. An asteroid discovered in 1852.

Answer: D

Explanation

- Asteroids are small rocky bodies, orbiting the sun.
- The vast majority are in the so-called Asteroid Belt, between Mars and Jupiter.

- But these rocks also wander around elsewhere, leading to occasional scares about one hitting Earth and triggering another mass extinction.
- Scientists believe that the asteroid 16 Psyche is the core of a proto planet that was smashed apart some billion years ago.
- With a composition of 90 percent metallic and 10 percent silicate rock, it is thought to be much denser than a stony object of similar size, containing roughly 1 percent of the entire mass of the asteroid belt.
- The primary target of the Psyche mission, the Psyche spacecraft will launch in August 2022 and arrive at the asteroid in 2026, following a Mars gravity assist in 2023.
- Assuming that the core of the asteroid is made of iron and nickel, the total value of the asteroid is expected to be around $10,000 quadrillion dollars.
- 16 Psyche is a large asteroid discovered by the Italian astronomer Annibale de Gasparis on 17 March 1852 from Naples and named after the Greek mythological figure Psyche.

94.Leishmania donovani, recently heard in news, is a/an

A. Parasite

B. Fungi

C. Algae

D. Bacteria

Answer: A

Explanation

- Leishmania donovani is a species of intracellular parasites belonging to the genus Leishmania, a group of haemoflagellate kinetoplastids that cause the disease leishmaniasis.
- It is a human blood parasite responsible for visceral leishmaniasis or kala-azar, the most severe form of leishmaniasis.
- It infects the mononuclear phagocyte system including spleen, liver and bone marrow.
- Infection is transmitted by species of sand fly.
- Therefore, the parasite is prevalent throughout tropical and temperate regions including Africa (mostly in Sudan), China, India, Nepal, southern Europe, Russia and South America.

95.Which of the following statements are correct about Pinaka system?

1. **It is indigenously developed by ISRO.**
2. **It will be used to launch satellites into the geo- stationary orbits.**

Select the correct code.

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

Explanation

- Pinaka is an indigenously developed rocket system named after Lord Shiva's mythological bow.
- It is used for attacking the adversary targets prior to the close-quarter battles which involve smaller range artillery, armoured elements and the infantry.
- The development of the Pinaka was started by the DRDO in the late 1980s, as an alternative to the multi-barrel rocket launching systems of Russian make, called like the 'Grad', which are still in use.
- After successful tests of Pinaka Mark-1 in late 1990, it was first used in the battlefield during the Kargil War of 1999, quite successfully.
- Subsequently, multiple regiments of the system came up over the 2000s.
- The Pinaka, which is primarily a multi-barrel rocket system (MBRL) system, can fire a salvo of 12 rockets over a period of 44 seconds.
- One battery of the Pinaka system consists of six launch vehicles, accompanied by the loader systems, radar and links with network-based systems and a command post.
- It can neutralize an area one kilometer by one kilometer.
- The Mark-I version of Pinaka has a range of around 40 kilometres and the Mark-II version can fire up to 75 kilometres.
- The Mark-II version of the rocket has been modified as a guided missile system by integrating it with the navigation, control and guidance system to improve the end accuracy and increase the range.
- The navigation system of the missile is linked with the Indian Regional Navigation Satellite System.
- India successfully flight-tested the enhanced version of Pinaka multi-barrel rocket system (MRLS).
- Indigenously developed by the Defence Research and Development Organisation (DRDO), the enhanced Pinaka along with guidance Pinaka will cover the range between 60 to 90 kilometres and will be deployed by the Indian Army.
- The test-flight was carried out from Integrated Test Range (ITR) in Chandipur, off the coast of Odisha.
- This new rocket system has a longer range with reduced length compared to the earlier variant (Mk-1), which will now be phased out.
- The design and development has been carried out by Pune-based laboratories of DRDO, Armament Research & Development Establishment (ARDE) and High Energy Materials Research Laboratory (HEMRL).
- All the flight articles were tracked by range instruments such as telemetry, radar and Electro Optical Tracking Systems (EOTS) which confirmed the flight performance.
- The enhanced version of the Pinaka rocket would replace the existing Pinaka Mk-1 rockets.

- While Mk-1 had a range of 36 km, this enhanced variant can hit a target 45 to 60 km away and has been developed as per requirements of the Indian Army.

96. Baghjan well is in which state?

A. Bihar

B. Uttar Pradesh

C. Assam

D. Gujarat

Answer: C

Explanation

- The Oil India Limited owned Baghjan well, near tinsukia Assam, erupted on May 27, 2020.
- It has been burning for more than five months now.
- The fire is still uncontrollable even after five months of continuous efforts.
- In order to put off the fire, a snubbing unit is being brought from Canada.
- The OIL failed to control the fire after reaching a penultimate stage in August 2020.
- The uncontrollable release of natural gas was the main reason.

97.Which of the following statements regarding OTT are correct?

1. **OTT - over-the-top media service is any online content provider that offers streaming media as a standalone product.**
2. **It is regulated by Department of Telecommunications.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

- The government has brought “Over the Top” (OTT) platforms or video streaming service providers under Ministry of Information and Broadcasting.
- This will give the government control over the OTT platforms, which were unregulated till now.
- Earlier there was no law or autonomous body governing digital content.

- In January 2019, eight video streaming services had signed a self-regulatory code that laid down a set of guiding principles for the content on these platforms.
- The code adopted by the OTTs prohibited five types of content, including content which deliberately and maliciously disrespects the national emblem or flag and any visuals or story lines that promotes child pornography.
- An "over-the-top" media service is any online content provider that offers streaming media as a standalone product.
- The term is commonly applied to video-on-demand platforms, but also refers to audio streaming, messaging services, or internet-based voice calling solutions.
- OTT services circumvent traditional media distribution channels such as telecommunications networks or cable television providers.

98.Shashi Shekhar Vempati committee recently heard in news is constituted for

A. Consultative committee of Parliament for the Ministry of Defence.

B. Existing rating system for TV channels.

C. Malpractices in banks

D. Corporate Social Responsibility (CSR)

Answer: B

Explanation

- The central government has entered into the functioning of India's television rating system which was until now solely handled by joint industry body under BARC India.
- The government has notified a committee to be headed by Prasar Bharati CEO Shashi Shekhar Vempati to access the existing rating system for TV channels.
- The KRA of the committee according to the Ministry will be to:
  - ✓ Study past recommendations made by various forums on the subject of television rating systems in India and matter incidental thereto.
  - ✓ Study recent recommendations of TRAI on the subject
  - ✓ Suggest steps for enhancing competition in the sector
- Review of the presently notified guidelines to see if the intended purpose(s) of issuing the guidelines have stood the test of time and has met needs of various stakeholders involved. The lacunae, if any, shall be specially addressed by the committee
- Any issues related or incidental to the subject
- To make recommendations on way forward for robust, transparent and accountable rating system in India, and
- Any other related issues assigned by MIB from time to time

- The committee may invite any expert as a special invitee. The committee shall submit its report to the I&B Minister within two months of the date of issue of order.

99.Which of the following statements regarding India Mobile Congress are correct?

1. **It is the largest cluster of e-court India services.**
2. **It is organized by Department of Telecommunications (DoT).**
3. **Theme for year 2020 is Inclusive Innovation – Smart I Secure I Sustainable.**

A. 1 and 2 only.

B. 2 and 3 only.

C. 1 and 3 only.

D. 1, 2 and 3.

Answer: B

Explanation

- The IMC 2020 will be held virtually this year.
- It is organized by the Department of Telecommunications (DoT) and Cellular Operators Association of India (COAT)
- Theme: "Inclusive Innovation – Smart I Secure I Sustainable"
- It is the biggest technology platform in Asia that brings together top policy makers, global industry experts, academia, regulators and analysts to discuss and deliberate on critical industry issues that result in policy decisions and affect market trends in addition to inviting investments into the sector and driving innovations.
- India Mobile Congress is committed to put India on the global technology map and promote the idea of a self-reliant India (Atmanirbhar Bharat)
- IMC has established itself as a leading platform for bringing together the industry, Government, academia, and other ecosystem players to discuss, deliberate and display the latest industry technology trends around major themes such as SG, Artificial Intelligence (AI), Internet of things (IoT), Data Analytics, Cloud and Edge Computing, Open source tech, data privacy and cyber security, Smart Cities and automation.
- This year prime Partners include Dell Technologies, Ribbon Communications and Red Hat.

100.EOS-01, recently heard in news is

A. Fermi's chimneys

B. Radio bubbles in the galaxy

C. Vaccine developed by Pfizer to fight covid-19

D. An Earth observation satellite.

Answer: D

Explanation

- It is an earth observation satellite.
- EOS-01 is nothing but another Radar Imaging Satellite (RISAT) that will work together with RISAT-2B and RISAT-2BR1 launched last year.
- Henceforth all the earth observation satellites would be called EOS-series.
- Earth-observation satellites are used for land and forest mapping and monitoring, mapping of resources like water or minerals or fishes, weather and climate observations, soil assessment, geospatial contour mapping are all done through earth-observation satellites.

101.Pneumonia and Diarrhoea Progress Report is released by

A. Bill & Melinda Gates Foundation.

B. Global Alliance for Vaccines and Immunization (Gavi).

C. International Vaccine Access Centre (IVAC).

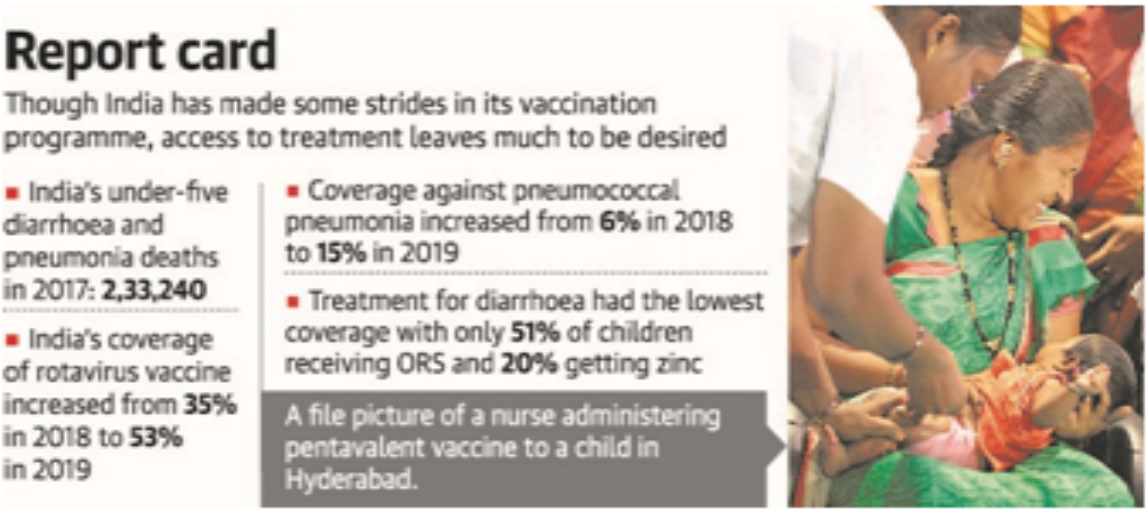
D. United Nations Children's Fund (UNICEF).

Answer: C

Explanation

- Released annually by the International Vaccine Access Centre (IVAC).
- India has made significant progress in its vaccination coverage to prevent child pneumonia and diarrhoea deaths.

- Although overall the world's health systems are falling short of ensuring that children have access to prevention and treatment services, India has achieved the global target of 90% coverage for three of the five vaccines whose coverage is monitored in the report.
- These vaccines are Diphtheria, Pertussis and Tetanus (DPT) vaccine, Measles-containing-vaccine first dose, and Haemophilus influenzae type B, pneumococcal conjugate vaccine (PCV), and rotavirus vaccine.
- India has also completed the "100-day agenda" — an unprecedented national scale-up of rotavirus vaccine. This landmark vaccine expansion will help protect 26 million children born each year against life-threatening cases of rotavirus diarrhoea.
- However, India failed to reach all four targets for treatment- breastfeeding, immunisation, care-seeking and antibiotics, oral rehydration solution (ORS), and zinc supplementation.



102.PARAM SIDDHI recently seen in news is:

A. A gel that can protect farmers from toxic pesticides.

B. World's thinnest material with novel technique.

C. An AI super computer

D. Faster diagnostic tests for tuberculosis.

Answer: C

Explanation

- Param Siddhi is a supercomputer established under the National Supercomputing Mission (NSM).
- It has achieved 63rd rank in the list of 500 most powerful supercomputers in the world.
- Param Siddhi-AI will go a long way in empowering our national academic and R&D institutions as well as industries and start-ups spread over the country networked on the national supercomputer grid over the National Knowledge Network (NKN)

- The AI system will strengthen application development of packages in areas such as advanced materials, computational chemistry and astrophysics, and several packages being developed under the mission on platform for drug design and preventive health care system, flood forecasting package for flood-prone cities like Mumbai, Delhi, Chennai, Patna and Guwahati.
- This will accelerate research and development in the fight against COVID-19 through faster simulations, medical imaging, genome sequencing and forecasting and is a boon for Indian masses and for start-ups and MSMEs in particular.
- It will help in application developers and will help testing of weather forecasting packages by National Centre for Medium Range Weather Forecast (NCMRWF) and Indian Institute of Tropical Meteorology (IITM), geo-exploration packages for oil and gas recovery, packages for aero design studies, computational physics and mathematical applications and even online courses for Human Resource Development.
- The supercomputer with Rpeak of 5.267 Petaflops and 4.6 Petaflops Rmax (Sustained) was conceived by C-DAC and developed jointly with support of DST and the Ministry of Electronics and Information Technology (MeitY) under the NSM.
- Param Siddhi has got the recognition among non-distributed computer systems. A non-distributed computer system has all its components at a single location. In this case, Param Siddhi is in Pune.
- Param Siddhi Supercomputer is built on the NVIDIA DGX SuperPOD reference architecture networking along with C-DAC's indigenously developed HPC-AI engine, software frameworks and cloud platform and will help deep learning, visual computing, virtual reality, accelerated computing, as well as graphics virtualisation.

103.Which of the following statements are *incorrect* about G20 Global Smart Cities Alliance?

1. **It was formed by WEF – World Economic Forum.**
2. **The aim of the alliance is to promote the responsible and ethical use of smart city technologies by establishing global norms and policy standards for the use of connected devices in public spaces.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

Explanation

- The World Economic Forum (WEF) has announced the formation of the G20 Global Smart Cities Alliance on Technology Governance.
- The alliance includes 15 city networks and technology governance organisations from all over the world.
- The aim of the alliance is to promote the responsible and ethical use of smart city technologies by establishing global norms and policy standards for the use of connected devices in public spaces.

- The decision to form such an alliance took place in June 2019 parallel to the G20 Summit in Osaka, Japan.
- The alliance committed to co-design and present a global policy framework on smart city technologies before the G20 Riyadh Summit in Saudi Arabia.
- It is currently accepting nominations from public and private entities, interested in contributing to global policy standards.
- Four Indian cities — Indore, Bengaluru, Hyderabad and Faridabad — feature in a list of 36 cities across 22 countries and six continents selected by the World Economic Forum (WEF) to pioneer a new roadmap for smart cities as part of the G20 Global Smart Cities Alliance.
- The list also includes Dubai, Belfast, Barcelona, London, Manila, Moscow, San Jose, Toronto, Melbourne, Lisbon, Istanbul and others.
- These 36 "pioneer cities" will adopt policies for privacy protection, better broadband coverage, accountability for cyber security, increased openness of city data, and better accessibility to digital city services for disabled and elderly people.
- The plan will come into motion with the launch of a new global policy roadmap for safe adoption of new technology by the G20 Global Smart Cities Alliance amid the Covid-19 pandemic and the economic hardship it has brought on cities across the world.
- The policy is designed to give cities the procedures, laws and regulations they need to use new technology responsibly, the statement said.
- City governments are on the frontline of a global crisis and need to be able to act quickly and decisively to curtail this pandemic and set course for their economic recovery.
- Technology is an essential tool in this fight but governments cannot risk falling into the usual traps related to privacy, security and vendor lock-in.
- The initiative originated in Japan from the Centre for the Fourth Industrial Revolution.

104.Reciprocal Access Agreement (RAA) recently heard in news is signed between which of the following countries?

1. **Japan**
2. **Australia**
3. **India**
4. **USA**

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2, 3 and 4

Answer: A

Explanation

- Japan and Australia have signed a landmark defence deal in a bid to counter China's growing influence in the South China Sea and over the Pacific island nations.
- The RCA is a defence pact which is expected to intensify military cooperation between the two countries.
- The agreement is expected to streamline activities such as joint military training exercises, natural disaster and humanitarian support of the two countries.
- Japan has a similar agreement with only one other country, the US. The agreement was six years in negotiation and will provide a legal and administrative framework for both forces visiting the other country.
- The pact does not need to be approved by the Australian Parliament, but it will need to be approved by Japan's parliament.
- Reciprocal Access Agreement (RAA) comes weeks after foreign ministers of the Quad alliance, which includes the US and India, met in Tokyo.
- The pact allows Japanese and Australian troops to visit each other's countries and conduct training and joint operations.
- The two sides also agreed on the need for a framework to allow Japanese military to protect Australian forces if needed.

105.Global Prevention Coalition (GPC) is related to which of the following?

A. Suicide prevention

B. HIV prevention

C. Drug deaddiction

D. Cardiovascular disease prevention

Answer: B

Explanation

Global HIV Prevention Coalition (GPC)

- It is a global coalition of United Nations Member States, donors, civil society organizations which was established in the year 2017 to support global efforts to accelerate HIV prevention.
- Membership: It includes the 25 highest HIV burden countries, UNAIDS Cosponsors, donors, civil society and private sector organizations.
- Goal: To strengthen and sustain political commitment for primary prevention by setting a common agenda among key policy-makers, funders and programme implementers.
- Union Health Minister addressed the Ministerial meeting of the Global Prevention Coalition (GPC) for HIV Prevention

- The programme is aimed at providing outreach, service delivery, counselling and testing and ensuring linkages to HIV care.
- Indian model is centered on the concept of 'Social Contracting' through which the Targeted Interventions (TI) programme is implemented.
- Under the Test and Treat Policy, about 50 thousand people living with HIV who were lost to follow-up were linked back to AntiRetroviral Treatment services through 'Mission SAMPARK', while Viral Load Testing facilities have been scaled up from the existing ten public sector labs to 64 labs across the country.

106.Which of the following statements regarding Team Halo are correct?

1. **It is an initiative undertaken by the United Nations (UN) in collaboration with The Vaccine Confidence Project at the University of London.**
2. **It is to provide vaccination to children in the remotest areas of Africa.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

- Over 100 scientists from different countries have joined hands to tackle the issue of misinformation surrounding Covid-19 vaccines
- These scientists have come together under Team Halo, an initiative undertaken by the United Nations (UN) in collaboration with The Vaccine Confidence Project at the University of London
- The initiative aims to tackle misinformation by sharing information on the safety and effectiveness of vaccines via social media.
- These scientists are producing creative, social media-friendly videos on Covid-19 vaccine science, personal experiences and reactions to information on the COVID-19 vaccine.

107.Which of the following statements regarding Chang'e-5 Mission are correct?

1. **It was recently launched by Japan.**
2. **It will attempt to collect 2 kg of samples in a previously unvisited area in a massive lava plain known as Oceanus Procellarum, or "Ocean of Storms"**

A. 1 only

B. 2 only

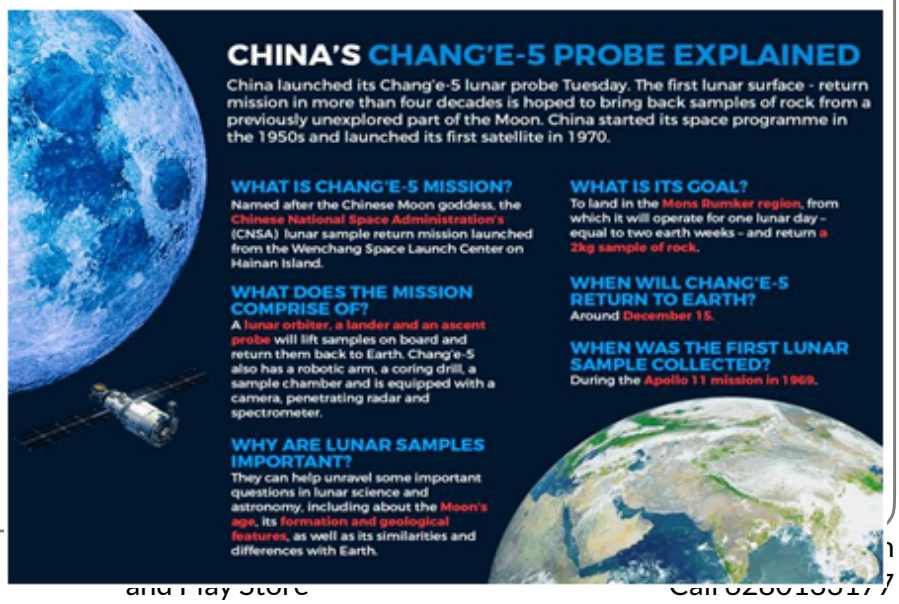
C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

- The Chang'e-5 probe, named after the mythical Chinese moon goddess, aims to shovel up lunar rocks and soil to help scientists learn about the moon's origins, formation and volcanic activity on its surface.



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- The goal of the mission is to land in the Mons Rumker region of the moon, where it will operate for one lunar day, which is two weeks long.
- It will collect 2 kg of surface material from a previously unexplored area known as Oceanus Procellarum — or "Ocean of Storms" — which consist of vast lava plain.
- The original mission, planned for 2017, was delayed due to an engine failure in China's Long March 5 launch rocket.
- If successful, China will be only the third country to have retrieved samples from the moon, following the U.S. and the Soviet Union in the 1960s and 1970s.

108.Which of the following statements about Indian Regional Navigation Satellite System (IRNSS) are correct?

1. **It has been accepted as a component of the World Wide Radio Navigation System (WWRNS) for operation in the Indian Ocean region.**
2. **It was developed by DRDO.**
3. **NavIC has 8 satellites and their range is within India and its adjoining regions extending up to 1,500 km from the country's border.**

A. 3 only

B. 1 and 2 only

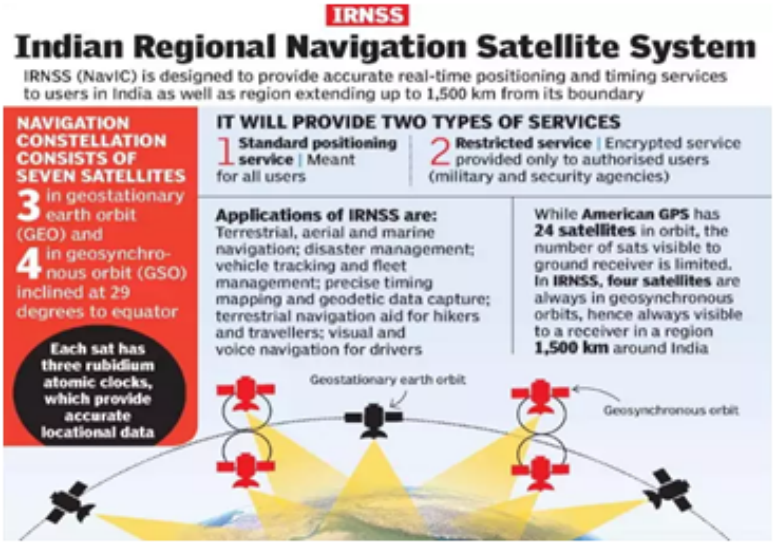
C. 1 and 3 only

D. 1, 2 and 3

Answer: C

Explanation

- Indian Regional Navigation Satellite System (IRNSS) has been accepted as a component of the World Wide Radio Navigation System (WWRNS) for operation in the Indian Ocean region by the International Maritime Organisation (IMO).



- The move will enable merchant vessels to use IRNSS for obtaining position information similar to Global Positioning System (GPS) and Global Navigation Satellite System (GLONASS) to assist in the navigation of ships in ocean waters up to 1500 km from Indian boundary.

- The Maritime Safety Committee (MSC) of International Maritime Organisation (IMO) during its recent meeting held from November 4-11 has approved the recognition of the IRNSS as a component of the World-Wide Radio Navigation System.
- This is a significant achievement of Ministry of Ports, Shipping and Waterways (MoPSW), Directorate General of Shipping (DGS) and Indian Space Research Organisation (ISRO) towards 'Atmanirbhar Bharat'.

109.SIMBEX-20 is a maritime exercise between

1. **India**
2. **Singapore**
3. **Thailand**

A. 1 and 2

B. 2 and 3

C. 1, 2 and 3

D. 1 and 3

Answer: A

Explanation

- The 27th edition of India – Singapore Bilateral Maritime Exercise SIMBEX-20 has been organised from 23 to 25 November 2020 in the Andaman Sea.
- Indian Navy (IN) is the host for the 2020 edition of SIMBEX.
- The SIMBEX series of exercises are being held between the Indian Navy and Republic of Singapore Navy (RSN), annually since 1994.
- The exercise aims at enhancing mutual inter-operability and imbibing best practices from each other.
- From the Indian side, destroyer Rana with integral Chetak helicopter and indigenously built corvettes Kamorta and Karmuk, IN submarine Sindhuraj and P8I maritime reconnaissance aircraft participated in the exercise.
- RSN was represented by the 'Formidable' Class frigates 'Intrepid' and 'Steadfast' with integral S70B helicopter and 'Endurance' Class Landing Ship Tank 'Endeavour' in the exercise.

110.Gale crater, recently heard in news, is located on

A. Moon

B. Venus

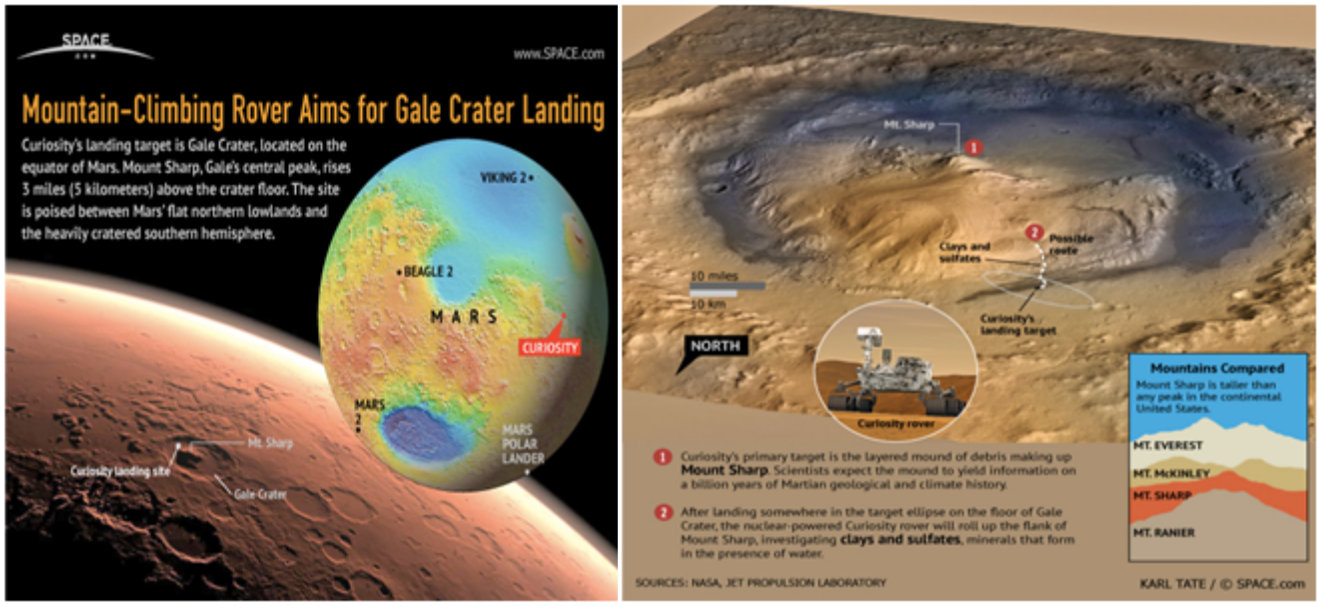
C. Jupiter

D. Mars

Answer: D

Explanation

- NASA's Curiosity rover has been exploring Gale Crater on Mars since 2012.
- In that time, it's confirmed that a lake – or series of lakes, and flowing streams – existed there a few billion years ago.
- It's more evidence that Mars was once a wetter and much more habitable environment than it is today.
- On November 18, 2020, scientists announced a new study based on an analysis of Curiosity's data that has yielded another glimpse into Gale Crater's past: mega floods.
- They are giant floods, likely caused by a meteorite impact that washed through the crater with incredible power, leaving behind ripples that can still be seen today.
- These scientists said that the heat from a meteorite impact likely created the mega floods by melting ice on the Martian surface.
- The finding is a bit of a surprise, since the telltale geologic structures were first seen by Curiosity, and had not previously been identified from orbit.



111.The production and emission of light by a living organism is called

A. Emission Spectrum

B. Bioluminescence

C. Effervescence

D. Braking Radiation

Answer: B

Explanation

- Bioluminescence is an amazing natural phenomenon in which an organism produces and emits light due to a chemical reaction where the chemical energy is converted into light energy
- The sparkle of fireflies on a summer night is produced as a result of a chemical reaction in their glowing abdomens.
- Bioluminescence occurs due to a chemo luminescence reaction, where the enzyme luciferase catalyses the pigment luciferin.
- Energy is utilized in most of the reactions
- The reaction takes place inside or outside the cell.
- Many organisms produce luciferase which helps them to accelerate the rate of reaction.
- Some organisms bind oxygen with luciferin in a photoprotein.
- It lights up the moment some ion is present.
- The tide that produces a fluorescent blue hue—bioluminescence—made an appearance on Juhu beach in Mumbai and Devgad beach in Sindhudurg along Maharashtra's coastline.
- Bioluminescence has been an annual occurrence along the west coast since 2016 during the months of November and December.
- Similar to the blue tide, there exists another such phenomenon called red tide or harmful algal blooms that emits red light.
- It is rare occurrence caused when colonies of algae—simple plants that live in the sea and freshwater—grow out of control while producing toxic or harmful effects on people, fish, shellfish, marine mammals, and birds.

112.ART-PARK recently heard in news is a

A. New Covid- 19 testing technique

B. A new missile museum to be setup in Bangalore

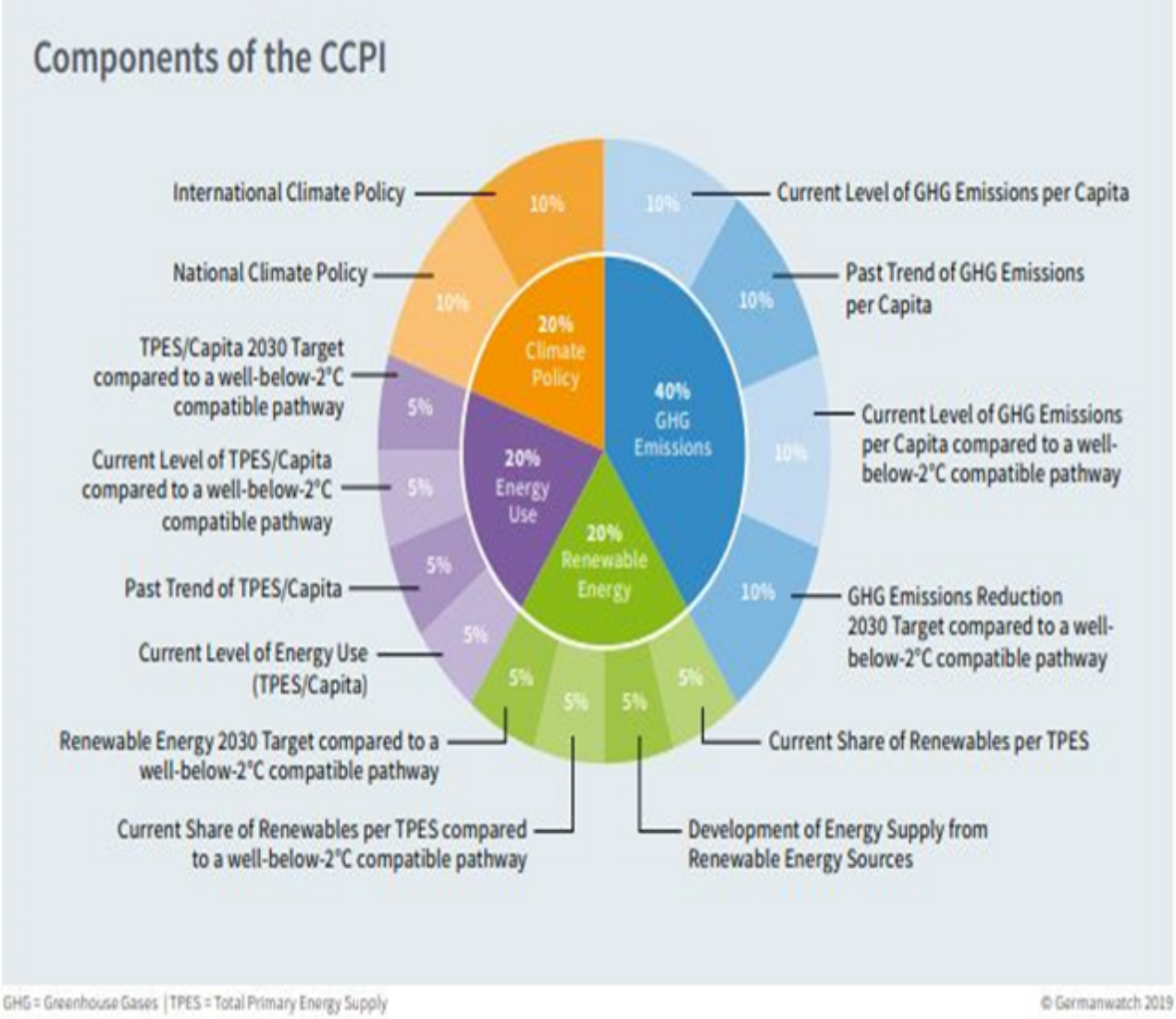
C. A collaboration of IISER and DRDO for manufacturing of defense equipment.

D. Related to Artificial Intelligence.

Answer: D

Explanation

- An Artificial Intelligence and Robotics Technologies Park (ARTPARK), set up in Bengaluru, will promote technology innovations in AI and robotics.
- The government expects it will lead to a positive societal impact by executing ambitious mission-mode research and development (R&D) projects in healthcare, education, mobility, infrastructure, agriculture, retail, and cyber security, focusing on problems specific to India.
- ARTPARK is a not-for-profit foundation established by the Indian Institute of Science (IISc), Bengaluru with support from AI Foundry in a public-private model.



- With seed funding of US$ 22 million from the Department of Science & Technology (DST), under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS), it will bring about a collaborative consortium of partners from industry, academia, and government bodies.
- This will lead to cutting-edge innovations in technologies, standards, products, services, and intellectual properties.
- ARTPARK will develop AI and robotics facilities to support technology innovations and capacity building through the advanced skills training of students and professionals in these areas.
- Some of these facilities will be key enablers for whole new sets of technologies, products, and services.
- It will develop DataSetu, which will enable confidentiality and a privacy-preserving framework to share data and run analytics spurring the data-sharing ecosystem and create a data marketplace, boosting AI applications and solutions.
- Another service will be BhashaSetu, which will enable real-time Indic language translation, of both speech-to-speech and speech-to-text.
- This will further unlock the economic potential of the country, allowing all Indian citizens to equitably participate in the economic progress, regardless of their language, the press release claimed.

- The National Mission ICPS with its 25 Hubs has a unique architecture that envisages a strong collaboration and co-ownership among the triple helix of industry, academia, and government with full flexibility.
- ARTPARK will also run a novel ARTPARK Venture Studio that will mentor technopreneurs who will take the outputs of the mission-mode projects to launch new startups.

113.Which of the following statements regarding Madras Atomic Power Station are correct?

1. **It is country's first indigenously developed 500-megawatt (mw) prototype fast breeder reactor.**
2. **It uses thorium, to breed new fissile material, in a sodium-cooled fast reactor design.**
3. **Bharatiya Nabhikiya Vidyut Nigam (Bhavini), a public sector company under DAE, has been given the responsibility to build the fast breeder reactors in the country.**

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: C

Explanation

- **Context**
- Madras Atomic Power Station (MAPS) at Kalpakkam, 70 km away from Chennai on the east coast, is braced to face the Cyclone Nivar in the Bay of Bengal.
- The cyclone protection machinery of MAPS was activated and all the preparedness measures including placing sandbags on the coastal side, clearing of storm drains, and inspection of plant buildings and structures was done.
- Station authorities were on high alert, closely monitoring the weather bulletins and ready to take necessary actions when required.

About the plant

- It is country's first indigenously developed 500-megawatt (mw) prototype fast breeder reactor at Kalpakkam in Tamil Nadu.
- The indigenously developed prototype fast breeder reactor of 500 mw is now undergoing sodium commissioning.
- Achieving criticality means that the reactor is fully operational and safe.

About Prototype Fast Breeder Reactor (PFBR)

- The Kalpakkam PFBR is using uranium-238 not thorium, to breed new fissile material, in a sodium-cooled fast reactor design.

- The power island of this project is being engineered by Bharat Heavy Electricals Limited, largest power equipment utility of India.
- The surplus plutonium (or uranium-233 for thorium reactors) from each fast reactor can be used to set up more such reactors and grow the nuclear capacity in tune with India's needs for power.
- India has the capability to use thorium cycle based processes to extract nuclear fuel.
- This is of special significance to the Indian nuclear power generation strategy as India has one of the world's largest reserves of thorium, which could provide power for more than 10,000 year.
- Bharatiya Nabhikiya Vidyut Nigam (Bhavini), a public sector company under DAE, has been given the responsibility to build the fast breeder reactors in the country.

114.Sanitation and hygiene fund was recently launched by

A. United Nations

B. Blue Planet Network

C. World Bank – Water and Sanitation Program

D. World Vision

Answer: A

Explanation

- The United Nations earlier this month launched the Sanitation and Hygiene Fund to provide accelerated funding to countries with the heaviest burden of diseases stemming from lack of sanitation services and have the least ability to respond to them.
- It also aims to raise $2 billion over the next five years for these countries.
- The novel coronavirus disease (COVID-19) pandemic has blown the lid off poor sanitation and hygiene practices.
- The key to keeping the virus at bay is hand-washing — a facility inaccessible to three billion people across the globe.
- The fund is hosted by the UN Office for Project Services, which provides technical advice and project implementation to the UN and its partners.
- The objectives of the Fund are:
  - ✓ Expanding household sanitation
  - ✓ Ensuring menstrual health and hygiene
  - ✓ Providing sanitation and hygiene in schools and healthcare facilities
  - ✓ Supporting innovative sanitation solutions

115.Which of the following statements are correct about National Medicinal Plant Board?

1. **Its mandate is to promote the medicinal plant's sector by developing a suitable mechanism which will support policies and programs for the cultivation and export of medicinal plants.**
2. **It works under Ministry of AYUSH.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

- The National Medicinal Plants Board was established by the Government of India in 24th November 2000.
- Its mandate is to promote the medicinal plant's sector by developing a suitable mechanism which will support policies and programs for the cultivation and export of medicinal plants.
- The growing demand for medicinal plants is met by the NMBP's focus on conservation and augmentation of local medicinal plants and spices of significance.
- The NMPB encourages research and development, capacity building through training and promotion of activities such as the creation of herbal gardens at the home and school levels.
- The board also supports programs for quality assurance, which institute a credible mechanism for the certification of quality raw drugs, seed and planting material.
- Functions of the NMPB:
  - ✓ Advice concerned Ministries and State/ Union Territory Governments on policy matters relating to schemes and programs for the development of medicinal plants.
  - ✓ Identification, Inventorisation and Quantification of medicinal plants.
  - ✓ Promotion of co-operative efforts among collectors and growers and assisting them to store, transport and market their products effectively.
  - ✓ Setting up of data-base system for incentivisation, dissemination of information and facilitating the prevention of Patents being obtained for medicinal use of plants which is in the public domain.
  - ✓ Undertaking and awarding Scientific, Technological research and cost-effectiveness studies.
  - ✓ Development of protocols for cultivation and quality control.
  - ✓ Encouraging the protection of Intellectual Property Rights.

116.National Portal for transgender persons comes under

A. Ministry of Home Affairs

B. Ministry of Social Justice and Empowerment

C. Ministry of Women & Child Development

D. Ministry of Minority Affairs

Answer: B

Explanation

- The Social Justice and Empowerment Ministry launched a national portal for transgender persons to apply for certificates and identity cards.
- The portal had been developed within two months of the Ministry notifying the Transgender Persons (Protection of Rights) Rules, 2020.
- The portal would help transpersons in applying for certificate and ID cards digitally without having to visit any government office.
- Through the portal, they can monitor the status of their application that ensures transparency in the process.
- The issuing authorities are also bound by strict timelines to process the applications and issue certificates and identity cards without any necessary delays.
- Once the certificate and I-card are issued, the applicant can download them from the portal itself.
- Under the Transgender Persons (Protection of Rights) Act, 2019, trans-persons can apply for an ID card based on their self-perceived identity.
- The portal — transgender.dosje.gov.in — would enable the applicant to track their application and register their grievances in case of delays.

117.Based on the following statements, identify the observatory?

1. **It was the world's second-largest single-dish radio telescope.**
2. **It was also known as the National Astronomy and Ionosphere Center (NAIC).**
3. **It was situated in Puerto Rico.**
4. **It was owned by the US National Science Foundation (NSF).**
5. **It was frequently used for finding asteroids that are swinging close to Earth.**

A. Gemini Observatory

B. Uraniborg

C. Roque de los Muchachos Observatory

D. Arecibo Observatory

Answer: D

Explanation

- Puerto Rico's Arecibo Observatory violently collapsed on December 1.

- Engineers had been planning to dismantle the radio telescope since a support cable snapped in November.
- But before that could happen, the telescope's 900-ton suspended platform crashed into the bowl-shaped disk below, destroying the facility.

IIT-B RANKING OF INDIAN CITIES

Index	Highest ranked	Lowest ranked
Basic amenities	Pune	Patna
Economic development	Mumbai	Patna
Safety and security	Kolkata	Patna
Transportation access	Delhi	Indore
Environmental impact	Mumbai	Lucknow
Infrastructure development	Kolkata	Patna
Gender role	Chennai	Patna

- Maxar imaging satellites in low-Earth orbit photographed Arecibo at various stages of its destruction.
- The destruction of Puerto Rico's Arecibo Observatory has been photographed from space.
- The telescope collapsed earlier this month, following damaged inflicted by Tropical Storm Isaias in August.
- Before engineers could repair that cable, another snapped in November. Soon afterward, the National Science Foundation decided to decomission and dismantle the structure in a controlled manner.
- Arecibo was one of only two radio telescopes of its kind in the world - China's FAST is the other. But its death could lead to a more powerful US replacement in the future.

118.100 Octane, recently heard in news is

A. A type of gasoline

B. Mountain-sized object 4 billion miles from Earth discovered by New Horizon

C. A commercial spaceship designed for NASA astronauts.

D. Newely discovered Antarctic and Greenland ice sheets.

Answer: A

Explanation

- Indian Oil Corporation (IOC) launched the nation''s first 100 Octane petrol, helping India join a select league of nations globally that have such superior quality fuel

What is 100 Octane fuel?

- Premium fuel (gasoline or petrol) is also commonly referred to as high octane fuel.
- The Octane rating is the ability of the fuel to resist engine knock – the engine pinging or rattling sound that comes as a result of premature ignition of the compressed fuel in one or more cylinders.

Uses of high octane fuel:

- High octane fuels are used in high-performance engines such as turbocharged cars.
- In such machines, high octane fuels are required as they do not burn prematurely.
- Some car owners choose high octane fuel for use in their non-turbo powered vehicle but that is not advisable unless your car explicitly needs the high octane fuel.
- High-octane petrol used in regular engines

- Experts warn that if you put premium fuel in a regular engine, it may even find that your vehicle's engine is having a harder time burning it and the adverse effects may scare you about the health of your car's engine.

119.Which of the following are the parameters of Urban Quality Index?

1. **Basic amenities**
2. **Economic development**
3. **Social Infrastructure**
4. **Transportation access**
5. **Education**
6. **Gender role**

A. 1, 3, 4 and 6 only

B. 2, 3, 5 and 5 only

C. 1, 2, 4 and 6 only

D. 1, 3, 4 and 5 only

Answer: C

Explanation

- It is compiled by the Indian Institute of Technology, Bombay (IIT-B).
- The study quantifies the relative holistic urban development of 14 cities in India using 29 indicators grouped into seven components
- Top city: Mumbai
- The other top cities: Delhi, Kolkata and Chennai.

120.Havana syndrome recently heard in news is a

A. Psychological Disorder

B. Cardiology Disorder

C. Blood Disorder

D. DNA Mutation Disorder

Answer: A

Explanation

- In 2016, the US Diplomats and intelligence officials placed in Havana reported to hear strange sounds and physical sensations in their homes and hotel rooms.

- The strange physical sensations were accompanied with severe headache, nausea, dizziness, fatigue, hearing loss and sleep problems.
- Since then the condition came to be known as Havana syndrome.
- So far more than two dozen American diplomats and their family members in China and Cuba have reported to have experienced such symptoms.
- Microwave weapons that are direct energy weapons which produce highly focused energy in the form of laser or microwaves.
- The victims of these weapons report a buzzing sound or a clicking sound constantly coming from the inside of their head.
- These weapons have long-term and acute damages without any signs of physical damage.
- The National Academy of Sciences report said that there are four possibilities that might have caused the symptoms.
- They are chemicals, infection, psychological factors and microwave energy.
- However, the report concluded that the most plausible mechanism that might have caused the syndrome is the directed pulse radiofrequency energy.
- By using the words directed and pulsed, the report concludes that the victims were targeted and were not affected from a common source of microwave energy.

121.Which of the statements are correct about Climate Change Performance Index?

1. **It was recently released by – (UNEP) United Nations Environment Programme.**
2. **According to the report none of the countries are in the path of meeting their Paris Agreement commitment.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

- The Global Climate Change Performance Index was recently released by the New Climate Institute, Germanwatch and CAN (Climate Action Network).
- The index has been rating the fifty-seven greenhouse emitters in the world since 2005.
- These countries account to 90% of global emissions.
- The index aims to enable comparison of mitigation efforts, enhance transparency in international climate politics.

- India remained in the top ten in the Climate Change Performance Index for the second consecutive year.
- China, one of the largest contributors of greenhouse gases ranked 33rd.
- In 2020, India slid a position to the tenth. India was at 31st rank in 2014.
- According to the index, only two G20 countries India and UK were among the high rankers.
- The rest of the six such as Saudi Arabia, USA, South Korea, Australia and Russia were at the bottom of the index.
- None of the countries were in top three ranks.
- This was because none of the countries were in the path of meeting their Paris Agreement commitment.
- Sweden was at fourth place followed by UK, Denmark, Morocco, Norway, Chile.
- The index is prepared by assessing the performance of fifty-seven countries in four categories namely renewable energy, GHG emissions, climate policy and energy use.

122.PM- WANI recently heard in news is related to which of the following?

A. A covid -19 Awareness Campaign

B. An Akashwani Program by Prasar Bharti

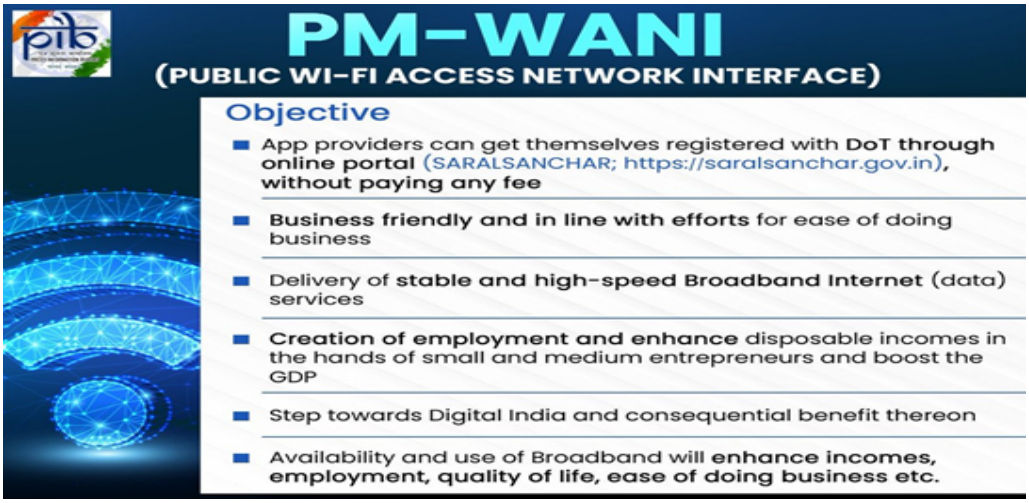
C. A Wi-Fi plans

D. An initiative by Ministry of Water Resources

Answer: C

Explanation

- Recently, in a bid to fuel broadband internet proliferation across the country, the Government of India launched PM WANI (Prime Minister Wi-Fi Access Network Interface) Scheme.
- The scheme aims to bring large scale deployment of Wi-Fi hotspots through the country to drive up connectivity options and improve digital access.



123.Which of the following statements are correct about Gaganyaan?

1. **Under the Gaganyaan schedule, three flights will be sent in orbit; there will be two unmanned flights and one human spaceflight.**
2. **GSLV Mk III, also called the LVM-3 (Launch Vehicle Mark-3 will be used to launch Gaganyaan as it has the necessary payload capability.**
3. **India is the 4th nation to launch a manned spaceflight.**

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

Explanation

- Gaganyaan, planned for Dec 2020, may be delayed due to Covid-related disruptions
- It was part of the two unmanned missions to be undertaken by the Indian Space Research Organisation ahead of the planned launch of India's maiden human spaceflight under 'Gaganyaan' in December 2021.
- The likely delay in the first unmanned mission was recently conveyed to the Space Commission.
- The Gaganyaan mission aims to send a three-member crew to space for a period of five to seven days by 2022 when India completes 75 years of Independence.
- The ISRO had started planning for the mission accordingly. The first unmanned mission was planned in December 2020, the second unmanned mission in June 2021.
- The final and the main component, the manned mission of Gaganyaan, was scheduled six months later in December 2021, much before the 2022 deadline.
- ISRO had earlier indicated that there would be a delay in several missions as the space body's work has been hit by disruptions due to the coronavirus pandemic.

- Among the major projects that have been affected are Chandrayaan-3 and Gaganyaan.
- Chandrayaan-3, the third mission to Moon, was scheduled later this year.
- The spacecraft will be placed in a low earth orbit of 300-400 kilometres. The total programme cost is expected to be less than ₹10,000 crores.

124.Which of the following statements are incorrect about Quantum key distribution?

1. **QKD works by using electrons.**
2. **QKD allows two distant users, who do not share a long secret key initially, to produce a common, random string of secret bits, called a secret key.**
3. **The encryption is "unbreakable"**

A. 1 only

B. 2 and 3 only

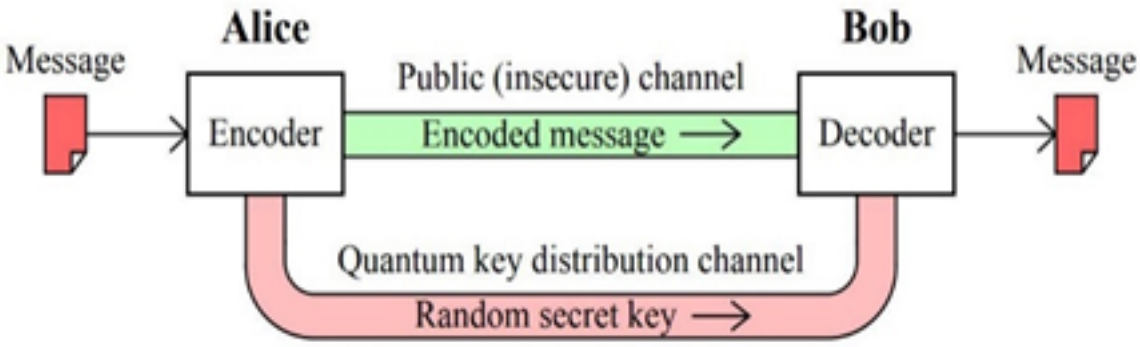
C. 2 only

D. 3 only

Answer: A

Explanation

- The Defence Research and Development Organisation (DRDO) successfully demonstrated communication between its two labs using Quantum Key Distribution (QKD) technology, which is a "robust" way to share encryption keys.
- In the QKD technology, encryption keys are sent as qubits in a fibre optic cable.
- Quantum computing uses qubits as basic resources, similar to how bits are used as basic resources in classical computing.
- The QKD is designed in a way that if an illegitimate entity tries to read the transmission, it will disturb the qubits - which are encoded on photons - and this will generate transmission errors, leading to legitimate end users being immediately informed.
- Quantum Communication using the time-bin QKD scheme was performed under realistic conditions.
- The setup also demonstrated the validation of detection of a third party trying to gain knowledge of the communication.



- The Defence Research and Development Laboratory (DRDL) and The Research Centre Imarat (RCI) were the two labs that participated in this demonstration.
- Quantum computing refers to a new era of faster and more powerful computers, and the theory goes that they would be able to break current levels of encryption.
- QKD works by using photons — the particles which transmit light — to transfer data.
- QKD allows two distant users, who do not share a long secret key initially, to produce a common, random string of secret bits, called a secret key.
- Using the one-time pad encryption this key is proven to be secure to encrypt and decrypt a message, which can then be transmitted over a standard communication channel.
- The encryption is "unbreakable" and that's mainly because of the way data is carried via the photon.
- A photon cannot be perfectly copied and any attempt to measure it will disturb it.
- This means that a person trying to intercept the data will leave a trace.

- The implications could be huge for cybersecurity, making businesses safer, but also making it more difficult for governments to hack into communication.

125.Which of the following has developed a solar-powered Unmanned Autonomous Survey Craft for Indian ports?

A. IIT Madras

B. IIT Bombay

C. IISER Bhopal

D. IISER Thiruvananthapuram

Answer: A

Explanation

- The Indian Institute of Technology (IIT) Madras researchers have developed a Solar-powered Unmanned Autonomous Survey Craft for Indian Ports and Inland Waterways to undertake autonomous hydrographic and oceanographic surveys and to provide real-time data transmission over a long distance.
- The system can be equipped with an echo sounder, GPS System and broadband communication technology, capable of delivering precise depth measurements.
- In addition to echo sounder and GPS system, it is possible to add additional oceanographic payloads (current and velocity measurements), 360-degree Camera, LiDAR for seamless topography and bathymetry measurements.
- The craft had a successful field-test recently off the Chennai Coast at Kamarajar Port.
- Further field trials under harsher environments have been scheduled during November 2020 at Syama Prasad Mookerjee (SMP) Port, Kolkata.
- The craft is fully solar-powered. It can endure five to several more hours depending on user requirements.

126.India is not a signatory to which of the following?

A. Wassenaar Arrangement

B. Missile Technology Control Regime (MTCR)

C. Australia Group

D. Nuclear Suppliers Group

Answer: D

Explanation

- The Australia Group (AG) is an informal forum of countries which, through the harmonisation of export controls, seeks to ensure that exports do not contribute to the development of chemical or

biological weapons.

- ✓ The formation of the Australia Group (AG) in 1985 was prompted by Iraq's use of chemical weapons during the Iran-Iraq War (1980-1988)
- ✓ Coordination of National export control measures assists Australia Group members to fulfil their obligations under the Chemical Weapons Convention and Biological & Toxin Weapons Convention.
- ✓ The Australia Group has a list of 54 compounds that are identified to be regulated in global trade. This list includes more items than the Chemical Weapons Convention.
- ✓ It has 43 members (including the European union). The members work on a consensus basis. The annual meeting is held in Paris, France.
- ✓ India joined the Australia Group (AG) on 19 January 2018.
- ✓ The Australia Group decided to admit India as the Group's 43rd Participant through a consensus decision.

127.Which of the following statements are correct about Chang'e-5?

1. **It made China the first country to successfully retrieve lunar samples since the 1970s.**
2. **It is an unmanned spacecraft.**
3. **It comprises of four parts: an orbiter, a returner, an ascender and a lander.**

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

Explanation

- Chinese spacecraft carrying rocks and soil from the moon has returned back to Earth, putting China to become the first country to successfully retrieve lunar samples since the 1970s.
- The Chang'e-5 was launched on Nov. 24 and a lander vehicle touched down on the moon on Dec. 1.
- The mission was expected to take around 23 days in total.
- The objective of the mission was to bring back lunar rocks, the first attempt by any nation to retrieve samples from the moon in four decades.
- It is an unmanned spacecraft by China.
- The probe is named after the mythical Chinese moon goddess.
- The rocket comprises of four parts: an orbiter, a returner, an ascender and a lander.
- The Chang'e-5 mission is expected to realize four "firsts" in China's space history:
  - ✓ The first time for a probe to take off from the surface of the Moon.
  - ✓ The first time to automatically sample the lunar surface.

✓ The first time to conduct unmanned rendezvous and docking in lunar orbit.

✓ The first time to return to Earth with lunar soil samples in escape velocity.

128.Himgiri, recently heard in news, is a

A. Seed Vault of India

B. Indian Navy Ship

C. Climate change alliance

D. A book about Tundra regions in India

Answer: B

Explanation

- The Garden Reach Shipbuilders and Engineers (GRSE) recently launched a new Project 17A ship called Himgiri for the Indian Navy.
- The ship was launched into the waters of Hooghly river.
- It is a Nilgiri-class Stealth Frigate.

Project 17A

- The project was approved by the Government of India in 2015.
- Under the project, a total of seven advanced frigates are to be delivered to the Indian Navy.
- Four of these are to be constructed by the Mazagon Dock Shipbuilders Limited and three are to be launched by GRSE.
- The Project 17A ships are guided missile frigates.
- Each of these ships are 149 meters long.
- They have displacement of approximately 6,670 tones' and a speed of twenty-eight knots.
- The ships are built using indigenously developed steel.
- They are integrated with indigenous sonar system and weapons such as BrahMos missile, LRSAM.

Himgiri

- It is the first of the three ships built by GRSE.
- The Project 17A ships are fitted with advanced sensors, indigenous weapons and is equipped with gas turbine propulsion.
- Earlier Himgiri was commissioned into the Indian Navy in 1974 and decommissioned in 2005.
- A new ship is now being launched in 2020.
- In 1976, Himgiri was the first ship of Indian Navy to shoot a pilotless aircraft.

Nilgiri-class Frigates

- They are the updated class of Leander class.
- Frigate is a type of warship that has different roles over time.
- Frigates are of various sizes.
- The Nigiri class Frigates of Indian Navy are Himgiri, Dunagiri, Udaygiri, Vindhyagiri and Taragiri.
- The ships have been named after the hills in India.

129.IND-INDO CORPAT recently heard in news is a naval exercise between India and

A. Indonesia

B. Ireland

C. West Indies

D. Malaysia

Answer: A

Explanation

- The 35th edition of India-Indonesia Coordinated Patrol (IND-INDO CORPAT) between the Indian Navy and the Indonesian Navy was conducted from 17 to 18 December 2020.
- The 35th IND – INDO CORPAT will contribute towards the Indian Navy's efforts to consolidate inter-operability and forge strong bonds of friendship across the Indo Pacific.
- Indian Naval Ship (INS) Kulish, an indigenously built missile corvette along with P8I Maritime Patrol Aircraft (MPA) will undertake coordinated patrol with Indonesian Naval Ship KRI Cut NyakDien, a KapitanPattimura (Parchim I) class corvette and an MPA of the Indonesian Navy.

130.Asia-Pacific Vaccine Access Facility has recently been launched by

A. World Bank

B. World Health Organization

C. Shanghai Cooperation Organization

D. Asian Development Bank

Answer: D

Explanation

- The Asian Development Bank recently launched Asia Pacific Vaccine Access Facility to provide equitable support to the developing countries as they procure and deliver vaccines.
- The bank has allocated 9 billion USD for the scheme.

- It will support developing countries in Asia and will put in efforts to procure vaccines against deadly virus.
- If a country has to obtain finances under APVAX, then it should fulfil the following criteria
- It must be procured through COVAX.
- It should be prequalified by World Health Organization
- It should be authorized by a stringent regulatory authority.
- COVAX is one of the three pillars of the ACT Accelerator launched by World Health Organization.
- The COVAX facility aims to make sure that all the people in the world will get equal access to COVID-19 vaccine.
- The initial aim of the facility is to ensure that two billion doses are available by the end of 2021.
- It is co-led by GAVI (Global Alliance for Vaccines and Immunization) and Coalition for Epidemic Preparedness Innovations (CEPI).
- ACT is a framework of collaboration that aims to accelerate production, development and equitable access to COVID-19 vaccine.
- The ACT Accelerator was launched by WHO, France and European Commission.
- It is built on three main pillars namely Therapeutics, Vaccines (COVAX) and Diagnostics.

131.Which of the following statements are incorrect about Green Rating for Integrated Habitat Assessment (GRIHA)?

1. **It is India's own rating system.**
2. **It jointly developed by TERI and the Ministry of Power.**
3. **The GRIHA Rating System contains 34 evaluation criteria with 100 points.**

A. 1 only

B. 2 only

C. 1 and 3 only

D. 3 only

Answer: B

Explanation

- 12th GRIHA (Green Rating for Integrated Habitat Assessment) Summit was recently held.
- It was organized by GRIHA Council from Hyderabad.
- Theme was Rejuvenating Resilient Habitats.
- It aims to serve as a platform to deliberate on innovative technologies and solutions which shall help in creating robust mechanisms for developing sustainable and resilient solutions for the benefit of the entire community.

- The Vice President also launched the SHASHWAT magazine and the book '30 Stories Beyond Buildings' during the event
- Green Rating for Integrated Habitat Assessment (GRIHA) is India's own rating system jointly developed by TERI and the Ministry of New and Renewable Energy.
- It is a green building design evaluation system where buildings are rated in a three-tier process.
- The GRIHA Rating System contains 34 evaluation criteria with 100 points.
- These criteria have been categorized into
  - ✓ Site Planning including conservation and efficient utilization of resources, health and wellbeing during building planning and construction stage.
  - ✓ Water Conservation.
  - ✓ Energy Efficiency including energy embodied & construction and renewable energy.
  - ✓ Waste Management including waste minimization, segregation, storage, disposal and recovery of energy from waste and
  - ✓ Environment for good health and wellbeing.
- It is the National Rating System Of India for any completed building construction.
- GRIHA is recognized as India's own green building rating system in India's Intended Nationally Determined Contributions (INDC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC).
- GRIHA Council has developed the Building Fitness Indicator (BFI) tool – a free-to-use self-assessment tool that allows organizations to measure the preparedness of workplaces to prevent exposure to COVID-19.

132.Based on the following statements identify the missile?

1. **This is surface to air anti-aircraft missile with a strike range of 25 km and capability to carry warhead of 60 kilogram.**
2. **It can reach an altitude of 18 km and can be fired from both tracked and wheeled platforms.**
3. **The missile is guided by a phased array fire control radar called 'Rajendra' which is termed as Battery Level Radar (BLR) with a tracking range of about 60 km.**
4. **It is capable of striking down enemy fighter jets and drones very effectively and accurately.**
5. **This surface-to-air missile was designed to intercept enemy aircraft and missiles from a distance of 18 to 30 km.**

A. Akash

B. Prithvi

C. Nag

D. Dhanush

Answer: A

Explanation

- Context: In an effort to achieve the target of $5 billion defence exports and improving strategic relations with friendly foreign countries, the Cabinet Committee on Security (CCS) has approved the export of the indigenous `Akash' surface to air missile system missile system.
- The CCS chaired by Prime Ministerhas for faster approvals for export of the indigenous `Akash' missiles, and other weapons systems and air platforms approved set up a high-level committee. This will comprise of the defence minister, External Affairs Minister and National Security Advisor.
- Several friendly nations including the ASEAN nations Vietnam, the Philippines, and UAE in the Middle East have shown interest in buying the indigenous `Akash' missile system.

Role of the Special Committee

- It will authorize exports of major indigenous platforms to friendly nations.
- And would explore various options including the Government-to-Government route.
- The `Akash' missile system which is going to be exported will be different from the one which the Indian armed forces are using.

What has been exported previously?

- The Akash Missile system will be the first-ever weapons platform to be exported.
- But India has been building fast patrol boats, helicopters and ammunition and radars for global customers.
- The Missile is already inducted in the Indian Air Force (2014) and the Indian Army (2015).
- It has a range of 25 km which helps to keep the helicopters, fighters and drones from attacking critical installations.
- Almost 96 per cent of the system is manufactured indigenously.
- It has the capability to engage multiple targets in Group Mode or Autonomous Mode, simultaneously.
- It comes with built-in Electronic Counter-Counter Measures (ECCM) features.
- The whole system has been configured on mobile platforms.
- It has been designed by DRDO and has been produced by defence PSU Bharat Electronics Ltd (BEL).
- Several countries have expressed interest in buying other major platforms including the radars, surveillance systems as well as air platforms.
- Countries from South America, Middle East as well as ASEAN nations have expressed interest in the Indo-Russian BrahMos missile too.
- The UAE is also looking at the indigenous Astra 70-kilometre range air-to-air missile.

133.Web based Digital Ocean app for information sharing has been launched by

A. Ministry of Science and Technology

B. Ministry of Electronics and Information Technology

C. Ministry of Earth Sciences

D. Ministry of Defence

Answer: C

Explanation

- Context: INCOIS, an autonomous body under the Ministry of Earth Sciences (MoES), has launched a web based application Digital Ocean to share information on marine data and forecast services.
- Indian National Centre for Ocean Information provides ocean information and advisory services to various stakeholders including data based on oceanographic research, advisory services such as fishing zone advisories, ocean state forecast, high wave alerts, tsunami early warnings, storm surge and oil-spill.
- It depends upon the oceanographic and marine meteorological data received from a wide variety of in situ and remote sensing ocean observing platforms in real-time established by the Ministry of Earth Sciences.
- The Digital Ocean platform (www.do.incois.gov.in) includes a set of applications developed to organise and present heterogeneous oceanographic data by adopting rapid advancements in geospatial technology.
- The platform will serve as a one stop-solution for all the data related needs of a wide range of users including research institutions, operational agencies, strategic users, academic community, maritime industry, policy makers and the public.
- It will play a central role in sustainable management of our oceans and expanding our “Blue Economy” initiatives.
- It is a first of its kind platform for ocean data management and contributes to the Digital India programme and is expected to bring a sea change in how the oceanographic data is served for a better understanding of the oceans.

134.Which of the following is not a part of Five eyes?

A. Canada

B. Germany

C. Australia

D. USA

Answer: B

Explanation

- Five Eyes is a network of five nations -- Australia, Britain, Canada, New Zealand and the US who collaborated to better respond to increasing threats by North Korea and China.
- Japan is on its way to become the ‘sixth eye’.

135.Based on following statements identify the disease?

1. **It is caused by a parasite called Leishmania, which is transmitted through the bite of sand flies.**
2. **Signs and symptoms include fever, weight loss, fatigue, anemia, and substantial swelling of the liver and spleen**
3. **It is a neglected tropical disease**
4. **In India, the only parasite that causes this disease is Leishmania donovani**

A. La Crosse Encephalitis

B. Lymphatic filariasis

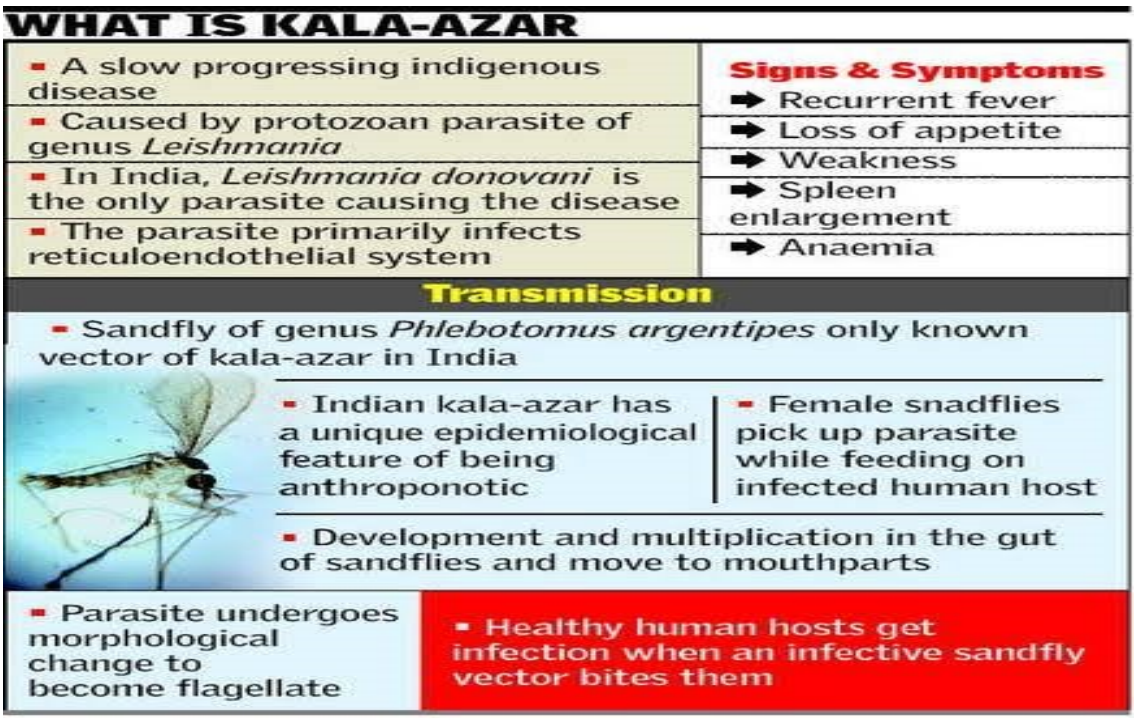
C. Japanese encephalitis

D. Kala Azar

Answer: D

Explanation

- Context: Union Minister of Health and Family Welfare today chaired an event to review the status of the disease Kala-Azar in the four states of Uttar Pradesh, Bihar, Jharkhand and West Bengal.



136.Which of the following have been correctly matched

1. **Bepi Colombo – Mercury**
2. **Akatsuki- Venus**
3. **Chang'e-5 – Moon**
4. **Perseverance rover- Jupiter**
5. **Dragonfly – Saturn**

A. 1, 2 and 3 only

B. 3 ,4 and 5 only

C. 1, 2, 3 and 5 only

D. 1, 2, 3, and 4 only

Answer: C

Explanation

- NASA's Dragonfly launches in 2027 to explore Saturn's moon Titan.
- NASA's Perseverance rover exploring Mars lands in February to search for past life and collect samples for return to Earth.
- China's Chang'e-5 returned lunar samples to Earth in 2020, and is on an extended mission to study the Sun and possibly asteroids.
- Japan's Akatsuki studies the Venus' dynamic atmosphere.

- Europe and Japan's BepiColombo launched in 2018 and arrives at Mercury in 2025.

137.Isle of Man is situated in which of the following

A. Irish Sea

B. North Sea

C. English Channel

D. Celtic Sea

Answer: A

Explanation

138.Which of the following is true about Hayabusa-2 spacecraft?

1. **It is a Japanese probe which visited Asteroid Bennu**
2. **The mission ended successfully in 2020**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

- The Japanese space probe Hayabusa-2, launched in 2014, successfully landed in Australia in 2020 carrying the first extensive samples of Ryugu asteroid

- It seeks to answer some fundamental questions about the origins of the solar system and where molecules like water came from

✓ Asteroids are believed to have formed at the dawn of the solar system, and scientists say this one may contain organic matter that may have contributed to life on Earth

139.Which of the following is not true about AlphaFold

1. **It is an artificial intelligence initiative of Microsoft**
2. **It predicts the 3-D shape of proteins**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

- AlphaFold is an artificial intelligence program developed by Google's DeepMind which performs predictions of protein structure

140.Which of the following are correctly matched

A. Covaxin : Attenuated virus

B. Covishield : Dead virus

C. Pfizer's BNT162b2 : mRNA

D. None of the above

Answer: C

Explanation

- Bharat Biotech's Covaxin is based on dead virus
- AstraZaneca's Covishield is based on attenuated or weakened adenovirus
- Pfizer's BNT162B2 is a mRNA

141.Based on the following statements identify the organisation

1. **It is the measurement standards laboratory of India**
2. **It was designated by the union environment Ministry as the national verification agency for certifying instruments and equipment for monitoring emissions and ambient air**

3. **It maintain standards of SI units in India and calibrates the national standards of weights and measures**

A. Bureau of Indian Standards

B. National Physical Laboratory

C. Indian Institute of Legal Metrology

D. National Accreditation Board for Testing and Calibration Laboratories

Answer: B

142.Which state in India is the first to incorporate Energy Conservation Building Code (ECBC) in its Municipal Act?

A. Gujarat

B. Telangana

C. Rajasthan

D. Karnataka

Answer: B

Explanation

- Telangana is the first State in in the country to incorporate ECBC in the State specific Municipal Act.
- Telangana State Renewable Energy Development Corporation (TSREDCO) has bagged the national energy conservation award in the State Designated Agencies category for implementing and promoting various energy conservation programmes.

143.Which of the following is relates to 'Rudram' ?

A. Indigenously developed anti-radiation missile

B. Specially designed vehicles to carry vaccines

C. Free self learning portal upto senior secondary level

D. None of the above

Answer: A

Explanation

- New Generation Anti Radiation Missile (NGRAM) is air-to-surface missile designed •by DRDO
- It enhances the IAF's Suppression of Enemy Air Defence (SEAD) capability

144.Which of the following military exercises are carried out amongst the Indian defence forces?

1. **Sea Vigil**

2. Kavach

3. Tropex

A. 1 only

B. 1 and 2 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

Explanation

- Sea Vigil: It is biennial pan-India coastal defence exercise involving 13 coastal states and UTs
- Kavach: Tri-service exercise under the aegis of Andaman and Nicobar Command
- TROPEX: It is an inter-service military exercise involving Indian Army, IAF, Indian Navy and Coast Guard

145.A momentum-dependent splitting of spin bands in bulk crystals and low- dimensional condensed matter systems such as heterostructures and surface states is known as

A. The Hawking Effect

B. The Rashba Effect

C. The Aharonoy-Bohm Effect

D. (d)The Butterfly Effect

Answer: B

146.Which of the following are correct in the context of India's first indigenously developed 9 mm Machine Pistol

1. 3D Printing process has been used in designing and prototyping various components.

2. It has been developed in collaboration with DRDO.

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: C

Explanation

147.Which of the following is/are correct about Traditional Knowledge Digital Library (TKDL)?

1. **TKDL is an Indian digital knowledge repository of medicinal plants and formulations used in Indian systems of medicine**
2. **It is set up as a collaboration between CSIR and Directorate of Plant Protection Quarantine & Storage.**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

- TKDL completes two decades of safeguarding India's Traditional Knowledge
- In 2001, CSIR jointly with Department of Indian Systems of Medicine & Homeopathy (now Ministry of AYUSH) developed TKDL
- The initiative was a follow-up action to thwart misappropriation of India's valuable traditional knowledge, based on learnings from the patent battles with international

- patent offices over the grant of intellectual property rights on turmeric, neem,
- basmati rice and other such ancient knowledge and practices of the country.
- Its database contain around 4 lakh formulations from Indian systems of medicine (Ayurveda, Siddha, Unani, Sowa Rigpa) and Yoga.
- TKDL aims to promote traditional knowledge and emerge as a global repository, apart from safeguarding the information from misappropriation.

148.Which of the following is correct about 'Rudram'?

1. **It is India's first indigenous Anti Radiation missile.**
2. **It is integrated on Rafale fighter aircraft as the launch platform.**
3. **The missile has INS-GPS navigation with Passive Homing Head for the final attack .**

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1,2 and 3

Answer: C

Explanation

- The New Generation Anti-Radiation Missile (Rudram-1) is India's first indigenous anti-radiation missile developed by DRDO for the Indian Air Force.
- It is integrated on SU-30 MkI fighter aircraft as the launch platform.
- It has the capability of covering varied ranges based on the launch condition.
- The missile has INS-GPS navigation with Passive Homing Head for the final attack.
- The Passive Homing Head enables it to detect, classify and engage with targets across a wide band of programmed frequencies.
- The Rudram missile is a significant weapon for the Indian Air Force for suppression of enemy air defence effectively from large standoff ranges.

149.What is "Virtual Private Network"?

A. It is a private computer network of an organization where the remote users can transmit encrypted information through the server of the organization

B. It is a computer network across a public internet that provides users access to their organization's network while maintaining the security of the information transmitted

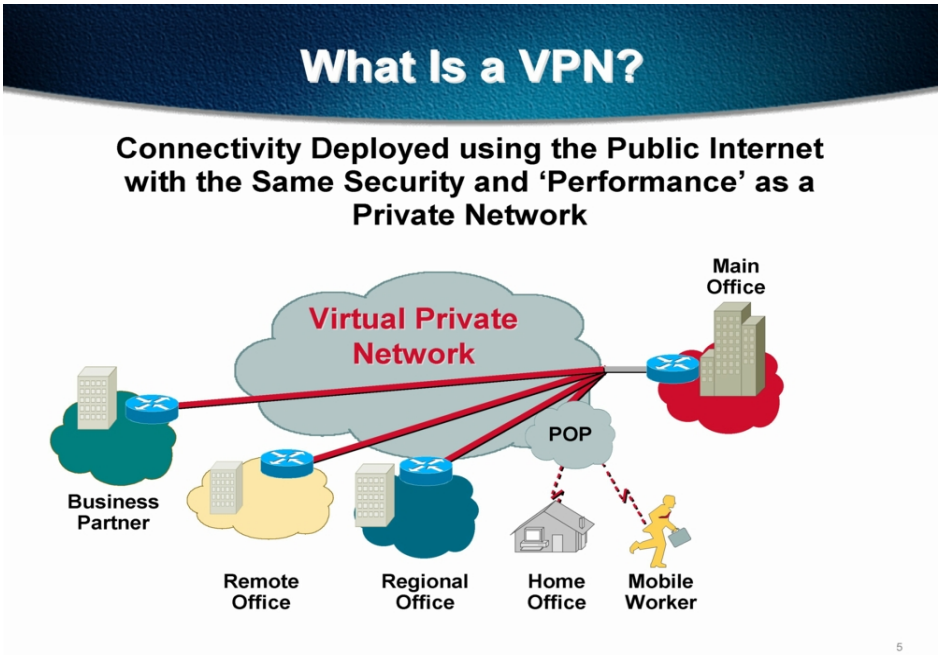
C. It is a computer network in which users can access a shared pool of computing resources through a service provider.

D. None of the statements (a), (b) and (c) given above is a correct description of Virtual Private Network

Answer: B

Explanation

- A virtual private network (VPN) extends a private network across a public network and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network.
- Applications running across a VPN may therefore benefit from the functionality, security, and management of the private network.
- Encryption is a requirement of a VPN
- VPN technology was developed to provide access to corporate applications and resources to remote users, mobile users, and to branch offices.
- For security, the private network connection may be established using an encrypted layered tunneling protocol, and users may be required to pass various authentication methods to gain access to the VPN.



150.Which of the following pairs have been *incorrectly* matched?

1. **eOffice : An integrated eService Delivery Framework**
2. **Darpan : Government Dashboard Platform**
3. **Service Plus : A Digital workplace solution**
4. **TEJAS : The visual intelligence tool**

A. 1 and 2 only

B. 2 only

C. 2 and 4 only

D. 1 and 3 only

Answer: D

Explanation

- National Informatics Centre Services Incorporated (NICSI), a Public Sector Enterprise under National Informatics Centre (NIC), Ministry of Electronics & Information Technology (MeitY), celebrated 25 years of its establishment During the event, following were launched:

  ✓TEJAS – The visual intelligence tool, through the collaborative effort of NIC and NICSI (CEDA), is completely developed in-house using open source technologies and bringing together the best features comparable to market leading BI tools. The tool would be primarily used by Government Departments at various levels in the centre and state. It will provide State-of-the-art and powerful data analysis for officials to design analytical reports and turn data into accurate analysis and smart visualizations.

  ✓e-Auction India –It caters to the electronic forward and reverse auction requirements of the Government departments and organizations. It aims at transparency and non- discrimination amongst bidders, by allowing free access to auction documents, clarifications, online submission of quotes from any place on 24×7 basis, in a secured environment, adopting industry standard open technologies.

- Work from AnyWhere Portal – WAW (Work from AnyWhere) Portal will ease and enhance accessibility of key applications to the Government employees. WAW portal is built upon core workplace experience and creates a highly extensible environment for users to dynamically adapt to changing needs.

- The virtual work environment, provisioned by WAW portal, will empower employees with all the key resources enabling them to access organizations' applications and data and communicate with fellow officials. With the following objectives to achieve, WAW portal will facilitate quick transition to remote workplace environment, while maintaining secured access to departmental applications.

- NIC Products Portfolio- for International Offering to augment Digital India branding through promotion of productized software applications at global level. Product Offerings include, i) eOffice – A Digital workplace solution; ii) GePNIC – Government eProcurement System; iii) Service Plus – An integrated eService Delivery Framework; iv) e- Hospital – Simplifying Healthcare Service Delivery; v) BhuNaksha – A Solution for Cadastral Mapping; vi) ePrisons – IT Solution for Prison Management; vii) eCourts – A Justice Delivery System; viii) Darpan – Government Dashboard Platform.

151.Which of the following statements about Fission reactions are incorrect?

1. **It is a reaction in which two or more atomic nuclei are combined to form one or more different atomic nuclei and subatomic particles (neutrons or protons).**
2. **It is a radioactive decay process**
3. **In this type of reaction released neutrons can induce a chain reaction.**

A. 1 and 2 only

B. 3 only

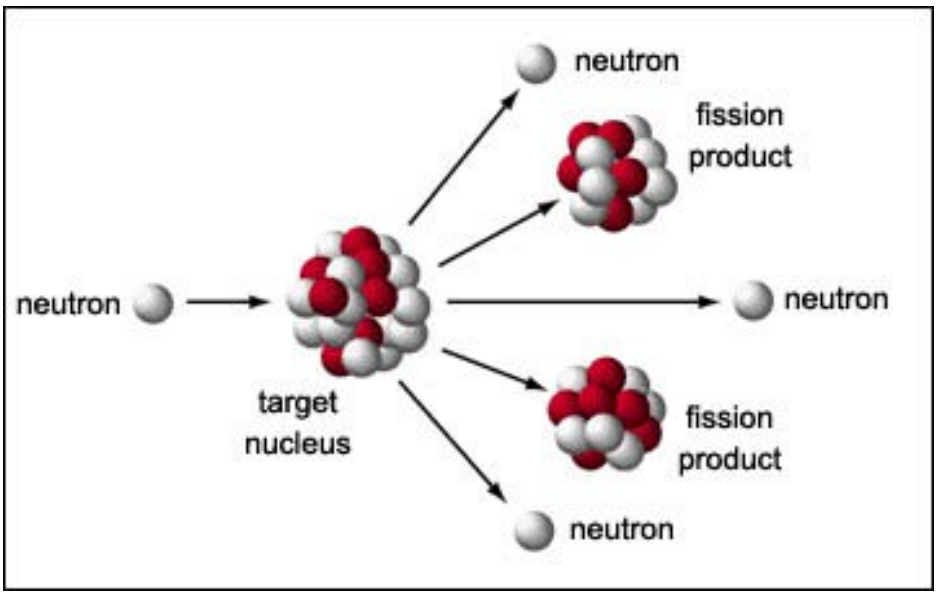
C. 1 only

D. 2 only

Answer: C

Explanation

- In nuclear physics, nuclear fission is a radioactive decay process in which the nucleus of an atom splits into smaller parts [lighter nuclei].
- The fission process often produces free neutrons and gamma photons [gamma rays], and releases a very large amount of energy [exothermic reaction].
- The nuclear fission process may take place spontaneously in some cases or may be
- induced by the excitation of the nucleus with a variety of particles (neutrons, protons, deuterons, or alpha particles) or with electromagnetic radiation in the form of gamma rays.
- In the fission process, radioactive products are formed, and several neutrons are emitted.
- These neutrons can include fission in a nearby nucleus of fissionable material and release more neutrons causing a chain reaction.



152.Which of the following statements are incorrect regarding LCA Tejas?

1. **It can attain a maximum speed of 1.8 Mach and is enabled with air-to-air refuelling capacity**
2. **It is developed by Aeronautical Development Agency**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

Explanation

- Both the statements are corrects
- Government will procure 83 Tejas Light Combat Aircraft from Hindustan Aeronautics Ltd.
- It is the smallest lightweight, multi-role, single-engine, supersonic tactical fighter aircraft •in the world and is being developed in single-seat fighter and twin seat trainer variants
- for the Indian Air Force and Indian Navy
- LCA programme was started by the Government of India in 1984 when they established the Aeronautical Development Agency (ADA) to manage the LCA programme
- It is designed by Aeronautical Development Agency under the Department of Defence •Research and Development and manufactured by State-owned Hindustan Aeronautics Limited (HAL)
- It is capable for air to air refuelling, can attain maximum speed of 1.8 Mach and payload capacity of 4000 kg

153.India's first thunderstorm research testbed will

A. Tamil Nadu

B. Karnataka

C. Odisha

D. Puducherry

Answer: C

Explanation

- India's first thunderstorm research testbed will be established in Balasore, Odisha
  - ✓It will be established in a collaboration among the Defence Research and Development Organisation (DRDO), Ministry of Earth Sciences, Indian Space Research Organisation (ISRO) and India Meteorological Department (IMD).
- Objective : Minimise human fatalities and loss of property because of the lightening strikes.
- A monsoon Testbed will also be set up near Bhopal in Madhya Pradesh. The monsoon testbed would also be first -of-its -kind.

154.Orobanche is a serious hidden parasitic weed found in

A. Mustard

B. Brinjal

C. Cotton

D. Rice

Answer: A

Explanation

- It is a hidden parasitic weed in mustard and can cause severe yield loss up to 50% and there is no absolute control measures developed so far.

155.Which of the following statements are correct regarding RNA?

1. **It may have been the molecule used to store genetic blueprints in primitive organisms.**
2. **It is a double-stranded molecule consisting of long chain of nucleotides.**
3. **It is susceptible to UV damage.**
4. **It is self replicating.**

A. 1 and 2 only

B. 1 only

C. 3 and 4 only

D. 1, 2, 3 and 4

Answer: B

Explanation

- Only statement id correct.
- RNA is used to transmit genetic information in some organisms and may have been the molecule used to store genetic blueprints in primitive organisms
- It is a single strain helix consisting of shorter chains of nucleotides as compared to DNA
- It is synthesised from DNA on an as-needed basis
- It is relatively resistant to UV damage as compared to DNA

156.Which of the following statement(s) is/are correct?

1. **Engorgement is a condition of insufficient breast milk production in women**
2. **Kerala is the first state to get a milk bank**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: D

Explanation

- Both the statements are incorrect
- Engorgement is when the breast tissue overfills with milk, blood and other fluids. This causes your breasts to feel very full, to become hard and painful and your nipples to appear flattened and tight. Breast engorgement can be severe. It usually occurs if the baby is not feeding properly, so the milk builds up .
- The initiative of the Kerala government is to ensure that breast milk is made available to new born and infants who couldn't be breastfed by their mothers due to various reasons •such as sickness or low production of milk. This is a state-of-art facility that will be opened at the Ernakulam general hospital
- The concept of milk bank had come to India 32 years back but Kerala did not have a milk bank until now. The first human milk bank in the country, it was started on November 27, 1989. The first human milk bank in Asia was established in 1989 in Lokmanya Tilak General Hospital, Mumbai, India, by Dr. Armida Fernandez. Today, the country has 21 milk banks, mostly in the western region.

157.Kufri Sahyadri and Kufri Karan are related to which of the following?

A. Apples

B. Walnuts

C. Potatoes

D. Saffron

Answer: C

Explanation

- ICAR - CPRI, Ooty developed two disease-resistant potatoes — Kufri Sahyadri and Kufri Karan — hybrid varieties.
- Both these varieties are resistant to commonly affecting diseases like Potato Cyst (Nematode) and Late Blight.

158.Which of the following statement(s) regarding INS Viraat are correct?

1. **It was originally a British ship known as HMS Hermes.**
2. **It participated in Operation Jupiter as a part of Indian Peacekeeping Force in Sri Lanka.**
3. **It is the world's longest serving warship.**

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

Explanation

- All statements are correct.
- Supreme Court stayed dismantling of the decommissioned aircraft carrier INS Viraat
- It was in the service of Indian Navy for 30 years before being decommissioned in March 2017
- It was originally a British ship known as HMS Hermes, which was commissioned into the Royal Navy in 1959

  ✓India purchased it in 1986
- She had participated in Operation Jupiter as part of the Indian Peacekeeping Force in •Sri Lanka. She also took part in various international joint military ex

159.Which of the following statements regarding Vigyan Jyoti Programme are correct

1. **The programme was launched by ISRO in December 2019 to encourage girls to take interest in space sciences and build a career in the same**
2. **It addresses the underrepresentation of women in various areas of STEM. The programme at first cater to the girls at school level of Class IX to Class XII in order to encourage and empower them to pursue STEM courses**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

- Both the statements are correct
- The second phase of Vigyan Jyoti programme was commenced on the occasion of International Day of Women and Girls in Science on February 11, 2021, which will spread the programme for encouraging girls to take interest in science and build a career in STEM
- The programme has been started at school level for meritorious girls of Class IX to Class XII to encourage and empower them to pursue STEM courses in reputed institutions of the country
- Other women-oriented programmes by DST:

  ✓Women Scientists Scheme to help women with career-break

  ✓Indo-US Fellowship for Women in STEMM (WISTEMM) program where women scientists can work in research labs of USA.

  ✓Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE) programme for improving R&D infrastructure and establishing state-of-the-art research facilities in order to create excellence in S&T in women universities.

✓Gender Advancement for Transforming Institutions (GATI) program.

✓Artificial Intelligence (AI) labs in women universities with the goal to foster AI.

✓innovations and to prepare skilled manpower for AI-based jobs in future.

160.Which of the following is correct about Compressed Natural Gas (CNG)?

1. **It is an odourless, colourless and tasteless compound with non-corrosive and non-toxic properties .**
2. **Ethane is the main component of CNG.**
3. **It is derived from natural gas wells, coal wells, bed methane wells and oil wells.**

A. 1 and 2 only

B. 2 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: C

Explanation

- 2nd statement is correct.
- It is an odourless, colourless and tasteless compound with non-corrosive and non- toxic properties
- Methane is the main component of CNG
- It is very healthy as it easily scatters into the air
- It is derived mainly from natural gas wells, coal wells, bed methane wells and oil wells
- It's more environmentally friendly as it releases less toxic and unnecessary gases than other alternatives, i.e. petrol & diesel
- Union Road Minister launched India's first CNG tractor

161.A group of hereditary diseases that progressively destroys motor neurons leading to muscle weakness is

A. Down syndrome

B. Alzheimer's disease

C. Systemic Lupus Erythematosus

D. Spinal Muscular Atrophy

Answer: D

Explanation

- Motor neurons are the nerve cells in the brain stem that control essential skeletal •muscle activity such as speaking, walking, breathing and swallowing
- Spinal Muscular Atrophy (SMA) is a degenerative neuromuscular genetic disorder •that causes progressive weakening of muscles used for head and neck control, sitting, crawling, walking and swallowing
- While considered rare, it is found in 1-in-10000 infants and is the second most common autosomal recessive disorder after cystic fibrosis
- Drug treatments for SMA exist, but require hospital visits for affected children, are administered through a spinal tap, and require maintenance dosing several times a year.

162.Which of the following is the correct focus of study and space organisation responsible for carrying out the PUNCH Mission?

A. Asteroid Bennu, NASA

B. Asteroid Ryugu, JAXA

C. Mars, ISRO

D. Sun, NASA

Answer: D

Explanation

- PUNCH stands for Polarimeter to Unify the Corona and Heliosphere
- NASA's PUNCH Mission is focussed on understanding the transition of particles from the Sun's outer corona to the solar wind that fills interplanetary space
- It consists of a constellation of four suitcase-sized microsats that will orbit the Earth in a formation
- It is expected to be launched in 2022.

163.Which of the following are incorrectly matched

1. **Tri-Netra : Satellite**
2. **Project Netra : Debris tracking**
3. **Sindhu Netra : Railways**

A. 1 only

B. 2 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: C

Explanation

- TRI-NETRA (Terrain imaging for diesel dRivers INfra-red, Enhanced opTical & Radar Assisted system): Ministry of Railways initiated a proposal to install TRI- NETRA systems on locomotives for enhancing the vision of Locomotive Pilots in inclement weather.
- Sindhu Netra is a satellite of DRDO to keep an eye on the ships in the Indian Ocean.

164.Epidemiology is the study of how diseases spread. In this context what or who is patient zero or index case?

A. First documented person with the disease in the investigation

B. Person from whom the disease has not spread further

C. First casualty due to the spread of the disease

D. None of the above

Answer: A

Explanation

- Index case is the first case of a condition or syndrome (not necessarily contagious) to be described in the medical literature whether or not the patient is thought tone the first person affected.
- It may not indicate the source of the disease, the possible spread or which reservoir holds the disease in between outbreaks, but may bring awareness of an emerging outbreak.

165. Which of the following is not a feature of Cannabis plants?

A. They are not pollinated by bees and insects

B. It is used to produce industrial hemp products

C. Male and female flowers are found on different plants

D. All of the above

Answer: A

Explanation

- It is a genus of medicinal, recreational and fibre plant
- Cannabis along with plants like Coconut Palm, Date Palm, Maize etc. are pollinated by Wind (Anemophily).

166.Helina and Dhruvastra fall in the category of

A. Air-to-air missiles

B. Surface-to-air missiles

C. Supersonic missiles

D. Anti-tank guided missiles

Answer: D

Explanation

- Helina (the Army version) and Dhruvastra (IAF version) are launched from Advanced •Light Helicopter (ALH) platform.
- The system has all-weather day-and-night capability and can defeat battle tanks with conventional armour as well as with explosive reactive armour.
- It is one of the most-advanced anti-tank weapons in the world.

167.Bhimbetka caves near Bhopal were in news recently for a fossil dating back about 550 million years. The fossil was of

A. Spriggina

B. Dickinsonia

C. Pikaia

D. Wiwaxia

Answer: B

Explanation

- Dickinsonia are the earliest known living animals.
- They belonged to the Ediacaran period of the earth's history named after Ediacara hills in South Australia.

168.Spitzer Space telescope, one of NASA's four Great Observatories, studied the universe by detecting

A. X-rays

B. Gamma rays

C. Visible light

D. Infrared rays

Answer: D

Explanation

- NASA decommissioned the Spitzer Space Telescope which studied the universe by detecting cosmic infrared radiations.
- It was launched in 2003, was one of NASA's four Great Observatories, along with the Hubble Space Telescope, the Chandra X-ray Observatory and the Compton Gamma Ray Observatory.

169.Which of the following are true regarding NISAR

1. **It is a joint collaboration of NASA and European Space Agency for producing extremely high-resolution images for earth observation**
2. **NASA is providing the mission's high-rate communication subsystem and GPS receivers along with other equipment**

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

- ISRO has completed development of Synthetic Aperture Radar (SAR) capable of •producing extremely high resolution images for a joint earth observation satellite mission with NASA
- NASA-ISRO SAR (NISAR) is a joint collaboration for a dual-frequency L and S-band SAR for earth observation
- It will be the first satellite mission to use two different radar frequencies (L-band and S- band) to measure changes in our planet's surface less than a centimetre across
- NASA is providing the mission's L-band SAR, a high-rate communication subsystem for science data, GPS receivers, a solid-state recorder and payload data subsystem.
- ISRO is providing the spacecraft bus, the S-band radar, the launch vehicle and •associated launch services for the mission, whose goal is to make global measurements of the causes and consequences of land surface changes using advanced radar imaging
- Click here to learn more

170.Which of the following correctly defines a Super-Earth?

A. Exoplanet larger than Earth yet lighter than ice giants such as Neptune and Uranus

B. They can be made of gas, rock or a combination of both

C. Both A and B

D. Neither A nor B

Answer: C

Explanation

- Super-Earths – a class of planets unlike any in our solar system – are more massive •than Earth yet lighter than ice giants like Neptune and Uranus, and can be made of gas, rock or a combination of both
- They are between twice the size of Earth and up to 10 times its mass

- Super-Earth is a reference only to an exoplanet's size – larger than Earth and smaller than Neptune – but not suggesting they are necessarily similar to our home planet.

171.The terms 'Predator-B', 'SeaGuardian' refer to 'MQ-9B',

A. Fighter jets

B. Tanks

C. Drones

D. Ships

Answer: C

172.AsterX recently heard in news is a

A. Military Satellite

B. Space Military Exercise

C. Fighter Aircraft

D. New found layer of Earth

Answer: B

Explanation

- Amid the growing competition among the world powers in the field of space, France has begun its first space military exercises to test its ability to defend its satellites.
- The exercise drills are codenamed "AsterX" to commemorate the first French satellite Asterix from 1965.
- The exercises are part of France's strategy to become the world's third-largest space power, after the USA and China.
- These space military exercises are the first ever attempt not only for the French army but also for Europe.
- Moreover, France has planned to develop anti-satellite laser weapons and to strengthen surveillance capabilities to close the gap with rivals; China and Russia.
- Aim of the Exercise is to monitor a potentially dangerous space object as well as threats to its own satellite from another foreign power possessing a considerable space force.
- Along with France, the new US Space Force and German space agencies are taking part in the exercises.

173.Which of the following statements are correct about 'Make-II' category Projects?

1. **They comprise of the prototype development of system, equipment, platform or their upgrades.**

2. **Such projects are 'Industry Funded'.**
3. **This category of the project provides for a focus on the impor substitution and innovative solutions.**

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Answer: D

Explanation

- Context: The Indian army is all set to procure Made in India "Mobile Integrated Network Terminal (MINT)" systems providing a huge boost to the Aatmanirbhar Bharat Abhiyaan of the government.
- The MINT system will enhance the operational communication capability of the Indian Army in accordance with the Atmanirbhar Bharat Abhiyaan.
- MINT systems come under the Make II Category of DAP 2020.
- This system is a portable, lightweight, state of art integrated communication solution comprising of the satellite backhaul and wireless access system to provide the support voice, video and data.
- The 'Make-II' category projects which comprises of the prototype development of system, equipment, platform or their upgrades.
- Such projects are 'Industry Funded'.
- The projects could also comprise of the sub-systems or sub- assembly or assemblies or components of the developing systems.
- This category of the project provides for a focus on the import substitution and innovative solutions.
- For prototype development purposes under this category, no government funding is provided.
- As per the evaluation of response submitted by Indian Industry total of eleven firms were issued the Project Sanction Order on March, 12 2021.
- These firms will develop the prototype.
- Following this, Contract will be placed with one of the firms after they successfully develop the prototype in accordance with the provisions of Buy (Indian-IDDM) of DAP 2020.

174.Non-fungible token recently heard in news is used in the context of

A. Crypto Currency

B. Covid-19

C. Digital assets

D. Digital Penalties

Answer: C

Explanation

- Context: An American rock band recently released a music album
- The music album was launched as a non-fungible token (NFT).
- It is a special type of cryptographic token which represents somethings which are unique.
- These tokens are not mutually interchangeable.
- This is opposite to the cryptocurrencies such as bitcoin.
- It is a type of crypto-asset that represents several numbers of assets such as tickets, artforms, and music.
- Such type of asset is gaining its popularity because several investors and enthusiasts are interested to spend a large sum of money on items which only exist digitally.
- These tokens are used to create digital scarcity and digital ownership.
- It can also be used in online gaming, crypto art and digital collectibles.

175.Based on the following statements identify the personality

1. **He is remembered as the "India's Satellite Man".**
2. **He also worked as the chairman of IndianS pace Research Organisation.**
3. **The tech giant Google celebrated the 89th birthday of this renowned Indian professor and scientist on March 10, 2021 through its "Google Doodle".**
4. **He was awarded with the Padma Bhushan by Government of India in the year 1976, and he was conferred with the Padma Vibhushan in the 2017**
5. **He was inducted into Satellite Hall of Fame, Washington in March 2013 at the ceremony organised by the Society of Satellite Professionals International**
6. **The professor was also inducted in International Astronautics Federation (IAF) in May 2016 and became the first Indian again to achieve this honour.**

A. Udupi Ramachandra Rao

B. K. Sivan

C. Satish Dhawan

D. Homi J. Bhabha

Answer: A

Explanation

- Udupi Ramachandra Rao was an Indian space scientist.
- He also worked as the chairman of Indian Space Research Organisation.

- The scientist was also the Chairman of Governing Council of Indian Institute for Space Science and Technology (IIST) at Thiruvananthapuram, Physical Research Laboratory at Ahmedabad and Nehru Planetarium at Bengaluru.
- He is remembered as the "India's Satellite Man".
- He died in the year 2017.
- He was born in a village of Karnataka on March 10, 1932.
- He started his career as a cosmic-ray physicist and as a protege of Dr Vikram Sarabhai who is regarded as the father of India's space program.
- He then worked as a professor and conducted experiments on Pioneer and Explorer space probes of NASA.
- He returned to India in 1966 and lead the 1975 launch of India's first satellite called "Aryabhata".
- This satellite is one among 20 satellites the professor developed. The satellite transformed the rural India by providing advanced communication and meteorological services.
- Professor Rao was awarded with the Padma Bhushan by Government of India in the year 1976, and he was conferred with the Padma Vibhushan in the 2017.
- Professor was inducted into Satellite Hall of Fame, Washington in March 2013 at the ceremony organised by the Society of Satellite Professionals International.
- Thus, he became the first Indian to be inducted into Satellite Hall of Fame. The professor was also inducted in International Astronautics Federation (IAF) in May 2016 and became the first Indian again to achieve this honour.

176.DUSTLIK II' is a joint exercise between India and

A. Russia

B. Kyrgyzstan

C. Uzbekistan

D. Tajakistan

Answer: C

Explanation

- The India–Uzbekistan joint military exercise "DUSTLIK II" was conducted in the Foreign Training Node Chaubatia at Ranikhet in the state of Uttarakhand.
- It was the second edition of annual bilateral joint exercise of both the armies.
- It concluded on March 19, 2021
- The first edition of DUSTLIK was held at Uzbekistan in the month of November, 2019.
- In the second edition of the exercise, around 45 soldiers from each of Indian army and Uzbekistan army participated.

- During the exercise, both the armies shared their expertise and skills with respect to the counter-terrorism operations under the mandate of United Nations in Mountainous or Urban or Rural scenarios.
- The exercise also culminated into a 36-hour joint validation exercise which was scheduled for March 17 to March 18, 2021.
- This exercise was a testbed for soldiers of both the countries because under the exercise, the armies underwent the challenges of actual operations in such scenarios.
- The joint exercise provided an impetus to the military and diplomatic ties of the two countries.
- It also signified the strong resolve of both the countries to counter-terrorism.

177.Based on the following statements identify the INS.

1. **It is an amphibious transport dock which presently serves the Indian Navy.**
2. **This ship was procured from the United States for US$ 90 million in the year 2005.**
3. **The ship then was commissioned to the service in June 2007.**
4. **This is the only Indian naval ship that has been procured from United States.**
5. **It is based in Visakha patnam under Eastern Naval Command.**

A. INS Gaj

B. INS Jalashwa

C. INS Shalki

D. INS Shankul

Answer: B

Explanation

- Context: The Indian Naval Ship Jalashwa has reached the port of Anjouan in Comoros
- The ship was carrying a consignment of 1000 metric tonnes of rice.
- This consignment of 1000 metric tonnes of rice as food assistance were flagged off to Comoros in the light of promise made by the Vice President of India, Venkaiah Naidu during his brief visit to Comoros in the month of October 2019.
- After handing over the consignment to Comoros, the INS Jalashwa will travel to the Port of Ehoala so as to deliver another consignment of 1000 metric tonne of rice and 1,00,000 tablets of HCQ.
- This consignment will be delivered in accordance with the promise of External Affairs Minister.
- He made his promise after the Madagascar asked for the solidarity and assistance from the Indian side to deal with the humanitarian crisis in South of Madagascar because of severe drought.
- The ship will also deploy the Indian Naval Training Team in Madagascar for capacity building and training of the Malagasy Special Forces for two weeks.

INS Jalashwa

- It is an amphibious transport dock which presently serves the Indian Navy.
- This ship was procured from the United States for US $90 million in the year 2005.
- The ship then was commissioned to the service in June 2007.
- This is the only Indian naval ship that has been procured from United States.

- It is based in Visakhapatnam under Eastern Naval Command.
- Eastern Naval Command is one among the three command-level formations of Indian Navy.
- It is based in Visakhapatnam, Andhra Pradesh.
- This command level is responsible for all the naval forces in Bay of Bengal, parts of Indian Ocean and naval establishments on east coast of India.
- This command was set up in March 1968.
- It is commanded by a Three Star Flag Officer of the rank of Vice Admiral.
- The vice admiral flag officer is titled as the Flag Officer Commanding-in-Chief Eastern Command.

178.Which of the following statements about Rare disease are incorrect?

1. **They are also known as neglected tropical disease.**
2. **These are characterised by a wide diversity of symptoms and signs that vary not only from disease to disease but also from patient to patient suffering from the same disease.**

Select the correct code.

A. 1 only

B. 2only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: A

Explanation

- A rare disease, also referred to as an orphan disease, is any disease that affects a small percentage of the population.
- Most rare diseases are genetic, and are present throughout a person's entire life, even if symptoms do not immediately appear. In Europe a disease or disorder is defined as rare when it affects less than 1 in 2000 citizens.
- Rare diseases are characterised by a wide diversity of symptoms and signs that vary not only from disease to disease but also from patient to patient suffering from the same disease. Relatively common symptoms can hide underlying rare diseases, leading to misdiagnosis.

- The most common rare diseases recorded in India are Haemophilia, Thalassemia, sickle-cell anaemia and primary immuno deficiency in children, auto-immune diseases, Lysosomal storage disorders such as Pompe disease, Hirschsprung disease, Gaucher's disease, Cystic Fibrosis, Hemangiomas and certain forms of muscular dystrophies.
- India does not have a definition of rare diseases because there is a lack of epidemiological data on its incidence and prevalence.
- While there is no universally accepted definition of rare diseases, countries typically arrive at their own descriptions, taking into consideration disease prevalence, its severity and the existence of alternative therapeutic options.
- In the US, for instance, a rare disease is defined as a condition that affects fewer than 200,000 people.
- The same definition is used by the National Organisation for Rare Disorders (NORD) in India.

179.Which of the following statements about Helium are correct?

1. **It is a colourless, odourless, tasteless, non-toxic, inert, monatomic-gas.**
2. **It is the first in the noble gas group in the periodic table.**
3. **Its boiling point is the lowest among all the elements.**
4. **India's Rajmahal volcanic basin is the store house of helium**

Select the correct code.

A. 1 and 2 only

B. 2, 3 and 4only

C. 1 and 4 only

D. 1, 2, 3 and 4

Answer: D

Explanation

- Context: India imports helium for its needs and with the U.S. appearing set to cut off exports of helium since 2021, the Indian industry stands to lose out heavily.
- Helium is not just for balloons but it is the key ingredient for India's high technology and the most sophisticated medical diagnosis
- Helium is a chemical element with the symbol He and atomic number 2.
- It is a colourless, odourless, tasteless, non- toxic, inert, monatomic gas, the first in the noble gas group in the periodic table. Its boiling point is the lowest among all the elements.

Helium in India

- India's Rajmahal volcanic basin is the storehouse of helium trapped for billions of years, since the very birth of our Earth from the Sun.

- At present, researchers are mapping the Rajmahal basin extensively for future exploration and harnessing of helium.

Why India needs Helium

- Every year, India imports helium worth Rs 55,000 crores from the U.S. to meet its needs.
- Helium is used in medicine, scientific research, for blimp inflation, party balloons as well as having welding applications.
- It finds many applications, mainly in magnetic resonance imaging (MRI) scans, in rockets and in nuclear reactors.

180.Jhuran formation is related to which of the following

A. Coal

B. Limestone

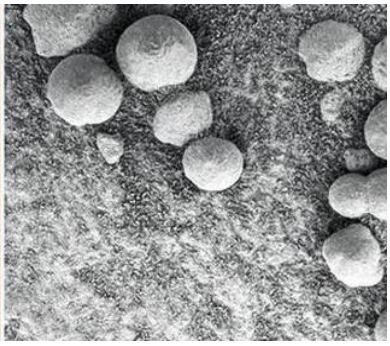
C. Corals

D. Iron

Answer: D

Explanation

- Context: In 2004, NASA's Mars exploration rover 'Opportunity' found several small spheres on the planet, informally named Martian blueberries which find a resemblance to the similar formation in India's Kutch region.



Martian blueberries

- Opportunity's mini spectrometers studied mineralogy and noted they were made of iron oxide compounds called haematites.
- This caused excitement, as the presence of haematites suggests that there was water present on Mars.
- The widely accepted formation mechanism of hematite concretion [hard solid mass] is precipitation from aqueous fluids.
- Hematite is known to form in oxidizing environments hence it can be inferred that water must have played a crucial role in the formation of grey hematite on Mars.
- Indian researchers have been studying hematite concretions in Kutch called the Jhuran formation.
- These formations are 145 and 201 million years old.
- Detailed geochemistry and spectroscopic investigations of the haematite concretions in this area revealed that they resemble the ones on Mars.

- They have similar morphology – spherical, often doublet and triplet – and similar mineralogy – a mixture of haematite and goethite.
- Hence, several types of research have shown that the Kutch area is a potential Martian analogue locality.

181.Which of the following statements about sounding Rockets are incorrect?

1. **These are one or two-stage solid propellant rockets used for probing the upper atmospheric regions and for space research.**
2. **The sounding rockets generally stay between 400 km and 1600 kilometres in the atmosphere.**

Select the correct code.

A. 1 only

B. 2only

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation

- Context: ISRO launched sounding rocket RH-560, to study neutral winds, plasma dynamics
- It is also called a research rocket or rocket sonde.
- The sounding rockets are one or two stage solid propellant rockets used to study upper atmospheric regions and for space research.
- They serve as easily affordable platforms that test prototypes of new components or subsystems intended for use in launch vehicles and satellites.
- The sounding rockets generally stay between 40 km and 160 kilometres in the atmosphere.
- The range is such because the weather balloons have to stay within 40 kilometres and the Space rockets.
- The rockets are placed above it.
- In case the Sounding rockets go above 160 km, they may burst.
- ISRO began with the launch of indigenously built sounding rockets from 1965.
- Its experience gained was valuable in gaining excellence in the solid propellant technology.
- In 1975, all sounding rocket activities were cluttered under the Rohini Sounding Rocket (RSR) Programme. RH-75, with a diameter of 75 mm was the first truly Indian sounding rocket, which was followed by RH-100 and RH-125 rockets.
- The series of sounding rockets are called Rohini series with RH 200, RH 300 and RH 560 being the most important among them.
- The numbers along with the name acronym stands for the diameter of the rocket in milimetres.

- The Thumba Equatorial Rocket Launching Station was established on 21st November 1963 and was operated by ISRP.
- Its southern tip is close to earth's magnetic equator.
- It marked the beginning of Indian Space Programme and was the bedrock of the launch vehicles built.
- Before the indigenous efforts the first rockets were two-stage rockets imported from Russia (M-100) and France (Centaure).
- At that time M-100 was able to carry a payload of 70 kg to an altitude of 85 km, the Centaure was capable of reaching 150 km with a payload of approximately 30 kg.