



Corporate Office : Aakash Tower, 8, Pusa Road, New Delhi-110005, Phone : 011-47623456

MM : 720

REVISION TEST SERIES

Time : 3 Hrs. 20 Min.

(for NEET-2022)

Test - 6

Answers

1. (1)	41. (4)	81. (4)	121. (3)	161. (3)
2. (3)	42. (4)	82. (3)	122. (3)	162. (2)
3. (1)	43. (3)	83. (4)	123. (2)	163. (3)
4. (3)	44. (2)	84. (3)	124. (4)	164. (1)
5. (4)	45. (1)	85. (2)	125. (3)	165. (1)
6. (1)	46. (2)	86. (3)	126. (2)	166. (1)
7. (1)	47. (1)	87. (3)	127. (2)	167. (2)
8. (1)	48. (2)	88. (3)	128. (1)	168. (1)
9. (3)	49. (3)	89. (3)	129. (2)	169. (3)
10. (3)	50. (2)	90. (2)	130. (4)	170. (1)
11. (2)	51. (2)	91. (1)	131. (1)	171. (2)
12. (4)	52. (2)	92. (1)	132. (1)	172. (1)
13. (3)	53. (2)	93. (1)	133. (3)	173. (2)
14. (4)	54. (1)	94. (4)	134. (1)	174. (4)
15. (3)	55. (4)	95. (2)	135. (1)	175. (2)
16. (4)	56. (4)	96. (1)	136. (3)	176. (1)
17. (2)	57. (2)	97. (2)	137. (3)	177. (3)
18. (1)	58. (4)	98. (4)	138. (3)	178. (2)
19. (2)	59. (4)	99. (2)	139. (3)	179. (4)
20. (1)	60. (3)	100. (4)	140. (2)	180. (3)
21. (3)	61. (2)	101. (3)	141. (3)	181. (3)
22. (4)	62. (3)	102. (3)	142. (1)	182. (1)
23. (3)	63. (4)	103. (3)	143. (2)	183. (2)
24. (3)	64. (2)	104. (4)	144. (4)	184. (4)
25. (2)	65. (2)	105. (4)	145. (2)	185. (2)
26. (3)	66. (3)	106. (2)	146. (3)	186. (3)
27. (3)	67. (1)	107. (2)	147. (2)	187. (2)
28. (2)	68. (1)	108. (1)	148. (4)	188. (4)
29. (2)	69. (1)	109. (1)	149. (2)	189. (4)
30. (3)	70. (4)	110. (2)	150. (3)	190. (4)
31. (1)	71. (3)	111. (4)	151. (1)	191. (3)
32. (3)	72. (1)	112. (4)	152. (2)	192. (1)
33. (4)	73. (3)	113. (2)	153. (1)	193. (1)
34. (4)	74. (4)	114. (3)	154. (2)	194. (2)
35. (2)	75. (3)	115. (4)	155. (3)	195. (4)
36. (4)	76. (1)	116. (3)	156. (3)	196. (1)
37. (1)	77. (3)	117. (2)	157. (4)	197. (1)
38. (2)	78. (3)	118. (3)	158. (1)	198. (1)
39. (1)	79. (2)	119. (2)	159. (2)	199. (3)
40. (2)	80. (1)	120. (3)	160. (3)	200. (1)



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Answers & Solutions

PHYSICS

SECTION-A

1. Answer (1)

Work function of a material depends on nature of material.

2. Answer (3)

On moving source away only intensity of light changes but not its frequency. The stopping potential depends on frequency.

3. Answer (1)

Photoelectric equation

$$KE_{\max} = h\nu - \phi$$

$$\therefore \frac{1}{2}mv_1^2 = 2\phi - \phi$$

$$\frac{1}{2}mv_2^2 = 5\phi - \phi \quad \dots(i)$$

$$\therefore \frac{v_1^2}{v_2^2} = \frac{\phi}{4\phi} \quad \dots(ii)$$

$$\frac{v_1}{v_2} = \frac{1}{2} \quad \dots(iii)$$

4. Answer (3)

Recoil momentum of nucleus has magnitude,

$$p = \frac{h}{\lambda}$$

$$\Rightarrow K = \frac{p^2}{2M} = \frac{(h/\lambda)^2}{2M} = \frac{h^2}{2M\lambda^2}$$

5. Answer (4)

We know that energy of photoelectrons ranges from zero to certain maximum value. So no one can conclude that metal with lower work function emits electron always with higher kinetic energy than other of higher work function.

6. Answer (1)

$$h\nu_1 = \phi_0 + \frac{1}{2}mv_1^2 \quad \text{and} \quad h\nu_2 = \phi_0 + \frac{1}{2}mv_2^2$$

$$\text{Subtracting, } h = \frac{m(v_1^2 - v_2^2)}{2(v_1 - v_2)}$$

7. Answer (1)

$$\lambda_B^2 = 4\lambda_A^2$$

$$\frac{h^2}{2m_e K_B} = \frac{4h^2}{2m_e K_A} \Rightarrow K_A = 4K_B$$

8. Answer (1)

$$\lambda_{\text{photon}} = \frac{hc}{E} \quad \text{and} \quad \lambda_{\text{electron}} = \frac{h}{\sqrt{2m_e E}}$$

$$\therefore \frac{\lambda_e}{\lambda_p} = \frac{1}{c} \times \frac{E}{\sqrt{2m_e E}} = \frac{1}{c} \sqrt{\frac{E}{2m_e}}$$

9. Answer (3)

- Ge and Si are inorganic, elemental semiconductor
- GaAs is inorganic compound semiconductor
- Anthracene is organic semiconductor

10. Answer (3)

In β^- decay Z will increase but A will not change

11. Answer (2)

For Lyman series

$$n_1 = 1, n_2 \geq 2$$

12. Answer (4)

$$\text{Using } \frac{1}{\lambda} = RZ^2 \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$

$$\frac{1}{6561} = R \left[\frac{1}{2^2} - \frac{1}{3^2} \right]$$

$$\text{and } \frac{1}{\lambda} = 4R \left[\frac{1}{2^2} - \frac{1}{4^2} \right]$$

$$\text{Dividing, } \lambda = \frac{6561}{4} \times \frac{5}{36} \times \frac{16}{3} = 1215 \text{ \AA}$$

13. Answer (3)

$$f = \frac{mZ^2e^4}{8\epsilon_0^2n^3h^3}$$

$$f \propto \frac{1}{n^3}$$

$$\therefore f' = \frac{8f}{27}$$

14. Answer (4)

In a base biased transistor in CE configuration when transistor is used a device, then active region is suited for amplifier configuration and cut-off and saturation region are suited for switch operation.

15. Answer (3)

For a diode to be in reverse biased, p-type semiconductor should be at lower potential.

16. Answer (4)

$$R \propto A^{1/3}$$

17. Answer (2)

$$40.8 = 13.6Z^2 \left[\frac{1}{1^2} - \frac{1}{2^2} \right]$$

18. Answer (1)

Half life of the sample is 100 days.

$$2^2 \times 5000 = 20,000.$$

19. Answer (2)

$$\frac{0.693}{\lambda_x} = \frac{1}{\lambda_y}$$

20. Answer (1)

$$I = \frac{6}{50 + 50 + 100} \text{ A} = 0.03 \text{ A}$$

21. Answer (3)

$$I = \frac{12 - 0.7}{5} = 2.26 \text{ mA.}$$

22. Answer (4)

Energy gap is maximum for $n_1 = 2, n_2 = 1$

$$\Delta E \propto \frac{1}{\lambda}$$

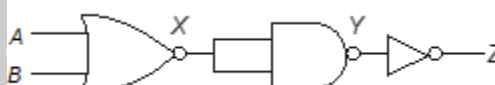
23. Answer (3)

$$L = \frac{h}{2\pi}$$

24. Answer (3)

In full-wave rectifier time period becomes half and frequency becomes doubled.

25. Answer (2)



$$Z = \overline{Y} = \overline{X \cdot X} = X$$

$$\Rightarrow Z = \overline{A + B} = \text{NOR gate}$$

26. Answer (3)

$$mv = \frac{3h}{2\pi r} \quad (n = 3)$$

$$\lambda = \frac{h}{mv} = \frac{h}{\left(\frac{3h}{2\pi r}\right)} = \frac{2\pi r}{3} \Rightarrow r = \frac{3\lambda}{2\pi}$$

27. Answer (3)

Given $b = 0$

$$0 = \left(\frac{z^2 e^2}{4\pi\epsilon_0 E} \right) \cdot \cot\left(\frac{\theta}{2}\right)$$

$$\Rightarrow \cot\frac{\theta}{2} = 0$$

$$\frac{\theta}{2} = 90^\circ$$

$$\theta = 180^\circ$$

28. Answer (2)

Isotone have same number of neutron but different mass number.

29. Answer (2)

$$R_1 \propto (64)^{\frac{1}{3}} \quad \dots(i)$$

$$R_2 \propto (125)^{\frac{1}{3}} \quad \dots(ii)$$

Divide equation (ii) by (i)

$$\frac{R_2}{R_1} = \frac{5}{4}$$

$$R_2 = \frac{4.8 \times 5}{4}$$

$$\Rightarrow R_2 = 6 \text{ fermi}$$

30. Answer (3)

From conservation of nucleons

$$13 + 0 = 11 + Z$$

$$Z = 2$$

$$27 + 1 = A + 24$$

$$A = 4$$

Particle is alpha

31. Answer (1)

In common emitter amplifier, the output signal voltage is 180° out of phase with input signal voltage.

32. Answer (3)

$$V_{BE} = 0 \text{ and } V_{CE} = 6 \text{ V}$$

$$R_B = 400 \text{ k}\Omega$$

$$R_C = 2 \text{ k}\Omega$$

$$I_B = \frac{10 - 0}{400 \text{ k}\Omega} = 25 \mu\text{A}$$

$$I_C = \frac{10 - 6}{2 \text{ k}\Omega} = 2 \text{ mA}$$

33. Answer (4)

$$\beta = \frac{\alpha}{1 - \alpha}$$

$$= \frac{0.98}{0.02}$$

$$\boxed{\beta = 49}$$

34. Answer (4)

$$g_m = \frac{I_{out}}{V_{in}}$$

$$g_m = \frac{\beta I_{in}}{V_{in}}$$

$$= 50 \times \frac{I_{in}}{R_{in} I_{in}}$$

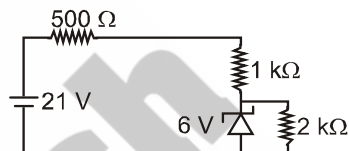
$$= \frac{50}{2 \times 10^3}$$

$$= 25 \times 10^{-3}$$

$$= 2.5 \times 10^{-2} \text{ mho}$$

35. Answer (2)

$$V_{2 \text{ k}\Omega} = 6 \text{ V} \Rightarrow I_{2 \text{ k}\Omega} = \frac{6}{2} = 3 \text{ mA}$$



$$\text{Current across } 1 \text{ k}\Omega \text{ resistor is } \frac{21 - 6}{1.5} = 10 \text{ mA}$$

$$I_Z = 10 - 3 = 7 \text{ mA}$$

Hence, I_Z , $I_{1 \text{ k}\Omega}$, $I_{2 \text{ k}\Omega}$ are 7 mA, 10 mA, 3 mA respectively.

SECTION-B

36. Answer (4)

Photocurrent \propto Intensity

$$\text{K.E} = E - \phi$$

Since K.E does not depend on intensity of incident light.

37. Answer (1)

$$\frac{\lambda_{\text{He}}}{\lambda_{\text{H}_2}} = \sqrt{\frac{M_{\text{H}} T_{\text{H}}}{M_{\text{He}} T_{\text{He}}}}$$

$$\frac{\lambda_{\text{He}}}{\lambda_{\text{H}}} = \sqrt{\frac{2 \times 500}{4 \times 300}} = \sqrt{\frac{5}{6}}$$

$$= \sqrt{\frac{2+a}{2a}} = \sqrt{\frac{5}{6}}$$

$$\Rightarrow \frac{2+a}{2a} = \frac{5}{6}$$

$$\Rightarrow a = 3$$

38. Answer (2)

For electron

$$\lambda(\text{in } \text{\AA}) = \sqrt{\frac{150}{E(\text{in eV})}} = \sqrt{\frac{150}{80}}$$

$$= 1.4 \text{ \AA}$$

39. Answer (1)

$$E = \frac{12375}{\lambda(\text{\AA})} \text{ eV}$$

For red $\lambda_R = 7500 \text{ \AA}$

$$E = \frac{12375}{7500} \text{ eV} = 1.65 \text{ eV}$$

$$\approx 1.7 \text{ eV}$$

40. Answer (2)

$$\text{eV} = \frac{hc}{\lambda} - W_0$$

$$V = \left(\frac{hc}{e} \right) \frac{1}{\lambda} - \frac{W_0}{e}$$

$$\frac{hc}{e} = \text{slope}$$

41. Answer (4)

 $\Delta m = (M_1 - M_2)$. For β^- decay

$$E_1 = (M_1 - M_2)c^2$$

 $\Delta m = (M_1 - M_2 - 2m_e)$ for β^+ decay

$$E_2 = (M_1 - M_2 - 2m_e)c^2$$

42. Answer (4)

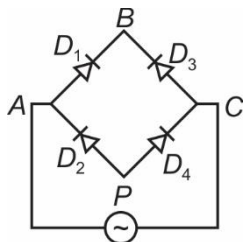
$$Z = \overline{XY}$$

43. Answer (3)

$$E_1 = E_2 + E_3$$

$$\frac{1}{\lambda_1} = \frac{1}{\lambda_2} + \frac{1}{\lambda_3}$$

44. Answer (2)



In positive half cycle D_1 and D_4 will be in forward biased and in negative half cycle D_2 and D_3 will be in forward biased.

45. Answer (1)

$$t = \frac{2500 \times 10^3}{2500}$$

$$t = 1000 \text{ s}$$

$$T_{1/2} = \frac{0.693}{\lambda}$$

$$\lambda \times 693 = 0.693$$

$$\lambda = \frac{1}{1000} \text{ s}^{-1}$$

$$\text{As } N = N_0 e^{-\lambda t}$$

$$N = N_0 e^{-\frac{1}{1000} \times 1000}$$

$$N = \frac{N_0}{e}$$

46. Answer (2)

$$\text{At } t = 10 \text{ h, } R \rightarrow \frac{R_0}{e^2}$$

$$\text{Since } R = \lambda N_0 e^{-\lambda t}$$

$$\frac{R_0}{e^2} = R_0 \cdot e^{-\lambda t} \Rightarrow \lambda t = 2$$

$$\lambda = \frac{2}{10} = \frac{1}{5} \text{ h}^{-1}$$

$$\text{Now for } t \rightarrow T_{1/2} \Rightarrow R_0 \rightarrow \frac{R_0}{2}$$

$$\text{Hence } T_{1/2} = \frac{\ln 2}{\lambda} = 5 \cdot \ln 2$$

$$T_{1/2} = 5 \ln 2 \text{ hours}$$

47. Answer (1)

For $A = 0, B = 1$

$$X = 1$$

For NAND gate.

$$Y = \overline{X \cdot X_1}$$

For $A = 0, B = 1$

$$Y = 1$$

48. Answer (2)

$$n_e \cdot n_h = n_i^2$$

$$n_e = \frac{n_i^2}{n_h}$$

$$n_e = \frac{(2 \times 10^{16})^2}{4 \times 10^{22}} = \frac{4 \times 10^{32}}{4 \times 10^{22}}$$

$$n_e = 10^{10} \text{ m}^{-3}$$

49. Answer (3)

For K_α line

$$\lambda \propto \frac{1}{(Z-1)^2}$$

$$\frac{\lambda_1}{\lambda_2} = \frac{(Z_2-1)^2}{(Z_1-1)^2}$$

$$\frac{\lambda_1}{\lambda_2} = \left(\frac{29-1}{43-1} \right)^2$$

$$\lambda_2 = \frac{9\lambda}{4}$$

50. Answer (2)

$$2\pi r = n\lambda$$

$$\text{for } n = 2, \lambda = \pi r$$

CHEMISTRY

SECTION-A

51. Answer (2)

Sphalerite: ZnS

52. Answer (2)

Haematite can be concentrated (dressing) by hydraulic washing

53. Answer (2)

Bauxite contains SiO_2 , iron oxide and TiO_2 as impurities.

54. Answer (1)

Complex formed is $\text{Na}[\text{Ag}(\text{CN})_2]$ which is sp hybridised.

55. Answer (4)

Argentite (Ag_2S) is concentrated by leaching method.

56. Answer (4)

In the metallurgy of Iron, the flux used is CaO .

57. Answer (2)

Smelting (reduction with carbon) cannot be done for Al_2O_3 as Al is highly reactive metal.

58. Answer (4)

Pig Iron: 4% carbon, Cast Iron: 3% carbon

$$\therefore \% \text{ decrease} = \frac{4-3}{4} \times 100 = 25\%$$

59. Answer (4)

Metals such as Cu, Ag, Au, Al etc., are purified by electrolysis.

60. Answer (3)

Magnetic separation is used for the concentration ore.

61. Answer (2)

German silver: Cu(25-30%), Zn (25-30%) & Ni (40-50%)

62. Answer (3)

Excess of sulphate in water causes laxative effect.

63. Answer (4)

- Hydrocarbons and NO_2 are primary precursor.
- PAN is secondary precursor.

64. Answer (2)

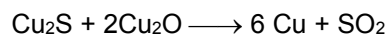
The iron obtained from blast furnace is known as pig iron.

65. Answer (2)

Ellingham diagram: for $2\text{C} \xrightarrow{\text{O}_2} 2\text{CO}$, slope is negative.

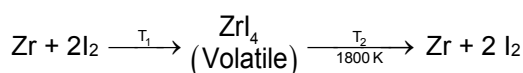
66. Answer (3)

Cu is obtained by self-reduction



67. Answer (1)

van Arkel Method:



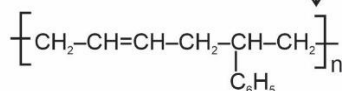
68. Answer (1)

Mond's process

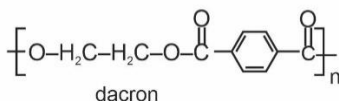
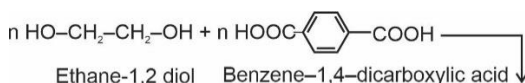


69. Answer (1)

The polymers made by polymerisation from two different monomers are termed as copolymers



70. Answer (4)



71. Answer (3)

Amino acids which cannot be synthesized in human body and must be obtained through diet, are known as essential amino acids. Lysine is an essential amino acid.

72. Answer (1)

The monomer of starch is glucose.

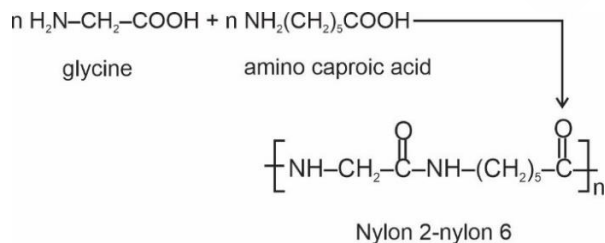
73. Answer (3)

Vitamin C is water soluble, vitamin A, D and K are fat soluble vitamins.

74. Answer (4)

Lactose is a reducing sugar.

75. Answer (3)



It is a biodegradable polymer

76. Answer (1)

Dimetane is an antihistamine

77. Answer (3)

Amino acids are linked together by peptide bond to form protein molecule

78. Answer (3)

Structures (I) and (II) are cyclic forms of D glucose. They are anomers and show mutarotation and known as pyranose structures.

Structure (I) and (II) are diastereomers.

79. Answer (2)

Aspirin is used as non-narcotic analgesic

80. Answer (1)

Bicyclic amines, adenine and guanine are purine bases.

81. Answer (4)

0.2 to 0.4 ppm aqueous solution of chlorine is used as disinfectant

82. Answer (3)

Alitame is 2000 times sweeter than sucrose.

83. Answer (4)

Denaturation means 3° and 2° structure of protein get destroyed

84. Answer (3)

It has no free $-\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$ group.

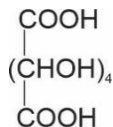
85. Answer (2)

Novestrol is an antifertility drug

SECTION-B

86. Answer (3)

On oxidation with nitric acid, glucose as well as gluconic acid yield saccharic acid



87. Answer (3)

Keratin and myosin are fibrous proteins

88. Answer (3)

Cetyltrimethyl ammonium bromide is a cationic detergent.

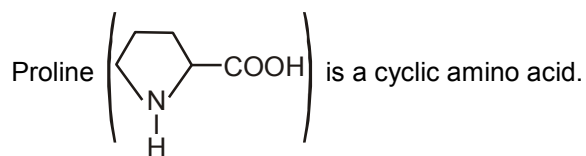
89. Answer (3)

Amylose is an unbranched chain polymer of α -D(+)-glucose units.

90. Answer (2)

Sugar component in DNA is β -D-2-deoxyribose whereas in RNA molecule, it is β -D-ribose.

91. Answer (1)

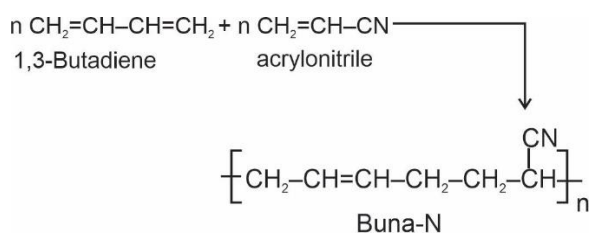


92. Answer (1)

Maximum permissible limit of Cd in drinking water is 0.005 ppm.

93. Answer (1)

Synthetic rubbers are either homopolymers of 1,3-butadiene derivatives or copolymers of 1,3-butadiene or its derivatives with another unsaturated monomer.



94. Answer (4)

Chloramphenicol is a bacteriostatic antibiotic.

95. Answer (2)

Normally, the pH of rain water is 5.6

96. Answer (1)

Classical smog is reducing smog which is the mixture of smoke, fog and SO₂.

97. Answer (2)

Clean water would have BOD value of less than 5 ppm.

98. Answer (4)

O₂ is not a greenhouse gas.

99. Answer (2)

Freons (Chloro fluoro carbons) are mainly responsible for depletion of ozone layer.

100. Answer (4)

Blue baby syndrome is caused due to excess nitrate in drinking water.

BOTANY

SECTION-A

101. Answer (3)

Loss of biodiversity leads to less resistance to drought and increased pest and disease cycle.

102. Answer (3)

Dodo – Mauritius

Quagga – Africa

103. Answer (3)

- Extinction of cichlid fishes \Rightarrow Alien species invasion *i.e.*, of Nile perch (Alien species)
- Introduction of *Eichhornia* in India \Rightarrow Alien species invasion.

104. Answer (4)

We must conserve the biodiversity based on ethical values also.

105. Answer (4)

More than 15,500 species are facing threat of extinction world-wide.

106. Answer (2)

Seed banks and field gene banks are *ex-situ* conservation strategies.

107. Answer (2)

This statement is related to *In-situ* / on site conservation strategy.

108. Answer (1)

There are 34 hotspots in the world.

109. Answer (1)

Tropical region receives highest solar energy throughout the year.

110. Answer (2)

Thermal pollution is due to heat.

111. Answer (4)

PAN is a secondary pollutant.

112. Answer (4)

Water hyacinth (*Eichhornia*) is also called 'Terror of Bengal'.

113. Answer (2)

'Good ozone' is present in stratosphere.

114. Answer (3)

Acid rain is due to pollutants such as oxides of sulphur and nitrogen in air.

115. Answer (4)

CNG burns more efficiently.
CFCs cause ozone depletion.

116. Answer (3)

2.5 μm or lesser particles causes greatest harm to human health.

117. Answer (2)

Air (Prevention and Control of Pollution) act came into force in 1981 in India.

118. Answer (3)

CO_2 – 60%
 CH_4 – 20%
CFCs – 14%
 N_2O – 6%

119. Answer (2)

Steller's sea cow and passenger pigeon became extinct due to over-exploitation.

120. Answer (3)

Bioprospecting term is used for exploring molecular, genetic and species level diversity for the products of economic importance.

121. Answer (3)

Fishes have maximum biodiversity among vertebrates.

122. Answer (3)

A single species might show high diversity at the genetic level.

123. Answer (2)

Fungi and angiosperms have much more species diversity as compared to algae, mosses and ferns.

124. Answer (4)

Most of the land area of our country lies in tropics.

125. Answer (3)

Outermost part of the biosphere reserve is transition zone. It has human settlement.

126. Answer (2)

Broadly utilitarian ecosystem services are oxygen, flood control, pollination and erosion control.

127. Answer (2)

Alien species invasion is one of the causes of biodiversity loss.

128. Answer (1)

The earth summit held in 1992, called upon all the nations to take measures for conservation of biodiversity.

129. Answer (2)

On log scale, the species-area relationship becomes linear.

130. Answer (4)

Taxa	Number of species
Birds	1300
Reptiles	378
Fishes	3000
Mammals	427

131. Answer (1)

Since the origin and diversification of life on earth there were five episodes of extinction of species.

132. Answer (1)

The calcium in limestone combines chemically with SO_2 to produce CaSO_4 .

133. Answer (3)

CNG is cheaper than petrol and diesel. It cannot be adulterated.

134. Answer (1)

Water (Prevention and Control of Pollution) Act was passed in the year 1974.

135. Answer (1)

Chipko movement is related to conservation of forests.

SECTION-B

136. Answer (3)

Among animals, insects are the most species-rich taxonomic group.

137. Answer (3)

Paul Ehrlich explained the effect of reduction in biodiversity through rivet popper hypothesis.

138. Answer (3)

Ecosystem does not change due to migration of animals.

139. Answer (3)

On log scale, the species area relationship is given by $\log S = \log C + Z \log A$

140. Answer (2)

Catalytic converter needs unleaded petrol.

141. Answer (3)

Dobson unit measures ozone thickness in the column of air.

142. Answer (1)

BOD estimates the amount of biodegradable organic matter in sewage.

143. Answer (2)

Aerosols can be carbon compounds e.g., chlorofluorocarbons.

144. Answer (4)

UV rays are mutagen. These rays damage DNA and can cause genetic changes.

145. Answer (2)

EcoSan toilets are efficient management of human excreta.

146. Answer (3)

Natural ageing of lakes is eutrophication.

147. Answer (2)

Infrared radiations (Long wave radiations) re-emitted by earth's surface is absorbed by greenhouse gases.

148. Answer (4)

On burning, CNG produces CO_2 and H_2O .

149. Answer (2)

Polyblend is mixed with the bitumen and the mixture is used to lay roads.

150. Answer (3)

Pyrolysis is anaerobic combustion inside chambers at 1650°C .

ZOOLOGY

SECTION-A

151. Answer (1)

Agrobacterium can be used as a vector in RNA interference technique.

152. Answer (2)

Green revolution is not enough to feed the growing human population.

153. Answer (1)

Hirudin is a pharmaceutical (anticoagulant) produced by a transgenic plant, *Brassica napus*.

Flavr savr is a transgenic tomato which remains fresh for a longer period.

154. Answer (2)

Transgenic cow, Rosie produces human protein (α -lactalbumin) enriched-milk.

155. Answer (3)

Dolly is a clone and rest all are transgenic animals.

156. Answer (3)

RNAi is used to control nematode, *Meloidogyne incognita* by producing dsRNA.

157. Answer (4)

Chains A and B were produced, separated and combined by creating disulfide bonds in order to form human insulin (Humulin).

158. Answer (1)

Patents are supposed to satisfy three criteria: novelty, non-obviousness and utility.

159. Answer (2)

The proteins encoded by gene *cryIAc* and *cryIIAb* controls cotton bollworm, and *cryIAb* controls corn borer.

160. Answer (3)

If the gene isolated from bone marrow cells producing ADA is introduced into lymphocytes at early embryonic stages, it could be a permanent cure of ADA deficiency.

161. Answer (3)

At present, about 30 recombinant therapeutics have been approved for human use. In India, 12 of these are presently being marketed.

162. Answer (2)

RAC – Recombinant DNA Advisory Committee.
NIH – National Institute of Health.

163. Answer (3)

Genetic manipulations are aimed for improving certain characteristics of plants. Genetically modified crops are usually nutrient rich, resistant to abiotic stress and prevent early exhaustion of fertility of soil.

164. Answer (1)

Probes used in autoradiography are complementary to a particular gene sequence. In a mutated gene, sequence of bases is altered, so probe is no longer complementary to mutated gene. As a result cell/colony having mutated gene will not appear on photographic film.

165. Answer (1)

The process of RNAi has been used in the development of plants resistant to nematodes.

166. Answer (1)

Animals whose DNA is manipulated to possess and express a foreign gene are known as transgenic animals.

167. Answer (2)

Gene therapy is a collection of methods that allows a correction of gene defect that has been diagnosed in a child/embryo.

168. Answer (1)

C-peptide chain is not present in mature insulin and disulphide bonds are formed during maturation into active insulin.

169. Answer (3)

They both happened in year 1997.

First gene therapy was done in year 1990.

First rDNA was created in year 1972.

170. Answer (1)

Transgenic mice are being developed for use in testing the safety of vaccines before they are used on humans.

171. Answer (2)

Toxin is present as protoxin in bacterium *Bacillus thuringiensis*.

172. Answer (1)

Single stranded DNA or RNA segment tagged with radioactive molecules is called probe.

173. Answer (2)

α -1 antitrypsin is used in treatment of emphysema which is caused due to chronic cigarette smoking.

174. Answer (4)

Mice are maximum in number among transgenic animals.

175. Answer (2)

Glyphosate inhibits the action of enzyme EPSPS which catalyses the formation of aromatic amino acids like tyrosine, tryptophan and phenylalanine.

176. Answer (1)

Antisense technology is when a piece of RNA that is complementary in sequence is used to stop expression of a specific gene.

177. Answer (3)

Gene for ADA is isolated from marrow cells and introduced into cells in early embryonic stage for permanent cure.

178. Answer (2)

Streptokinase is clinically used as a clot buster in case of myocardial infarction. Surfactants are phospholipids used to decrease surface tension within alveoli and α -1 antitrypsin prevents emphysema.

179. Answer (4)

Insulin was the first human hormone synthesized by recombinant DNA technology in 1983 by Eli Lilly.

180. Answer (3)

Golden rice is a transgenic variety of rice which contains good quantities of β -carotene (provitamin A-inactive state of vitamin A).

181. Answer (3)

Pseudomonas putida or super bug was developed by A.M. Chakravorty and is used for clearing oil spills.

182. Answer (1)

Patents are supposed to satisfy three criteria of novelty, non-obviousness and utility.

183. Answer (2)

Urine analysis is a type of traditional method of diagnosis in which early detection is not possible.

184. Answer (4)

A mature insulin has one intrachain and two interchain disulphide bonds.

185. Answer (2)

Use of agrochemicals (both fertilisers and pesticides) enhance the food production.

SECTION-B

186. Answer (3)

RNAi prevents translation of the mRNA (silencing) by using dsRNA molecules.

187. Answer (2)

Bt toxin is produced as an inactive/precursor form that gets activated in the alkaline pH of the gut of insects.

188. Answer (4)

Polyethylene glycol is used for protoplast fusion. In protoplast fusion, cells of two distinct species of plants are fused together to form a new hybrid plant with characteristics of both.

189. Answer (4)

The proteins encoded by the genes *cryIAc* and *cryIIAb* control the cotton bollworms while *cryIAb* controls corn borer.

190. Answer (4)

Meloidogyne incognita infects the roots of tobacco plants and causes a great reduction in yield.

191. Answer (3)

Somatotrophin – Growth disorders
Factor VIII – Haemophilia

192. Answer (1)

Bioprospecting refers to exploring molecular genetic and species level diversity for products of economic importance.

193. Answer (1)

In 1983, Eli Lilly an American company prepared two DNA sequences corresponding to A and B, chains of human insulin and introduced them in plasmids of *E. coli* to produce insulin chains.

194. Answer (2)

Brazzein is a low-calorie sweetener.

195. Answer (4)

Autoradiography is a method allowing the detection/localisation of radioactive isotope within a biological sample.

196. Answer (1)

Rice is an important food grain, the presence of which goes back thousands of years in Asia's agricultural history.

197. Answer (1)

Insulin cannot be orally administered to diabetic patient because it degrades in alimentary canal.

198. Answer (1)

The enzymes frequently used in ELISA include peroxidase and alkaline phosphatase.

199. Answer (3)

The manipulation of living organisms by the human race cannot go on any further, without regulation. Some ethical standards are required to evaluate the morality of all human activities that might help or harm living organisms.

200. Answer (1)

The diversity of rice in India is one of the richest in the world.

