

- 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 of 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 malphigian 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 scortum?
- 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 vale 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?