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Test Booklet Series

TEST BOOKLET

C

GENERAL STUDIES (P) 2024 – Test – 4148

Time Allowed: Two Hours

Maximum Marks: 200

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET DOES **NOT** HAVE ANY UNPRINTED OR TURN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES **A, B, C** OR **D** AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE ANSWER SHEET.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. **Do NOT** write anything else on the Test Booklet.
4. This Test Booklet contains **100** items (Questions). Each item is printed in **English**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response with you consider the best. In any case, choose **ONLY ONE** response for each item.
5. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. See direction in the answers sheet.
6. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of **correct responses** marked by you in the answer sheet. For **every incorrect** response **1/3rd of the allotted marks** will be deducted.
7. Before you proceed to mark in the Answer sheet the response to various items in the Test booklet, you have to fill in some particulars in the answer sheets as per instruction sent to you with your Admission Certificate.
8. After you have completed filling in all responses on the answer sheet and the examination has concluded, you should hand over to Invigilator only the answer sheet. You are permitted to take away with you the Test Booklet.
9. Sheet for rough work are appended in the Test Booklet at the end.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ASKED TO DO SO

1. The lowest amount of water in the soil that a plant requires to maintain its turgidity is known as:
 - (a) Field Capacity
 - (b) Available Water Capacity
 - (c) Permanent Wilting Point
 - (d) Total Soil Water Storage Capacity

2. Consider the following statements regarding bases:
 1. Bases often have a bitter taste.
 2. Bases turn red litmus paper blue.
 3. All bases are insoluble in water.
 How many of the statements given above are correct?
 - (a) Only one
 - (b) Only two
 - (c) All three
 - (d) None

3. What is the primary application of electrochemical machining (ECM) in industry?
 - (a) Coating surfaces with a thin layer of metal
 - (b) Etching patterns on metal surfaces
 - (c) Removing metal from surfaces through controlled dissolution
 - (d) Producing electrical insulation on conductive materials

4. Arrange the melting points of the following metals in decreasing order:
 1. Tungsten
 2. Titanium
 3. Gold
 4. Zinc
 Select the correct answer using the code given below.
 - (a) 1-2-3-4
 - (b) 2-1-3-4
 - (c) 3-1-2-4
 - (d) 1-2-4-3

5. Consider the following statements regarding a catalyst in chemical reactions:
 1. A catalyst is a substance that gets completely consumed in a reaction and increases the rate of the reaction.
 2. Platinum is commonly used as a catalyst in chemical reactions.
 Which of the statements given above is/are correct?
 - (a) 1 only
 - (b) 2 only
 - (c) Both 1 and 2
 - (d) Neither 1 nor 2

6. In the context of astronomy, what is the phenomenon of gravitational lensing?
 - (a) The distortion of a planet's magnetic field
 - (b) The bending of light due to gravity, caused by massive objects
 - (c) The rotation of a galaxy around its center
 - (d) The interaction of charged particles in a nebula

7. Consider the following statements with respect to viruses:
 1. A virus cannot reproduce by itself and needs to enter an organism for its reproduction.
 2. The genetic material inside the virus consists of RNA only.
 3. A virus which infects and replicates within a bacteria is called a viroid.
 4. The diseases of Herpes and Hepatitis are caused by viruses.
 How many of the above statements are correct?
 - (a) Only one
 - (b) Only two
 - (c) Only three
 - (d) All four

8. Which one of the following statements best describes the purpose of 'Site Directed Nuclease (SDN)'?

- (a) It represents a mitochondrial replacement therapy where male and female pronuclei are removed from each fertilized egg prior to their fusing.
- (b) It denotes the DNA cutting enzymes used for the generation of the targeted DNA breaks.
- (c) It represents the latest eco-friendly technology developed for the remediation of oil sludge and oil spills.
- (d) It is a technology to efficiently extract nuclear fuel from the uranium ores.

9. Consider the following statements with respect to plant physiology:

- 1. C_3 plants are twice as efficient as C_4 plants in terms of fixing carbon.
- 2. The direction of movement in the xylem is always unidirectional.
- 3. Mycorrhizae represent a symbiotic association of rhizobacteria and plant roots.

How many of the statements given above are correct?

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

10. Consider the following statements with reference to Project Cheetah:

- 1. Project Cheetah has led to translocation of 20 cheetahs from the countries of Sahel Region of Africa in Kuno National Park.
- 2. It has been implemented by National Tiger conservation authority.

Which of the statements given above is/are correct?

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

11. Consider the following pairs with respect to plant growth regulators and their functions:

Growth regulator	Function
-------------------------	-----------------

- | | |
|---------------|--|
| 1. Auxin | : Promotes cell elongation |
| 2. Gibberlin | : Induces dormancy of seeds |
| 3. Cytokinins | : Prevent aging of plant parts |
| 4. Ethylene | : Promotes senescence and abscission of leaf |

How many of the above pairs are correctly matched?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

12. Which of the following applications/phenomena are based on the Doppler effect?

- 1. Echolocation by bats.
- 2. Sonic boom
- 3. Police radar for measuring the speed of vehicles

Select the correct answer using the code given below.

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

13. Semiconductors are present in most of the modern electronic devices that we use. Which of the following statements is/are true regarding semiconductors?

- 1. The resistivity of semiconductors is more than insulators but less than conductors.
- 2. The most commonly used semiconductor elements are Silicon and Germanium.

Select the correct answer using the codes given below.

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

14. Consider the following statements regarding the Indian Regional Navigation Satellite System (IRNSS):

1. The IRNSS space segment consists of 10 satellites.
2. IRNSS can provide accurate position information service in India as well as regions extending up to 1500 km around India.
3. It provides a navigation solution with position accuracy better than 20m during all weather conditions anywhere within India.

How many of the statements given above are correct?

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

15. Consider the following statements with respect to TB disease:

1. TB is an infectious disease caused by bacteria.
2. Multi-drug-resistant tuberculosis (MDR-TB) is a form of TB which is resistant to at least four of the core anti-TB drugs.
3. Under the Universal Immunisation Programme, the BCG vaccine against tuberculosis is given to a child immediately after birth.

Which of the statements given above is/are correct?

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

16. With respect to Free Space Optical (FSO) communication, which of the following statements is/are correct?

1. It is a communication technology in which data is transmitted through the air.
2. It can be used for point-to-point line of sight communication.

Select the correct answer using the code given below:

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

17. The terms Branching Descent and Natural Selection are used in the context of

- (a) placing satellites in the orbit of the Earth.
- (b) the theory of biological evolution.
- (c) evidences supporting the expanding universe hypothesis.
- (d) strategic methods of international diplomacy.

18. Consider the following statements:

Statement I: In India, cervical cancer is the most common cancer in women.

Statement II: To prevent rising incidence of cervical cancer, India has introduced Human Papillomavirus (HPV) Vaccine in the Universal Immunization Programme (UIP).

Which one of the following is correct in respect of the above statements?

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

19. Consider the following statements regarding cryogenic engines:

1. Cryogenic engines are highly efficient propulsion systems used in the upper stages of rockets
2. Cryogenic engine use Liquid Oxygen (LOX) and Liquid Hydrogen (LH₂) as propellants.

Which of the statements given above is/are correct?

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

20. Consider the following statements with respect to RNA interference (RNAi):

1. RNAi is the process of gene silencing initiated by a double-stranded RNA (dsRNA).
2. RNAi takes place in all eukaryotic organisms as a method of cellular defense.
3. RNAi is extensively used in creating pest-resistant plants.

How many of the statements given above are correct?

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

21. Consider the following statements regarding Small Satellite Launch Vehicle:

1. Small Satellite Launch Vehicle (SSLV) is a single stage Launch Vehicle.
2. SSLV is capable of launching 500kg satellite in 500km planar orbit from Satish Dhawan Space Centre.

Which of the statements given above is/are correct?

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

22. Consider the following statements regarding the Milky Way galaxy:

1. It is spiral in shape.
2. There is a supermassive black hole at the center of the Milky Way galaxy.

Which of the statements given above is/are correct?

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

23. Consider the following statements regarding Geostationary orbit (GEO):

Statement I: Satellites in GEO appear to be stationary over a fixed position.

Statement II: Satellites in GEO circle Earth above the equator from east to west.

Which one of the following is correct in respect of the above statements?

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

24. Nitrogen gas is used in the tyres of an airplane because

- (a) Nitrogen gas is inert unlike air
- (b) It is heavier than air
- (c) It forms liquid only below a very low temperature
- (d) Both (a) and (c)

25. Consider the following statements with regard to radiation:

1. Transfer of heat by radiation requires a medium.
2. All hot bodies radiate infrared radiation.

Which of the statements given above is/are correct?

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

26. What does the term "annealing" refer to in the context of glass manufacturing?

- (a) Adding colorants to the glass
- (b) Shaping the glass at high temperatures
- (c) Rapid cooling of the glass to increase strength
- (d) Slow cooling to relieve internal stresses

27. Consider the following statements regarding Hypersonic missiles:

1. A hypersonic missile is a weapon system which flies at least at the speed of Mach 2.
2. Hypersonic missiles cannot be manoeuvred to the intended target.
3. Conventional hypersonic weapons use only kinetic energy to destroy unhardened targets.

How many of the statements given above are correct?

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

28. Consider the following statements:

1. A ramjet is a form of air-breathing jet engine that uses the vehicle's forward motion to compress incoming air for combustion.
2. A scramjet is a type of ramjet airbreathing jet engine where combustion occurs in supersonic airflow.
3. Ramjets work most efficiently at hypersonic speeds.

How many of the statements given above are correct?

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

29. Which of the following is/are white blood cells?

1. Neutrophils
2. Lymphocytes
3. Basophils
4. Erythrocytes

Select the correct answer using the code given below.

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

30. The color of the sun appears reddish during sunset. Which of the following is the reason behind this phenomenon?

- (a) Absorption of light rays by the atmosphere
- (b) Human eyes are not sensitive to other colors during that part of the day
- (c) Scattering of light rays by atmospheric particles
- (d) The sun emits different wavelengths of light during different times of the day

31. With reference to Passive Immunity, consider the following statements:

1. It is developed in a person after receiving antibodies which are produced by the immune system of another individual.
2. It may be induced naturally or artificially.
3. It provides immediate protection from a specific disease.
4. It is more short-lived than active immunity.

Which of the statements given above are correct?

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

32. In a nuclear fission reactor, what is the purpose of the control rods?

- (a) To absorb neutrons
- (b) To emit gamma rays
- (c) To initiate fusion reactions
- (d) To dispose radioactive waste

33. Consider the following statements regarding transgenic crops in India:

1. Cotton is the only transgenic crop that is being commercially cultivated in India.
2. Cry2Ai is a gene found in cotton that is believed to make the crop resistant to the pink bollworm.

Which of the statements given above is/are correct?

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

34. Consider the following statements with reference to biocredits:

1. Biocredits are similar to carbon credits and they are designed to offset actions with negative impacts on biodiversity.
2. To promote biocredits, the Biodiversity Credit Alliance was launched at CoP15 of UNFCCC.

Which of the statements given above is/are correct?

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

35. Consider the following statements regarding the galvanization process:

1. Its primary purpose is to prevent corrosion of metal surfaces.
2. Zinc is commonly used as a coating in the Galvanization process.

Which of the statements given above is/are correct?

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

36. In the field of forensic science, which chemical is commonly used to detect the presence of blood at crime scenes?

- (a) Phenolphthalein
- (b) Luminol
- (c) Bromothymol blue
- (d) Litmus

37. How do electric eels generate electric shocks for hunting and self-defense?

- (a) Through friction with other objects
- (b) By chemical reactions in their cells
- (c) By absorbing electrical energy from other aquatic organisms
- (d) Through lightning

38. Which polymer is used in making non-stick cookware, such as Teflon?
 (a) Polyethylene
 (b) Polypropylene
 (c) Polyvinyl chloride (PVC)
 (d) Polytetrafluoroethylene (PTFE)
39. ISRO's Project NETRA aims to
 (a) explore planets outside the solar system.
 (b) aid detection and mapping of ocean bed resources.
 (c) provide early warning system in space to detect debris and other hazards to Indian satellites.
 (d) ease navigation in metropolitan cities.
40. The terms 'Centimorgan' and 'Transposon' are sometimes seen in the news in the context of
 (a) Quantum physics
 (b) Genetic engineering
 (c) Artificial Intelligence
 (d) Nanotechnology
41. How do transformers facilitate the long-distance transmission of electrical power without much loss?
 (a) By increasing voltage for efficient transmission
 (b) By decreasing voltage for safety reasons
 (c) By increasing the electric current
 (d) By converting AC to DC power
42. Consider the following statements regarding the Tea Board of India:
 1. It is a statutory body set up under Tea Act 1953.
 2. It comes under the Ministry of Commerce and Industry.
 3. Its head office is located in the Delhi.
 Which of the statements given above is/are correct?
 (a) 1 and 2 only
 (b) 2 only
 (c) 1 and 3 only
 (d) 1, 2 and 3
43. "It is the evolution of different species in a given geographical area starting from a point and literally radiating to other areas of geography (habitats)".
 Which of the following best describes the above process?
 (a) Adaptive Radiation
 (b) Convergent Evolution
 (c) Secondary Succession
 (d) Sequential Evolution
44. With reference to phenomena of formation of the rainbow, consider the following statements:
 1. A rainbow is always formed in a direction opposite to that of the Sun.
 2. The sunlight undergoes refraction and dispersion in the water droplets to form the colors of a rainbow.
 Which of the statements given above is/are correct?
 (a) 1 only
 (b) 2 only
 (c) Both 1 and 2
 (d) Neither 1 nor 2
45. Consider the following pairs with respect to cell organelles and their functions:
- | Cell organelle | Function |
|--------------------|--|
| 1. Ribosomes | : Site for protein synthesis |
| 2. Plasma membrane | : Control movement of ions and molecules |
| 3. Golgi apparatus | : Modification and sorting of proteins |
| 4. Lysosomes | : Cellular digestion |
- How many of the above pairs are correctly matched?
 (a) Only one
 (b) Only two
 (c) Only three
 (d) All four

46. Consider the following statements:

1. She started the first indigenously-run school for girls in Pune in 1848.
2. She set up Balyata Pratibandak Gruha, a childcare centre for the protection of pregnant widows and rape victims.
3. Bavan Kashi Subodh Ratnakar ("The Ocean of Pure Gems") was one of her famous literary works.

The above statements describes which of the following personalities?

- (a) Pandita Ramabai
- (b) Tarabai Shinde
- (c) Savitribai Phule
- (d) Usha Mehta

47. Which of the following rivers flows through Switzerland?

1. Rhine
2. Danube
3. Rhone

Select the correct answer using the code given below.

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

48. Consider the following statements:

1. Chloroplasts are green-colored plastids, which comprise pigments called chlorophyll.
2. Chloroplasts are found in all green plants and algae.

Which of the statements given above is/are correct?

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

49. Consider the following statements regarding various agricultural production systems:

1. Hydroponics is the method of growing plants in water without soil.
2. Aquaponics is a food production system that combines aquaculture with hydroponics.
3. Unlike hydroponics, nutrients come from fish in aquaponics.

How many of the statements given above are correct?

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

50. Consider the following statements with reference to XPoSat mission:

1. XPoSat is the world's first satellite-based mission dedicated to making X-ray polarimetry measurements.
2. POLIX (Polarimeter Instrument in X-rays) which is the main payload will serve as an X-ray Polarimeter.
3. It is placed in geostationary earth orbit which is approximately 36000 km above the Earth equator.

How many of the statements given above are correct?

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

51. How many of the following are the benefits of Direct Seeding of Rice (DSR)?

1. Savings on irrigation water
2. Reduces cultivation time
3. Lower seed rates
4. Lower GHG emissions

Select the correct answer using the code given below.

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

52. Consider the following statements with reference to the Surrogacy (Regulation) Act, 2021:

1. Both altruistic and commercial surrogacy is allowed in India.
2. A woman can act as a surrogate only once in her lifetime.

Which of the statements given above is/are correct?

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

53. What is the direction of conventional current flow in an electrical circuit?

- (a) From positive to negative
- (b) From negative to positive
- (c) It depends on the type of circuit
- (d) It does not have a specific direction

54. With respect to lentils production in India, consider the following statements:

1. In India, Madhya Pradesh is the largest producer of lentils.
2. India is the largest producer of lentils in the world.
3. India is the net exporter of lentils in the world because of surplus lentil production.

How many of the statements given above are correct?

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

55. Consider the following statements regarding Gallium and Germanium, the rare earth minerals, recently seen in news:

1. Both minerals can be found in Zinc ores.
2. While Gallium is used in semiconductor devices, Germanium finds application in solar cells.
3. India has no Gallium deposits but Germanium is recovered as a byproduct of alumina.

How many statements given above are correct?

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

56. Consider the following pairs :

<i>Acid</i>	<i>Source</i>
1. Lactic acid	: Curd
2. Vinegar	: Methanoic acid
3. Tamarind	: Tartaric acid

How many of the pairs given above are correctly matched?

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

57. Consider the following statements with respect to cell division:

1. Mitotic cell division occurs in somatic cells only and meiosis occurs in germ cells only.
2. All mitotic progeny are genetically similar whereas in meiosis, a new combination of genes is obtained.

Which of the statements given above is/are correct?

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

58. Consider the following:

1. Oxytocin
2. Serotonin
3. Endorphin
4. Dopamine

How many of the above are feel good hormones that promote pleasure while reducing depression in human beings?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

59. Consider the following statements:

Statement-I: Maximum density of water is achieved at 4 degrees celsius.

Statement-II: Specific heat of water is maximum at 4 degrees celsius.

Which one of the following is correct in respect of the above statements?

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

60. Consider the following statements regarding radiocarbon dating:

1. Radioactive isotope commonly used in radiocarbon dating is C-14.
2. It can measure age of fossils up to 100 million years old.

Which of the statements given above is/are correct?

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

61. Which of the following particles has the least mass?

- (a) Neutron
- (b) Proton
- (c) Electron
- (d) Alpha particle

62. Consider the following statements with reference to the Fast Breeder Reactor:

Statement-I: Fast Breeder reactors can help extract up to 70 percent more energy than traditional reactors and are safer than traditional reactors.

Statement-II: The spent fuel from this reactor cannot be fed back into the reactor.

Which one of the following is correct in respect of the above statements?

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

63. Stripe Rust is a common disease of which plant?

- (a) Rice
- (b) Wheat
- (c) Maize
- (d) Potato

- 64.** Daily, as the sun dawns on your landscape, the crop management system takes charge. Soil sensors embedded in the fields transmit real-time data to the central hub. The algorithm analyzed moisture, nutrient levels, and weather forecasts. Automated irrigation systems are activated, precisely delivering water. Drones soared, mapping crop health and detecting pests. The system ensured optimal conditions, maximizing yield and minimizing environmental impact. Which of the following technologies is best described in the passage given above?
- Machine Learning
 - Virtual private network
 - Internet of Things
 - Remote Sensing
- 65.** Consider the following:
- Camphor
 - Cellulose
 - Iodine
- How many of the above compounds undergo sublimation that is transitioning directly from the solid phase to the gas phase without passing through the liquid phase?
- Only one
 - Only two
 - All three
 - None
- 66.** Consider the following statements regarding Carbon Nanotubes (CNTs):
- CNTs can be coated on cotton yarns of clothes to power wearable devices.
 - CNTs can be useful in carbon capture and storage technologies.
 - The easy uptake of CNTs in different cell types makes them significant in drug and gene delivery.
 - CNTs have no toxic effects making them the most sought in various industries.
- How many statements were given above are correct?
- Only one
 - Only two
 - Only three
 - All four
- 67.** A person stands on loose sand and then lies down on it. He goes deeper into the sand while standing than while lying down. Which one of the following is the reason?
- The weight of the body is lesser while standing up.
 - The density of the human body is lesser than sand
 - The pressure on the sand is higher while standing up
 - There is more friction between the body and the sand while lying down
- 68.** Which carbon-based compound is commonly used as an antifreeze in automobile radiators to prevent the coolant from freezing?
- Acetone
 - Butanol
 - Isopropyl alcohol
 - Ethylene glycol
- 69.** Consider the following statements with respect to India - Maldives bilateral relation:
- Both India and Maldives are members of the regional grouping SAARC and BIMSTEC.
 - The number of Indian tourists to Maldives has doubled between 2018 to 2022.
 - Great Male Connectivity Project, one of the largest infrastructure project of Maldives is funded by India.
- Which of the statements given above is/are correct?
- 1 and 2 only
 - 2 and 3 only
 - 3 only
 - 1, 2 and 3

- 70.** With reference to Havisure, consider the following statements:
1. It is India's first indigenously developed Hepatitis A vaccine.
 2. It has been developed by the Serum Institute of India.
 3. It is a single-dose vaccine.
- Which of the statements given above is/are correct?
- (a) 1 and 2 only
 - (b) 2 and 3 only
 - (c) 1 and 3 only
 - (d) 1 only
- 71.** When a potted plant is over-watered for a few days, it gradually dies because:
- (a) plant is infected by soil microbes.
 - (b) roots do not receive oxygen for respiration.
 - (c) roots are unable to absorb nutrients.
 - (d) water from soil cannot rise to aerial parts.
- 72.** Consider the following statements regarding nano fertilizers:
- Statement I: Nano Urea increases the availability of nitrogen to crops by more than 80% resulting in higher Nutrient Use efficiency.
- Statement II: Compared to conventional urea prill, nano Urea has less surface area.
- Which one of the following is correct in respect of the above statements?
- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
 - (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
 - (c) Statement-I is correct but Statement-II is incorrect
 - (d) Statement-I is incorrect but Statement-II is correct

- 73.** Consider the following:
1. 3D printing
 2. Quantum computing
 3. Detection of contamination of food
- How many of the areas/fields mentioned above is nanotechnology used?
- (a) Only one
 - (b) Only two
 - (c) All three
 - (d) None
- 74.** With reference to the Critical Tiger Habitats (CTH), consider the following statements:
1. Nagarjunsagar-Srisailem Tiger Reserve has the largest area under Critical Tiger Habitat.
 2. As of now, more than 50% of total tiger reserves area is under Critical Tiger Habitat.
 3. The customary and traditional forest rights under Forest Rights Act, 2006 are not recognised in Critical Tiger Habitat.
- How many of the statements given above are correct?
- (a) Only one
 - (b) Only two
 - (c) All three
 - (d) None

75. In the context of gravitational force and electromagnetic force, consider the following statements:

1. While gravitational force is always attractive, electromagnetic force can be both attractive and repulsive.
2. While gravitational force is only dependent on mass, the electromagnetic force is dependent on both mass and charge.
3. While gravitational force is dependent upon the distance between the two bodies, the electromagnetic force is independent of it.

Which of the statements given above is/are correct?

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

76. Consider the following statements regarding the Photoelectric effect :

1. It is a phenomenon where electrons are absorbed when a material is exposed to light.
2. Solar panels utilize the photoelectric effect to convert sunlight into electrical energy.

Which of the statements given above is/are correct?

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

77. Consider the following statements regarding the Zeeman Effect :

1. It describes the change in frequency or wavelength of a wave in relation to an observer moving relative to the source of the wave.
2. Its principles are used in the working of Magnetic resonance imaging (MRI) scanners.

Which of the statements given above is/are correct?

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

78. Isotopes have the same atomic number but different atomic masses. Which among the following are the uses of radioactive isotopes?

1. Treatment of cancer
2. Fuel in nuclear reactors
3. Treatment of goitre

Select the correct answer using the code given below.

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

79. Arrange the reactivity of the following metals in decreasing order:

1. Sodium
2. Zinc
3. Iron
4. Mercury

Select the correct answer using the code given below.

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

80. With reference to International Court of Justice, consider the following statements:

1. In order to be elected, a candidate must receive an absolute majority by the voting done by the United Nations General Assembly and the Security Council.
2. A member of the Court can be dismissed only with the unanimous opinion of the other members.
3. Both United Nations bodies and individual countries can take part in the advisory proceedings of ICJ.

Which of the statements given above is/are correct?

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

81. In the context of rising drone attack on commercial vessel in Red Sea, consider the following statements regarding Red Sea:

1. The Red Sea lies in the tropical belt.
2. Israel through its Port of Eilat has access to the Red Sea via Gulf of Aqaba.
3. Gulf of Suez connects the Red Sea and Mediterranean Sea.

How many of the statements given above are correct?

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

82. Consider the following statements with reference to indigenously manufactured Unmanned Aerial Vehicle (UAV) 'Drishti 10':

1. It is developed by Hindustan Aeronautics Limited.
2. It is entirely built with 100% indigenously made components.
3. It is a medium-altitude, low-endurance UAV.

How many of the statements given above are correct?

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

83. Consider the following:

1. Melting ice cream
2. Evaporation of water
3. Baking a cake

In the context of chemistry, how many of the above are chemical changes?

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

84. In the context of food preservation, salt inhibits bacterial growth primarily by:

- (a) increasing pH.
- (b) decreasing pH.
- (c) adding nutrients.
- (d) absorbing water.

85. Consider the following statements:

1. Hydrogenation increases the melting point of fats.
2. The hydrogenation process is used to prepare vegetable ghee from vegetable oil.

Which of the statements given above is/are correct?

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

86. In the context of Indian defence, consider the following pairs:

<i>Missiles</i>	<i>Description</i>
1. Rudram	: Long-range guided-bomb
2. Gaurav	: Anti-radiation missile
3. BrahMos-	: Supersonic cruise missile

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How many of the above pairs are correctly matched?

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

87. In the context of recent judgement of the Supreme Court in Bilkis Bano case, consider the following statements regarding the Supreme Court's power to review its own order or judgement.

- Article 142 of the Constitution of India gives Supreme Court the power to review any of its own order or judgement.
- Only the parties to the case can seek a review of the judgement on it.
- The review petition is heard only by a larger and distinct bench to uphold the principle of natural justice.

How many pairs given above are correctly matched?

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

88. DNA is the molecule that carries genetic information for the development and functioning of an organism. Consider the following statements with respect to DNA:

- DNA molecule is a double helix consisting of two strands of DNA linked by ionic bonds.
- In a DNA molecule, there are four nucleotides present in equal amounts.
- Among the four bases in DNA, Adenine always pairs with Guanine and Cytosine always pairs with Thymine.

How many of the statements given above are correct?

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

89. Vegetative Propagation, a form of asexual reproduction can be achieved by which of the following parts of a plant?

- Roots
- Leaves
- Stem

Select the correct answer using the code given below.

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

90. Consider the following parts of a cell:

- Centrosome
- Plastids
- Cell wall
- Vacuoles

How many of the above given parts of a cell are common to both plants and animal cells?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

- 91.** Consider the following statements :
- Statement-I : Longer surf boards are more stable while maneuvering in water.
- Statement-II : Longer surf boards have more volume and surface area interacting with water.
- Which one of the following is correct in respect of the above statements?
- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
 - Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
 - Statement-I is correct but Statement-II is incorrect
 - Statement-I is incorrect but Statement-II is correct
- 92.** Consider the following:
- Detection of cancer
 - Reduction in occurrences of wildfire
 - Writing poetry
 - Identification and classification of celestial objects
- With the present state of development, how many of the above-mentioned things are possible through Artificial Intelligence?
- Only one
 - Only two
 - Only three
 - All four
- 93.** Consider the following statements regarding the Bharat Ratna Award:
- It is India's highest civilian award.
 - It is restricted to maximum of three in a particular year.
 - It is a title under Article 18.
- Which of the statements given above is/are correct?
- 3 only
 - 2 and 3 only
 - 1 and 2 only
 - 1, 2 and 3

- 94.** How does sunscreen protect your skin from the sun?
- By increasing perspiration
 - Absorbing and scattering UV rays
 - Increasing melanin production
 - Generating a cooling effect
- 95.** With reference to the properties of the Graphene, consider the following statements:
- It is a two-dimensional form of carbon.
 - It consists of a multi layers of carbon atoms arranged in a hexagonal lattice.
 - It is prepared by heating Graphite, Coal tar and or Shellac.
- Which of the statements given above is/are correct?
- 1, 2 and 3
 - 2 and 3 only
 - 1 and 3 only
 - 1 only
- 96.** Consider the following statements regarding the speed of sound in a different medium:
- Among the three states solid, liquid and gaseous, sound travels fastest in the gaseous state.
 - Sound travels faster in hot air than in cold air.
- Which of the statements given above is/are correct?
- 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2

97. Consider the following statements regarding polar bear:

1. Polar bear is both the largest bear and the largest terrestrial carnivore in the world.
2. The polar bear is primarily found in the Arctic and Antarctic regions.
3. The International Union for Conservation of Nature (IUCN) designates the polar bear as Endangered on its Red List.

How many of the statements given above are correct?

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

98. Arrange the above planets in decreasing order of number of satellites:

1. Jupiter
2. Uranus
3. Mars
4. Neptune

Select the correct answer using the code given below.

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

99. In which of the following is the fission mode of reproduction observed?

1. Bacteria
2. Virus
3. Protozoa

Select the correct answer using the code given below.

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

100. Why does cutting an onion make one cry?

- (a) Release of tear gas
- (b) Release of sulfur compounds
- (c) Acidic reaction
- (d) Water absorption

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