

- Q. 1.** What is the diameter of a bucky ball?
- Q. 2.** Name the types of nanotubes.
- Q. 3.** What is the refractive index of water ?
- Q. 4.** Give the position and nature of image formed by a convex lens when the object is placed at F.
- Q. 5.** What is the SI unit of power of lens ?
- Q. 6.** What is the power of a concave lens having focal length 0.5m?
- Q. 7.** What is the velocity of light in vacuum?
- Q. 8.** Comment on the refractive index of any medium.
- Q. 9.** At what position will a concave mirror give a real, inverted image of same size as the object?
- Q. 10.** Which kind of lens has positive power?
- Q. 11.** Which colour is obtained at the top in a prism spectrum and why?
- Q. 12.** If white light is incident on a mixture of blue and yellow pigments, which colour is reflected?
- Q. 13.** Which technique is used to produce coloured pictures on T V?
- Q. 14.** Name the primary pigments.
- Q. 15.** Which lens is used to correct Hypermetropia?
- Q. 16.** In a telescope, which lens has a larger focal length?
- Q. 17.** If an electrical lamp lights for 2 hrs drawing a current of 0.4 A, calculate the amount of charge that passed through the lamp?
- Q. 18.** Define electric potential.
- Q. 19.** How much current will an electric heater connected to 220 V line draw if its resistance is 45 ohm?

Q. 20. How much energy is consumed in joules if the domestic meter reading shows 15.5 units?

Q. 21. Out of tap water, sea water and pure water, which is the best conductor of electricity?

Q. 22. What type of $V \rightarrow I$ graph does ohm's law suggest?

Q. 23. Why does a solenoid produce a strong magnetic field?

Q. 24. What is the frequency of domestic current?

Q. 25. Which electromagnetic rays have wave length less than ultraviolet rays?

Q. 26. What keeps the water circulating in the tank of a solar water heater?

Q. 27. What temperature is attained at the Mount Louis in France by Solar furnace?

Q. 28. How much electricity is produced by a single solar cell?

Q. 29. Which are the necessary structural parameters of a windmill?

Q. 30. At what depth is OTEC captured?

Q. 31. Where on Earth can OTEC be captured?

Q. 32. Define Magma.

Q. 33. What is the average temperature obtained in hot water geysers?

Q. 34. Where is hydrogen used as a fuel?

Q. 35. How many carbon atoms are present in a molecule of diesel?

Q. 36. What is the calorific value of kerosene?

Q. 37. At what temperature is Lubricating oil obtained in the FD tower?

Q. 38. What is the specific heat of water?

Q. 39. 1 eV is how many joules?

Q. 40. 1 u is how many eV?

- Q. 41. What is the atomic mass of a neutron?
- Q. 42. How much energy does fission of 1kg uranium produce?
- Q. 43. Define spontaneous fission.
- Q. 44. What is the energy of neutron released during nuclear fission?
- Q. 45. How much is the energy of a neutron decreased to obtain a thermal neutron?
- Q. 46. Mass defect is converted to energy as per which equation?
- Q. 47. At what temperature is plasma state obtained?
- Q. 48. Define Ignition temperature.
- Q. 49. When and where did the most serious nuclear accident take place?
- Q. 50. What is the value of solar mass?
- Q. 51. What is the value of solar constant?
- Q. 52. Name the moons of Mars.
- Q. 53. Name the moons of Neptune.
- Q. 54. With respect to Pluto what is Binary system?
- Q. 55. What is the tail of a comet made up of?
- Q. 56. After what height do booster rockets burn due to friction?
- Q. 57. In which orbits are remote sensing satellites launched?
- Q. 58. From where was the first EDUSAT launched in India?
- Q. 59. Which satellite to be launched by India will be useful for DTH service?
- Q. 60. Give an example of physical equilibrium.
- Q. 61. What kind of reaction should take place for attaining chemical equilibrium?
- Q. 62. Draw the graph of rate of reaction à time.

- Q. 63. How does temperature affect rate of reaction?
- Q. 64. What is the concentration of H^+ ion in pure water?
- Q. 65. What is the pH value of Lemon Juice?
- Q. 66. Give the chemical formula of ammonical brine.
- Q. 67. Give chemical formula of soda ash.
- Q. 68. What is efflorescence?
- Q. 69. What is dead burnt plaster?
- Q. 70. What is lime-light?
- Q. 71. What happens when lime is heated with carbon in an electric furnace?
- Q. 72. Name the major constituents of cement?
- Q. 73. Give the chemical formula of glass.
- Q. 74. What is added to make green coloured glass?
- Q. 75. Write the full form of RCC.
- Q. 76. Give the names and chemical formulae of ores of silver.
- Q. 77. Give an equation for thermite process.
- Q. 78. What is added to alumina to bring down its melting point in Hall- Heroult process?
- Q. 79. Define emf series.
- Q. 80. Which metals do not react with water at all?
- Q. 81. Give the equation for formation of rust.
- Q. 82. How is galvanized iron made?
- Q. 83. Which alloy is used to make light instruments?
- Q. 84. Which metals are refined by liquification process?

- Q. 85. What is slag?
- Q. 86. What product is obtained when phosphorus pentoxide dissolves in water?
- Q. 87. Give the equation for steam reforming process.
- Q. 88. What catalyst is used in Haber's process?
- Q. 89. Which base is used to make para-aminobenzoic acid?
- Q. 90. What is the melting point of sulphur?
- Q. 91. Give the chemical formula of copper pyrite.
- Q. 92. At what temperature is rhombic sulphur obtained?
- Q. 93. What is used as a preservative in jams and squashes?
- Q. 94. What is used as a catalyst in the contact chamber to convert sulphur dioxide to trioxide?
- Q. 95. Give an example showing dehydrating action of sulphuric acid.
- Q. 96. give the chemical name and formula or oleum.
- Q. 97. Give the chemical formula and IUPAC name for propyl alcohol.
- Q. 98. Which enzyme converts sugar to glucose?
- Q. 99. Ethyl alcohol undergoes oxidation in presence of acetic acid and chromium oxide to give?
- Q. 100. Why is ethyl alcohol used in radiators of vehicles in cold countries?
- Q. 101. What is denatured ethyl alcohol?
- Q. 102. How many hydrocarbons can be attached to a ketone group?
- Q. 103. What does the oxidation of alcohols give?
- Q. 104. What is formalin and where is it used?
- Q. 105. Give the reaction between methanal and hydrogen cyanide.

- Q. 106.** Give the general formula of carboxylic group.
- Q. 107.** What is used as a catalyst to prepare acetic acid industrially?
- Q. 108.** Give the name and chemical formula for monomer of Teflon.
- Q. 109.** What is the name and chemical formula of monomer unit of natural rubber?
- Q. 110.** Give the name and chemical formula of the by product obtained in while manufacturing soap.
- Q. 111.** Which functional group is present in detergents?
- Q. 112.** What is the function of polar tail of detergent molecule?
- Q. 113.** What is holozoic nutrition?
- Q. 114.** What is the full form of NADP?
- Q. 115.** Where does the biosynthetic phase of photosynthesis take place?
- Q. 116.** How are ATP and NADPH₂ synthesised in light phase useful in biosynthetic phase?
- Q. 117.** Which organ in grasshopper grinds the food particles?
- Q. 118.** In mammals, which teeth are used for grinding and chewing?
- Q. 119.** Which are the parts of small intestine?
- Q. 120.** What is the function of villi present in small intestine?
- Q. 121.** How many times more energy is released by oxidation of a glucose molecule by aerobic respiration compared to anaerobic respiration?
- Q. 122.** What is the function of lenticels?
- Q. 123.** What will you expect in stomata when the carbondioxide concentration increases in the leaf?
- Q. 124.** What are the openings of trachea called?
- Q. 125.** Where does each bronchile terminate?

- Q. 126.** During photosynthesis electrons are released from which molecule?
- Q. 127.** During photosynthesis from where is oxygen released?
- Q. 128.** What is the function of incisors?
- Q. 129.** Where is NADPH₂ formed?
- Q. 130.** What provides tensile strength to the inner wall of tracheae?
- Q. 131.** Through which organ are water and minerals transported in pteridophytes and gymnosperms?
- Q. 132.** What is ascent of sap?
- Q. 133.** How are sieve tube and companion cell formed?
- Q. 134.** What controls the actions of sieve tube?
- Q. 135.** Which organ transports food in pteridophytes and gymnosperms?
- Q. 136.** How do food particles enter phloem?
- Q. 137.** What is translocation?
- Q. 138.** What is conjugated protein?
- Q. 139.** Where are erythrocytes formed?
- Q. 140.** Which type of WBC produces immunoglobulins?
- Q. 141.** What converts prothrombin to thrombin while blood clotting?
- Q. 142.** Where are antigens present?
- Q. 143.** A person with O blood group will not have which type of antigen?
- Q. 144.** What is the function of tricuspid valve?
- Q. 145.** In context to human heart what is known as diastolic stage?
- Q. 146.** Why are the walls of arteries elastic and thick?

- Q. 147. Why do veins contain valves?
- Q. 148. What is lymph?
- Q. 149. Name the excretory organ of sponges.
- Q. 150. What is the opening of nephrostome called?
- Q. 151. Which type of nephridia will show exonephric excretion?
- Q. 152. What is malpighian body?
- Q. 153. Where do the collecting tubules of nephron open?
- Q. 154. What is ultrafiltration of urine?
- Q. 155. In which form is concentrated waste formed in desert animals and why?
- Q. 156. How do birds excrete waste?
- Q. 157. Which part helps amoeba in excretion?
- Q. 158. State the function and location of stem cell?
- Q. 159.> What is the shape of human erythrocyte?
- Q. 160. In which part of the body does impure blood get purified?
- Q. 161. What is chemotropism?
- Q. 162. What is thigmonastic response?
- Q. 163. Which type of nastic movement does sunflower show?
- Q. 164. Which type of plants do not respond to photoperiodism?
- Q. 165. What induces photoperiodic stimulus in plants?
- Q. 166. What type of nervous system is present in invertebrates?
- Q. 167. which organs protect the human brain?
- Q. 168. Where is the cerebrospinal fluid present and what is its function?

- Q. 169.** where are the centres for visual reception, in brain?
- Q. 170.** What is the function of cerebellum?
- Q. 171.** Medulla possesses centres for ?
- Q. 172.** How many pairs of spinal nerves arise from the spinal cord?
- Q. 173.** What is reflex arc?
- Q. 174.** What is autonomous nervous system?
- Q. 175.** Give two characteristics of hormones
- Q. 176.** Which organ controls the functioning of pituitary gland?
- Q. 177.** Which hormone maintains the ionic balance in the body?
- Q. 178.** What is the function of oxytocin?
- Q. 179.** What are the functions of estrogen and progesterone?
- Q. 180.** Which hormone regulates the male sex organs?
- Q. 181.** Which hormone acts as a growth promoter in plants?
- Q. 182.** What is the group of cells formed in multiple fission called?
- Q. 183.** Name two organisms reproducing by spore formation?
- Q. 184.** By which method do planaria and spirogyra reproduce?
- Q. 185.** Name two plants showing layering mode of vegetative propagation.
- Q. 186.** Which plants can be rafted on the stock of citrus?
- Q. 187. Q. 1.** What is the portion of the plant grafted on other plant called?
- Q. 188.** What is the temperature in the scrotum?
- Q. 189.** Why is the ureter known as urinogenital path in case of males?
- Q. 190.** Which glands secrete semen?

- Q. 191. What gives rise to an ovum in female?
- Q. 192. What is ovulation in females?
- Q. 193. is menopause?
- Q. 194. What is copulation?
- Q. 195. What is the function of amniotic fluid?
- Q. 196. What is the zero method of natural contraception?
- Q. 197. What do oral pills for contraception contain?
- Q. 198. Name the organism causing Gonorrhoea.
- Q. 199. Which scientists provided and evidence that gene is a part of chromosome?
- Q. 200. What are prokaryotic chromosomes composed of ?
- Q. 201. What is the length and diameter of each chromosome?
- Q. 202. What is nucleolar organizer region?
- Q. 203. Which purine nitrogen bases are present in the DNA molecule?
- Q. 204. Which is the complimentary base pair of Cytosine?
- Q. 205. What is the distance between each nucleotide pair in a DNA strand?
- Q. 206. In which animal, the embryo develops into a female at high temperature?
- Q. 207. What does the Recapitulation theory of Ernst Haeckel state?
- Q. 208. Who is known as the Father of Taxonomy?
- Q. 209. What is retrovirus? Give an example.
- Q. 210. What is the extra chromosome found in male insects called?
- Q. 211. How do CFC's harm the atmosphere?
- Q. 212. For what purpose are wet scrubbers used?

- Q. 213.** What is Eutrophication?
- Q. 214.** Why is the BOD of potable water less?
- Q. 215.** What is the full form of NEERI?
- Q. 216.** Define 1 A current.
- Q. 217.** What symbol is used in an electrical circuit to show inductor?
- Q. 218.** Comment on the voltage drop across a series connection.
- Q. 219.** Is it advisable to connect appliances in series connection domestically? Justify your answer.
- Q. 220.** 1 volt ampere is how many kW?
- Q. 221.** What is the nature and size of image formed by a convex lens when the object is at $2F$?
- Q. 222.** What is the function of ciliary muscles?
- Q. 223.** Why is a voltmeter always connected in parallel in an electrical circuit?
- Q. 224.** A lamp of 100W glows for 2 hrs daily. Calculate the energy consumed in 30 days.
- Q. 225.** Define electroplating.
- Q. 226.** Name two addition and two condensation polymers.
- Q. 227.** What is the wavelength of visible light?
- Q. 228.** Where in Gujarat are wind farms located?
- Q. 229.** From which places is geothermal energy obtained in Gujarat?
- Q. 230.** What is the carbon content in anthracite?
- Q. 231.** Give two uses of Coke.
- Q. 232.** What gas is added in LPG cylinders to detect any leakage?
- Q. 233.** Which power station in Gujarat uses natural gas as a fuel?

- Q. 234.** What is the calorific value of hydrogen?
- Q. 235.** Which substances are used as coolants in nuclear reactors?
- Q. 236.** Name the moons of Saturn.
- Q. 237.** What are asteroids composed of?
- Q. 238.** How far is sun located from the galactic centre?
- Q. 239.** Which type of stars is found mostly in elliptical galaxies?
- Q. 240.** Give two properties of Rocket fuel.
- Q. 241.** What is the calorific value of biogas?
- Q. 242.** Write the full form of GSLV.
- Q. 243.** Which satellite is used for weather forecasting?
- Q. 244.** What needs to be retrieved in Solvay's ammonia soda process?
- Q. 245.** Which compound is used as an antacid?
- Q. 246.** Write the equation of the reaction taking place on inert anode in the electrolysis of molten NaCl.
- Q. 247.** Why is hydrogen used in welding metals?
- Q. 248.** At what temperature is rubber heated with sulphur to get vulcanized rubber?
- Q. 249.** What is the function of hepatic caecae found in digestive system of grasshopper?
- Q. 250.** During fission process what are the respective atomic masses of the elements obtained?