TEST CODE : 261103

2026

Time Allowed: Two Hours

TEST BOOKLET

GENERAL ABILITY AND INTELLIGENCE

Test Booklet Series

A

MAXIMUM MARKS 250

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE. TEST BOOKLET.
2. **Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the Answer Sheet liable for rejection.**
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 **125** items (questions). Each item is printed both in **Hindi** and **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, mark the response which 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 directions in the Answer Sheet.
6. All items carry equal marks.
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 Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator only the Answer Sheet. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **Penalty for wrong Answers:**

THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN ALL THE QUESTIONS .

(i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.

(ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.

(iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

1. Which of the following is not a greenhouse gas?
   (a) Carbon dioxide
   (b) Methane
   (c) Nitrogen
   (d) Water vapour

2. Consider the following statements regarding PM2.5 particles:
   1. They have a diameter of 2.5 microns or less.
   2. They are visible to the naked eye.
   3. They can penetrate deep into the lungs and cause cardiovascular diseases.
   Which of the statements given above are correct?
   (a) 1 and 2 only
   (b) 2 and 3 only
   (c) 1 and 3 only
   (d) 1, 2 and 3

3. Which of the following statements is/are correct about Air Quality Index (AQI) in India?
   1. It is launched under the Swachh Bharat Mission.
   2. It classifies air quality into five categories based on pollutants such as PM10, PM2.5, NO_2, SO_2, CO, O_3, NH_3, and Pb.
   3. The Central Pollution Control Board (CPCB) is responsible for its implementation.
   Select the correct answer using the code given below:
   (a) 1 and 2 only (b) 2 and 3 only
   (c) 1 and 3 only (d) 1, 2 and 3

4. Which of the following statements correctly explains the variation in day length across seasons?
   (a) Day length remains the same throughout the year because Earth's orbit is circular.
   (b) Earth's rotation axis is tilted with respect to its orbital plane.
   (c) The Earth's distance from the Sun changes drastically during the year.
   (d) The Earth's speed of rotation varies seasonally.

5. Which of the following statements about conduction and convection is/are correct?
   1. Conduction occurs mainly in solids.
   2. Convection occurs mainly in liquids and gases.
   3. Both conduction and convection can occur in a vacuum.
   Select the correct answer using the code given below:
   (a) 1 only
   (b) 1 and 2 only
   (c) 2 and 3 only
   (d) 1, 2 and 3

6. Which one of the following processes primarily causes sea and land breezes?
   (a) Conduction
   (b) Convection
   (c) Radiation
   (d) Reflection

7. Which of the following human activities contributes the most to the enhanced greenhouse effect?
   (a) Planting more trees
   (b) Burning of fossil fuels
   (c) Construction of houses
   (d) Use of solar panels

8. In the electromagnetic spectrum, which of the following waves has the longest wavelength but the least energy?
   (a) Gamma rays
   (b) Microwaves
   (c) Ultraviolet rays
   (d) Infrared rays

9. Which one of the following electromagnetic waves carries the maximum energy per photon?
   (a) Infrared rays
   (b) Microwaves
   (c) X-rays
   (d) Radio waves

10. Consider the following pairs of electromagnetic waves and their typical applications:

Electromagnetic Wave	Application
1. Infrared	Night-vision cameras
2. X-rays	Security scanning & imaging
3. Radio waves	Satellite communication

Which of the pairs above are correctly matched?
(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

11. Arrange the following electromagnetic radiations in increasing order of energy per photon:
1. Ultraviolet rays 2. Infrared rays
3. Visible light 4. X-ray
(a) 2 - 3 - 1 - 4 (b) 4 - 1 - 3 - 2
(c) 1 - 2 - 3 - 4 (d) 3 - 2 - 4 - 1

12. Which of the following best describes an equinox, as opposed to a solstice?
(a) The time when the Sun is directly overhead at the Equator
(b) The day when the Earth is closest to the Sun
(c) The period when one hemisphere experiences 24 hours of daylight
(d) The shortest day of the year in both hemispheres

13. Which one of the following statements about the solstices, an event that occurs when the Sun appears to reach its most northerly or southerly position, is correct?
(a) The winter solstice takes place on June 21 in both the northern and southern hemispheres
(b) The winter solstice takes place on December 21 in both the northern and southern hemispheres
(c) The summer solstice occurs in the northern hemisphere on June 21 and on December 21 in the southern hemisphere
(d) The summer solstice occurs in the northern hemisphere on December 21 and on June 21 in the southern hemisphere

14. Which one of the following statements correctly defines PM1 particles in air?
(a) These are suspended particles of diameter more than 10 micron
(b) These are the particles that are filtered by the nose during respiration
(c) These are extremely fine particles of diameter less than 1 micron
(d) These are coarse particles that penetrate directly through the lungs into the bloodstream

15. The energy of electromagnetic radiation is quantized and is given by which of the following expressions?
$(a)\ E = mc^2$ $(b)\ E = h\nu$
$(c)\ E = \frac{1}{2}mv^2$ $(d)\ E = \frac{q}{V}$

16. Which of the following statements is correct regarding the functioning of a greenhouse made of glass?
(a) The glass blocks all forms of radiation
(b) Glass reflects ultraviolet radiation back into the environment
(c) Glass allows visible radiation to enter but blocks longwave infrared radiation from escaping
(d) Glass does not affect heat transfer in any way

17. Which of the following best explains the role of greenhouse gases in Earth's atmosphere?
(a) They reflect sunlight back into space
(b) They allow all radiation to escape from Earth
(c) They absorb outgoing longwave radiation and re-emit it back
(d) They prevent sunlight from entering the atmosphere

18. Which of the following pollutants is most closely associated with the formation of photochemical smog?
(a) Sulphur dioxide
(b) Carbon monoxide
(c) Nitrogen oxides and volatile organic compounds
(d) Particulate matter

19. Which of the following international conventions deals primarily with controlling transboundary movement of hazardous wastes including particulate pollutants?
(a) Basel Convention
(b) Stockholm Convention
(c) Rotterdam Convention
(d) Vienna Convention

20. In the natural greenhouse effect, the energy from the Sun that enters the Earth is primarily in the form of:
(a) Longwave infrared radiation
(b) Microwaves
(c) Shortwave visible and ultraviolet radiation
(d) Longwave radio signals

21. Which of the following statements is/are correct about Air Quality Index (AQI) in India?
1. It is launched under the Swachh Bharat Mission.
2. It classifies air quality into five categories based on pollutants such as PM10, PM2.5, NO_2, SO_2, CO, O_3, NH_3, and Pb.
3. The Central Pollution Control Board (CPCB) is responsible for its implementation.
Select the correct answer using the code given below:
(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

22. What is common to both the summer and winter solstices?
(a) The Sun's rays are directly overhead at the Equator
(b) Both mark equal lengths of day and night everywhere on Earth
(c) They occur when the Sun is directly overhead at one of the Tropics
(d) They occur twice each month

23. Which one of the following heat transfer mechanisms does NOT require a medium?
(a) Conduction (b) Convection
(c) Radiation (d) Collision

24. The occurrence of the summer solstice in the Northern Hemisphere means that:
(a) The North Pole is tilted away from the Sun
(b) The South Pole is tilted towards the Sun
(c) The North Pole is tilted towards the Sun
(d) The Sun's rays are vertical at the Equator

25. Which of the following correctly explains why the metal handle of a cooking pan becomes hot even if only the pan's base is heated?
(a) Radiation of heat through air
(b) Conduction of heat through metal
(c) Convection of heat through air
(d) Chemical reaction in metal

26. Which among the following statements is correct regarding heat transfer in outer space?
(a) Heat is transferred by conduction through cosmic dust.
(b) Heat transfer occurs by convection between celestial bodies.
(c) Heat is transferred only through radiation.
(d) No heat transfer occurs in space.

27. The working principle of an electric generator is based on:
(a) Heating effect of electric current
(b) Chemical effect of electric current
(c) Electromagnetic induction
(d) Magnetic effect of electric current

28. The property of water that allows insects to walk on its surface is best explained by:
(a) High specific heat
(b) High surface tension
(c) Universal solvent action
(d) Anomalous expansion

29. Which among the following is correct with respect to the bond formation in an Ethyne (C_2H_2) molecule?
(a) One Carbon-Carbon single bond
(b) One Carbon-Carbon double bond
(c) One Carbon-Carbon triple bond
(d) One Carbon-Hydrogen double bond

30. The process of converting vegetable oil into vegetable ghee by passing hydrogen gas in the presence of a catalyst like nickel is called:
(a) Esterification
(b) Saponification
(c) Hydrogenation
(d) Oxidation

31. The radioactive isotope of which element is used as a fuel in nuclear reactors for power generation?
(a) Iodine (b) Cobalt
(c) Uranium (d) Carbon

32. Which one among the following statements about the process of evaporation is NOT correct?
(a) It is a surface phenomenon.
(b) It causes cooling.
(c) It occurs only at the boiling point.
(d) The rate of evaporation increases with an increase in surface area.

33. The process by which a changing magnetic field in a conductor induces a current in another conductor is fundamental to the working of:
(a) An electric fuse
(b) An electric bell
(c) A step-down transformer
(d) An electromagnet

34. The isotope of which one among the following elements is used in a technique called "Radio-Carbon Dating" to determine the age of archaeological artefacts?
(a) Cobalt-60
(b) Carbon-14
(c) Iodine-131
(d) Uranium-238

35. Which of the following phenomena is NOT an application of electromagnetic induction?
(a) Generation of electricity in a hydroelectric dam
(b) Wireless charging of a smartphone
(c) Glowing of an incandescent bulb
(d) Working of a dynamic microphone

36. Which one among the following statements about the interconversion of states of matter is NOT correct?
(a) Sublimation is the direct change of a solid into a gas.
(b) The temperature of a substance remains constant during its change of state.
(c) Condensation is the process of a gas changing into its liquid state.
(d) Solidification, or freezing, occurs at a temperature higher than the melting point.

37. The isotope of which one among the following elements is used in the medical treatment of blood disorders like Polycythemia Vera (excess red blood cells)?
(a) Cobalt-60
(b) Phosphorus-32
(c) Uranium-238
(d) Iodine-131

38. The property of carbon atoms to form long chains and rings is known as:
(a) Isomerism
(b) Catenation
(c) Tetravalency
(d) Allotropy

39. Which among the following is the correct molecular formula and bond type for Ethene?
(a) C_2H_6 with a single bond
(b) C_2H_4 with a double bond
(c) C_2H_2 with a triple bond
(d) C_2H_6 with a double bond

40. Which of the following phenomena is a direct consequence of the anomalous expansion of water?
(a) Rapid drying of clothes in summer.
(b) Aquatic life surviving in frozen lakes.
(c) Efficient transport of water in plants.
(d) Cooling effect of sweating.

41. Which one of the following compounds is characterized by the presence of a functional group -OH?
(a) Ethanal (b) Ethanoic Acid
(c) Ethanol (d) Acetone

42. The process by which water molecules move from the roots to the leaves of a tall tree, against gravity, involves:
(a) Capillary action
(b) High boiling point
(c) High dipole moment
(d) Anomalous density

43. Water is an excellent solvent for dissolving ionic compounds primarily because:
(a) It has a high specific heat capacity.
(b) It is a transparent and colourless liquid.
(c) It has a high dipole moment.
(d) It has a high boiling point.

44. Which one among the following statements about the physical nature of matter is NOT correct?
(a) Particles of matter are continuously moving.
(b) Particles of matter have space between them.
(c) Particles of matter have space between them.
(d) The kinetic energy of particles is independent of temperature.

45. Which one of the following is a key reason for water's high specific heat capacity?
(a) The presence of hydrogen bonding between water molecules.
(b) The polar nature of the water molecule.
(c) Its ability to dissolve ionic salts.
(d) Its high surface tension.

46. Which radioactive isotope is primarily used in "Food Irradiation" to destroy pathogens and preserve food grains for a longer duration?
(a) Carbon-14
(b) Iodine-131
(c) Cobalt-60
(d) Uranium-235

47. Which one of the following devices works on the principle of the magnetic effect of electric current and NOT on electromagnetic induction?
(a) Electric Generator
(b) Electric Transformer
(c) Electric Motor
(d) Induction Cooktop

48. Which one among the following statements about the effect of temperature and pressure on matter is NOT correct?
(a) Increasing pressure can liquefy gases.
(b) The boiling point of a liquid decreases at high altitudes.
(c) On heating, solids generally expand less than liquids.
(d) The melting point of a substance decreases with an increase in pressure.

49. The isotope of which one among the following elements is commonly used in the treatment of goitre and thyroid cancer?
(a) Uranium-235
(b) Cobalt-60
(c) Iodine-131
(d) Phosphorus-32

50. The device used to detect the presence of a small current in a circuit, whose working is based on the magnetic effect of current and not electromagnetic induction, is:
(a) Voltmeter
(b) Galvanometer
(c) Electric Generator
(d) Induction Coil

51. Which one among the following statements about the states of matter is NOT correct?
(a) The density of solids is generally higher than that of liquids and gases.
(b) The force of attraction between particles in a gas is very strong.
(c) Gases exert pressure on the walls of their container.
(d) Solids have a definite shape and volume.

52. Which among the following are the main ingredients for the manufacturing of ordinary soda-lime glass?
(a) Silica, Sodium Carbonate, Calcium Carbonate, and Cullets
(b) Iron Oxide, Lead Oxide, Potassium Carbonate, and Cullets
(c) Silica, Magnesium Carbonate, Alumina, and Cullets
(d) Silica, Borax, Alumina, and Potassium Nitrate

53. Isotopes of an element have the same atomic number because they have the same number of:
(a) Neutrons (b) Protons
(c) Electrons (d) Nucleons

54. Which one among the following is an example of an endothermic process?
(a) Combustion of carbon
(b) Mixing acid and alkali
(c) Photosynthesis
(d) Respiration

55. Which one of the following pigments is used as a white pigment in paints and has the chemical formula TiO_2?
(a) Zinc white
(b) White lead
(c) Titanium dioxide
(d) Calcium carbonate

56. An element 'X' has an atomic number of 12. What is its most likely valency and the type of ion it will form?
(a) Valency 2, Cation X^{2+}
(b) Valency 2, Anion X^{2-}
(c) Valency 6, Cation X^{6+}
(d) Valency 6, Anion X^{6-}

57. Which of the following elements has the electronic configuration 2, 8, 7 and is most likely to form an anion?
(a) Chlorine (Cl)
(b) Oxygen (O)
(c) Neon (Ne)
(d) Magnesium (Mg)

58. Match List I with List II and select the correct answer using the codes given below:

List I (Type of pigment)	List II (Example)
A. Natural pigment	1. Chalk
B. Synthetic pigment	2. Titanium dioxide
C. Reactive pigment	3. White lead
D. Inert pigment	4. Barytes ($BaSO_4$)

A B C D
(a) 1 2 3 4
(b) 4 2 3 1
(c) 2 4 1 3
(d) 1 3 2 4

59. The chemical bond formed by the sharing of electrons between two atoms is known as a:
(a) Ionic Bond
(b) Covalent Bond
(c) Hydrogen Bond
(d) Metallic Bond

60. Match List-I with List-II and select the correct answer using the code given below the lists:

List-I (Element)	**List-II (Number of Unpaired Electrons)**
A. Boron (B)	1. Zero
B. Nitrogen (N)	2. One
C. Oxygen (O)	3. Two
D. Neon (Ne)	4. Three

(a) A-2, B-4, C-3, D-1
(b) A-2, B-3, C-4, D-1
(c) A-1, B-4, C-3, D-2
(d) A-3, B-4, C-2, D-1

61. The chemical process involved in the conversion of sugarcane juice or sugar beet into sugar (sucrose) is known as:
(a) Saponification
(b) Fermentation
(c) Carbonation
(d) Crystallization

62. Which of the following is a key raw material used in the production of Portland cement?
(a) Bauxite
(b) Hematite
(c) Limestone
(d) Galena

63. If an atom is electrically neutral, which of the following is always true?
(a) Atomic number = Mass number
(b) Number of protons = Number of electrons
(c) Number of neutrons = Number of electrons
(d) Number of protons = Number of neutrons

64. The process of dissolving Ammonium Chloride (NH_4Cl) in water is commonly used in instant cold packs because it is:
(a) Exothermic and releases heat
(b) Endothermic and absorbs heat
(c) A physical change with no heat transfer
(d) A neutralization reaction

65. The chemical reaction represented by the following equation is an example of an:
$CaCO_3(s) + Heat \rightarrow CaO(s) + CO_2(g)$
(a) Exothermic combination reaction
(b) Endothermic decomposition reaction
(c) Exothermic displacement reaction
(d) Endothermic combination reaction

66. Which of the following pairs is correctly matched?

Pigment	Source/Type
1. Ochre	Natural pigment
2. Zinc oxide	Synthetic pigment
3. Titanium dioxide	Inert pigment
4. Red lead	Reactive pigment

Select the correct code:
(a) 1, 2, and 4 only
(b) 1, 2, 3, and 4
(c) 1 and 4 only
(d) 2 and 3 only

67. The valency of Nitrogen is 3 because its atom has:
(a) 3 electrons in the outermost shell.
(b) 5 electrons in the outermost shell and can gain 3 electrons.
(c) 5 electrons in the outermost shell and can lose 3 electrons.
(d) 3 unpaired electrons in the outermost shell

68. Why is lead-based pigment such as white lead being phased out in modern paints?
(a) It reacts with water and loses colour quickly.
(b) It is highly soluble in alcohol-based solvents.
(c) It is toxic to humans and the environment.
(d) It causes rapid oxidation of paint films.

69. Which of the following pairs correctly matches the process with its type (endothermic/exothermic)?
(a) Respiration : Endothermic
(b) Photosynthesis : Exothermic
(c) Decomposition of vegetable matter : Exothermic
(d) Dissolution of Sodium Hydroxide in water : Endothermic

70. The element, a major component of 'Ruby' and 'Sapphire' gemstones, also used as an abrasive, is:
(a) Silicon (b) Aluminium
(c) Chromium (d) Iron

71. The 'catalyst' used in the Haber's Process for the industrial manufacture of Ammonia is:
(a) Vanadium Pentoxide
(b) Iron with Molybdenum Promoter
(c) Platinum
(d) Nickel

72. Which of the following pairs correctly matches an industry with its primary raw material?
(a) Cement Industry : Limestone and Gypsum
(b) Paper Industry : Iron Ore and Coke
(c) Steel Industry : Wood Pulp and Rosin
(d) Glass Industry : Bauxite and Cryolite

73. An element X has a mass number 23 and atomic number 11. The number of neutrons in its atom is:
(a) 11 (b) 12
(c) 23 (d) 34

74. The primary purpose of adding 'Cullets' in the glass manufacturing process is to:
(a) Act as a flux and lower the melting point of the mixture.
(b) Impart a green color to the glass.
(c) Act as a filler to increase the volume.
(d) Lower the viscosity and facilitate mixing.

75. During a chemical reaction, if the temperature of the surroundings falls, the reaction is most likely:
(a) Exothermic (b) Endothermic
(c) Catalytic (d) Neutralization

76. Which one among the following is used in the manufacture of ultra-violet protective glasses?
(a) Aluminium oxide
(b) Tungsten oxide
(c) Molybdenum oxide
(d) Cerium oxide

77. Which compound of lead is used in lead-acid storage batteries, which are commonly used in automobiles?
(a) Lead Nitrate (b) Lead Sulphide
(c) Lead Dioxide (d) Lead Acetate

78. Which of the following elements is alloyed with Iron to produce 'Stainless Steel', making it resistant to rusting?
(a) Copper and Tin
(b) Chromium and Nickel
(c) Zinc and Aluminium
(d) Tungsten and Carbon

79. Which one of the following statements regarding pigments used in paints is correct?
(a) Synthetic pigments are always derived from plant sources.
(b) Natural pigments are obtained from minerals or biological sources.
(c) Inert pigments react with oxygen and acids to produce colour.
(d) Reactive pigments are insoluble and only used for texture, not colour.

80. Which one among the following statements with respect to the atomic number of an atom is correct?
(a) The number of neutrons is the same as the atomic number.
(b) The sum of electrons and neutrons is the same as the atomic number.
(c) The number of protons is the same as the atomic number.
(d) The sum of protons and neutrons is the same as the atomic number.

81. Which one of the following is NOT true about the modern periodic table?
(a) Elements are arranged in increasing order of atomic number.
(b) Elements with similar valence electron configurations are placed in the same group.
(c) The periodicity of properties depends on atomic mass.
(d) Each period corresponds to the number of shells in atoms
.

82. Which one among the following biotechnologies is applied to manufacture pharmaceutical products such as insulin, antibiotics, and vaccines?
(a) White Biotechnology
(b) Red Biotechnology
(c) Green Biotechnology
(d) Blue Biotechnology

83. Excessive exposure to sounds above 85 decibels (dB) can primarily lead to:
(a) Skin irritation
(b) Hearing damage and stress
(c) Respiratory disease
(d) Reduced metabolism

84. The process by which genetically identical organisms are produced from a single cell or organism is known as:
(a) Somatic hybridization
(b) Gene amplification
(c) Cloning
(d) Hybridoma technology

85. Which of the following correctly matches the scientist with their contribution in genetics?

Scientist	Contribution
A. Gregor Mendel	1. Discovered DNA double helix structure
B. Walter Sutton	2. Linked chromosomes with Mendel's factors
C. Watson & Crick	3. Proposed Laws of Inheritance

Choose the correct code:
(a) A–1, B–3, C–2
(b) A–3, B–2, C–1
(c) A–2, B–1, C–3
(d) A–3, B–1, C–2

86. The primary function of the Guard Cells in a plant leaf is to:
(a) Carry out photosynthesis
(b) Provide structural support
(c) Regulate the opening and closing of stomata
(d) Transport water and minerals

87. Which of the following animals can produce ultrasonic sounds (above 20 kHz)?
(a) Whale (b) Bat
(c) Frog (d) Elephant

88. The frequency of a sound wave is 50 Hz. Which of the following best describes it?
(a) Infrasonic sound
(b) Audible sound
(c) Ultrasonic sound
(d) Supersonic wave

89. Which of the following microorganisms play a major role in the production of methane during biogas generation?
(a) Rhizobium
(b) Nitrosomonas
(c) Methanogens
(d) Cyanobacteria

90. Which of the following statements about Mendel's laws is correct?
(a) The Law of Segregation states that two alleles of a gene mix completely during gamete formation.
(b) The Law of Independent Assortment states that one trait affects the inheritance of another.
(c) The Law of Segregation states that alleles separate during gamete formation and recombine during fertilization.
(d) The Law of Dominance states that both alleles express equally in the heterozygous condition.

91. Gregor Mendel selected the garden pea plant (Pisum sativum) for his experiments primarily because:
(a) It has long generation time
(b) It reproduces only through vegetative means
(c) It exhibits clear contrasting traits and can self- and cross-pollinate
(d) It grows only in one season

92. The 'CRISPR-Cas9' technology, often in the news, is related to:
(a) Production of biofuels from agricultural waste.
(b) Precise editing of an organism's DNA.
(c) Development of biodegradable plastics.
(d) Marine biodiversity conservation.

93. Which of the following traits was not studied by Mendel in his pea plant experiments?
(a) Seed shape (b) Flower color
(c) Pod color (d) Leaf size

94. Which of the following plant tissues is responsible for the transport of water and minerals from roots to leaves?
(a) Phloem (b) Epidermis
(c) Xylem (d) Cambium

95. In a biogas plant, which part acts as the outlet for the used slurry?
(a) Inlet chamber
(b) Gas holder
(c) Overflow tank
(d) Digestion chamber

96. Which of the following statements regarding sound is incorrect?
(a) Sound cannot travel through vacuum.
(b) Sound is a form of mechanical energy.
(c) Sound travels faster in air than in water.
(d) The unit of frequency is hertz (Hz).

97. Biogas is produced by which of the following processes?
(a) Aerobic respiration
(b) Anaerobic decomposition
(c) Photosynthesis
(d) Combustion of biomass

98. What type of sound wave frequency is used in ultrasound scanning in medical diagnosis?
(a) Infrasonic (b) Audible
(c) Ultrasonic (d) Supersonic

99. Under the Government of India's GOBAR-DHAN (Galvanizing Organic Bio-Agro Resources Dhan) scheme, the focus is on:
(a) Generating power from solar rooftops
(b) Converting cattle dung and organic waste into biogas and compost
(c) Promoting thermal energy in rural areas
(d) Building small hydroelectric projects

100. Which of the following is not an advantage of using biogas?
(a) Provides enriched organic manure
(b) Reduces indoor air pollution
(c) Causes deforestation
(d) Provides clean cooking fuel

101. Which of the following is a correct match between a plant tissue and its function?
(a) Palisade Parenchyma : Transport of Food
(b) Phloem : Photosynthesis
(c) Xylem : Transport of Water
(d) Guard Cells : Storage of Starch

102. The use of microorganisms to clean up contaminated sites, such as oil spills, is an application of:
(a) Red Biotechnology
(b) Blue Biotechnology
(c) Environmental Biotechnology (a subset of White Biotech)
(d) Green Biotechnology

103. Which Indian government body is the central agency for the approval of genetically modified (GM) crops?
(a) Indian Council of Agricultural Research (ICAR)
(b) Council of Scientific & Industrial Research (CSIR)
(c) Genetic Engineering Appraisal Committee (GEAC)
(d) National Biodiversity Authority (NBA)

104. The 'Human Genome Project', a mega global scientific project, was successfully completed in 2003. What was its primary goal?
(a) To clone the first human being.
(b) To determine the complete nucleotide sequence of the entire human DNA.
(c) To develop genetically modified humans for disease resistance.
(d) To sequence the genome of only the coding regions (exons) of human DNA.

105. The process by which water evaporates from the aerial parts of plants, primarily through the stomata, is called:
(a) Photosynthesis (b) Transpiration
(c) Guttation (d) Respiration

106. In which layer of the plant tissue are Guard Cells present?
(a) Palisade mesophyll
(b) Spongy mesophyll
(c) Epidermis
(d) Xylem

107. Which of the following organs produces bile juice, and what is its primary function?
(a) Liver – Emulsification of fats
(b) Pancreas – Digestion of proteins
(c) Stomach – Digestion of starch
(d) Gall bladder – Secretion of enzymes

108. Which of the following correctly represents the sequence of organs in the human alimentary canal?
(a) Mouth → Oesophagus → Stomach → Small intestine → Large intestine → Anus
(b) Mouth → Oesophagus → Stomach → Large intestine → Small intestine → Anus
(c) Mouth → Large intestine → Small intestine → Stomach → Anus
(d) Oesophagus → Mouth → Stomach → Small intestine

109. Which one of the following correctly matches the scientist with their contribution in the field of biotechnology?

Scientist	Discovery
(a) Alec Jeffreys	Polymerase Chain Reaction (PCR)
(b) Kary Mullis	DNA Fingerprinting
(c) James Watson & Francis Crick	Double Helical Model of DNA
(d) Ian Wilmut	Discovery of Plasmid

110. Which of the following techniques is used to amplify a segment of DNA millions of times in a few hours?
(a) DNA sequencing
(b) Polymerase Chain Reaction (PCR)
(c) DNA fingerprinting
(d) Genetic cloning

111. According to the Ten Percent Law proposed by Raymond Lindeman (1942), if plants in an ecosystem trap 10,000 joules of energy, how much energy will be available to the tertiary consumers?
(a) 1000 J (b) 100 J
(c) 10 J (d) 1 J

112. Which of the following statements correctly distinguishes simple and complex plant tissues?
(a) Simple tissues are made of more than one type of cell, while complex tissues are made of one type of cell
(b) Simple tissues are uniform, complex tissues are composed of more than one type of cell
(c) Complex tissues have no function in transport
(d) Simple tissues are always dead

113. Which of the following cells is present in phloem but not in xylem?
(a) Tracheid
(b) Vessel element
(c) Sieve tube element
(d) Xylem fiber

114. The process of cell division that results in the production of gametes (sperm and egg cells) with half the number of chromosomes is called:
(a) Mitosis (b) Meiosis
(c) Cytokinesis (d) Endocytosis

115. The kinetochore of a chromosome is primarily important because:
(a) It is the site of DNA replication
(b) It is the site where spindle fibers attach during cell division
(c) It protects the chromosome ends from degradation
(d) It forms the primary constriction in the chromosome

116. Defective allosteric regulation in metabolic enzymes can lead to:
(a) Normal metabolism
(b) Metabolic disorders like hypercholesterolemia or gout
(c) Only infectious diseases
(d) Exclusive vitamin deficiency

117. Which of the following organisms are prokaryotic?
1. E. coli 2. Cyanobacteria
3. Amoeba 4. Lactobacillus
Options:
(a) 1 and 2 only (b) 1, 2 and 4
(c) 2, 3 and 4 only (d) 3 and 4 only

118. Which of the following statements correctly distinguishes prokaryotic cells from eukaryotic cells?
1. Prokaryotes lack membrane-bound organelles.
2. Prokaryotes have a nuclear envelope.
3. Ribosomes in prokaryotes are smaller (70S) than in eukaryotes (80S).
4. Cell walls are present in all eukaryotic cells but absent in prokaryotes.
Options:
(a) 1 and 3 only (b) 2 and 4 only
(c) 1, 3 and 4 only (d) 2, 3 and 4 only

119. Arrange the following events in correct chronological order:
1. Polymerase Chain Reaction (PCR) technique developed
2. Cloning of Dolly
3. DNA fingerprinting discovered
4. Human Genome Project launched
(a) 1-3-4-2 (b) 3-1-4-2
(c) 1-4-3-2 (d) 3-4-2-1

120. Which one of the following statements about enzymes is correct?
(a) They are inorganic catalysts.
(b) They speed up chemical reactions and are destroyed in the process.
(c) They are biological catalysts that speed up reactions without being consumed.
(d) They function only in acidic conditions.

121. Which of the following enzymes is responsible for the digestion of starch in the human mouth?
(a) Pepsin (b) Salivary amylase
(c) Trypsin (d) Lipase

122. The 'iDEX (Innovations for Defence Excellence)' initiative is significant because it:
(a) Focuses solely on importing advanced defense technology.
(b) Promotes self-reliance (Atmanirbharta) by engaging MSMEs and startups in defense innovation.
(c) Is a program managed by the Ministry of Agriculture.
(d) Aims to reduce the budget allocation for DRDO.

123. “Dolly”, the world’s first cloned sheep, was cloned from which type of cell?
(a) Embryonic stem cell
(b) Adult somatic cell
(c) Germ cell
(d) Egg cell

124. The energy flow in an ecosystem is always unidirectional because:
(a) Energy is recycled between organisms of different trophic levels.
(b) Energy flows from decomposers to producers and then to consumers.
(c) Energy flows from producers to consumers and is lost as heat at each step.
(d) Energy is equally available at all trophic levels.

125. Which of the following correctly represents the sequence of trophic levels in a grassland ecosystem?
(a) Grass → Grasshopper → Frog → Snake → Hawk
(b) Grass → Snake → Frog → Hawk → Grasshopper
(c) Grass → Frog → Grasshopper → Hawk → Snake
(d) Grasshopper → Grass → Frog → Snake → Hawk