BOTANY

1) 3	2) 4	3) 4	4) 1	5) 1	6) 3	7) 4	8) 4	9) 4	10) 3
11) 3	12) 1	13) 2	14) 3	15) 4	16) 2	17) 4	18) 4	19) 2	20) 3
21) 4	22) 4	23) 1	24) 2	25) 2	26) 4	27) 2	28) 4	29) 2	30) 2
31) 3	32) 2	33) 4	34) 2	35) 1	36) 1	37) 1	38) 4	39) 4	40) 2
41) 3	42) 1	43) 3	44) 4	45) 4	46) 2	47) 2	48) 2	49) 2	50) 4

ZOOLOGY

51) 3	52) 4	53) 1	54) 2	55) 3	56) 4	57) 4	58) 1	59) 1	60) 3
61) 4	62) 1	63) 1	64) 1	65) 4	66) 3	67) 4	68) 4	69) 4	70) 3
71) 2	72) 3	73) 4	74) 3	75) 4	76) 2	77) 1	78) 1	79) 2	80) 2
81) 2	82) 3	83) 2	84) 4	85) 3	86) 2	87) 4	88) 1	89) 3	90) 1
91) 3	92) 2	93) 2	94) 2	95) 1	96) 3	97) 2	98) 2	99) 2	100) 2

PHYSICS

101) 2	102) 4	103) 2	104) 1	105) 2	106) 1	107) 2	108) 3	109) 1	110) 4
111) 1	112) 1	113) 2	114) 2	115) 3	116) 3	117) 2	118) 4	119) 2	120) 1
121) 1	122) 1	123) 1	124) 1	125) 3	126) 3	127) 4	128) 4	129) 4	130) 2
131) 3	132) 3	133) 1	134) 3	135) 2	136) 2	137) 2	138) 4	139) 2	140) 3
141) 1	142) 3	143) 1	144) 1	145) 1	146) 4	147) 1	148) 2	149) 1	150) 2

CHEMISTRY

151) 1	152) 3	153) 2	154) 4	155) 4	156) 4	157) 2	158) 2	159) 1	160) 4
161) 2	162) 2	163) 1	164) 4	165) 3	166) 2	167) 3	168) 2	169) 3	170) 2
171) 3	172) 2	173) 2	174) 4	175) 4	176) 1	177) 2	178) 4	179) 3	180) 1
181) 3	182) 2	183) 3	184) 4	185) 4	186) 3	187) 4	188) 3	189) 4	190) 3
191) 1	192) 3	193) 3	194) 2	195) 3	196) 3	197) 4	198) 3	199) 3	200) 4

BOTANY

SECTION-A

01.   Class – XI – P.No. 6

02.   Class – XI – P.No. 19

03.   Class – XI – P.No. 20, 21

04.   Class – XI – P.No. 34

05.   Class – XI – P.No. 38

06.   Class – XI – P.No. 69

07.   Class – XI – P.No. 70, 71

08.   Class – XI – P.No. 96, 97

09.   Class – XI – P.No. 140

10.   Class – XI – P.No. 139

11.   Class – XI – P.No. 146

12.   Class – XI – P.No. 171

13.   Class – XI – P.No. 165

14.   Class – XI – P.No. 176

15.   Class – XI – P.No. 195

16.   Class – XI – P.No. 208

17.   Class – XI – P.No. 215

18.   Class – XI – P.No. 232

19.   Class – XI – P.No. 231, 232

20.   Class – XI – P.No. 247

21.   Class – XII – P.No. 17

22.   Class – XII – P.No. 23

23.   Class – XII – P.No. 28

24.   Class – XII – P.No. 101

25.   Class – XII – P.No. 77

26.   Class – XII – P.No. 78

27.   Class – XII – P.No. 174/175

28.   Class – XII – P.No. 183

29.   Class – XII – P.No. 253

30.   Class – XII – P.No. 250

31.   Class – XII – P.No. 195

32.   Class – XII – P.No. 209

33.   Class – XII – P.No. 202

34.   Class – XII – P.No. 209

35.   Class – XII – P.No. 198

SECTION - B

36.   Class – XI – P.No. 18

37.   Class – XI – P.No. 76

38.   Class – XI – P.No. 91, 92

39.   Application type

40.   Class – XI – P.No. 214

41.   Class – XII – P.No. 70,71

42.   Class – XI – P.No. 232

43.   Class – XII – P.No. 192

44.   Class – XI – P.No. 39

45.   Class – XII – P.No. 111

46.   Class – XI – P.No. 171

47.   Class – XII – P.No. 112,113

48.   Class – XII – P.No. 112, 113

49.   Class – XI – P.No. 27

50.   Class – XII – P.No. 81

ZOOLOGY

SECTION – A

51. Out-crossing is the best breeding method for animals that are below average in productivity in milk production and growth rate etc.

52.

Column-I	Column-II
(A) Pneumonia	(iii) *Haemophilus*
(B) Ringworm	(iv) *Epidermophyton*

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(C) Typhoid	(ii) *Salmonella*
(D) Filariasis	(i) *Wuchereria*

53. Natality refers to birthrate

54. X = 26

   Y = Sacrum, formed by the fusion of five sacral vertebrae.

   Z = Coccyx, formed by the fusion of four coccygeal vertebrae.

55. Oxyntic cells secrete HCl. The proenzyme pepsinogen, on exposure to hydrochloric acid gets converted into the active enzyme pepsin.

56. 500 million of years after formation of earth, the life originated on this planet

57. In pulmonary circulation the deoxygenated blood is passed on to the lungs from where the oxygenated blood is collected and it reaches left atrium.

58. Tropical latitudes have remained relatively undisturbed for millions of years so that the species diversity is more when compared to the temperate region.

59. The mucus and bicarbonates present in the gastric juice play an important role in lubrication and protection of the mucosal epithelium from excoriation by the highly concentrated hydrochloric acid.

60. Cranium and vertebral column are cartilaginous in the members of class cyclostomata (*Petromyzon*)

61. Erythroblastosis foetalis develops in Rh^+ foetus, when the father is Rh^+ (Homozygous or Heterozygous) and the mother is Rh^-.

62. We need to inject performed antibodies and antitoxins to the person infected with deadly microbes to getquick immune response.

63. Eosinophils are granulocytes. Platelets are produced from megakaryocytes. Basophils are non-phagocytic.

64. Inspiration can occur if the pressure within the lungs is less than the atmospheric pressure.

65. Ovary → Body cavity → Oviduct → Cloaca → Cloacal aperture.

66. Melting of polar ice caps is due to global warming not due to UV-B radiation (Ozone depletion)

67. Proximal convoluted tubule is lined by simple cuboidal brush border epithelium.

68. When a sparrow eats seeds and fruits, it is primary consumer and when the same sparrow eats worms, it is a primary carnivore.

69. Oral contraceptive pills inhibit ovulation and implantation. They also alter the quality of cervical mucus to prevent entry of sperms.

70. Thymus gland degenerates in old people so that immune responses in old persons are weak.

71. The sequence of chromosome 1 was completed in May 2006.

72. Exopthalmic goitre is a form of hyperthyroidism.

73. *Bangarus, Naja*and Vipera are poisonous snakes.

74. Statement I and Statement II are appropriate for biodiversity hot spots.

75. The possibility of a female becoming a haemophilic is extremely rare as it is autosomal recessive.

76. Gain of extra copy of chromosome 21 results in Down's syndrome.

77. In the members of phylum Aschelminthes, the alimentary canal is complete with muscular pharynx.

78. Atrial NatriureticFactor can decrease the blood pressure by dilating the blood vessels.

79. Flamingoes and resident fishes in South American lakes are adversely affected due to competition.(They compete for same food i.e., zooplankton)

80. Coronal suture present between parietal and frontal bones is a type of fibrous joint.

81. During aestivation and hibernation frogs can survive on glycogen and fat reserves and they perform cutaneous respiration.

82. The photopic vision and colour vision are the functions of cones.

83. During proliferative phase (Follicular phase) the primary follicles become Graafian follicles.

84. In Intra-Uterine insemination semen collected from husband / donor is introduced into the uterus of female.

85. Maltase, aminopeptidase and lipase are the enzymes present in succus entericus.

SECTION-B

86. *Betta* is a bony fish, in osteichthyes four pairs of gills are present on each side and they are covered with operculum.

87. In female humans anus, urethral orifice and veginal orifice are located very close. The urethra of female is very shorter than the male.These might be the reasons why the urinary tract infections are more common in them.

88. Secondary lymphoid organs provide the sites for interaction of lymphocytes (A) with the antigens (B), then lymphocytes (A) proliferate to become effector cells.

89. Synaptic knobs contains synaptic vesicles that are filled with neurotransmitters.

90. Olecranon process is present at the proximal end of ulna.

91. Calciferol is required to our body for absorption of calcium from intestine.

92. In males FSH acts on Sertoli cells and stimulates the secretion of some factors which help in the spermiogenesis.

93. Gut wall of pseudocoelomates contain only endoderm and muscles are absent in the walls of gut. So that diffusion occurs from lumen of gut to pseudocoelom easily.

94. Haemophilia is a X linked recessive gene disorder

95. Heat loss or heat gain is a function of surface area. Since small animals have a larger surface area relative to their volume, they tend to lose body heat very fast when it is cold outside, then they have to expend much energy to generate body heat through metabolism. This is the main reason why

96. Infected females may be often asymptomatic during the infections of STDs.

97. Low temperature and anaerobiasis inhibit decomposition.

98. Latitude range 23.5°N to 23.5° S harbours more species with very few exceptions.

99. Elephant belongs to the order proboscidae

100. Depletion of ozone in the atmosphere can increase the incidence of skin cancers.

PHYSICS

SECTION-A

101. $\dfrac{L}{RCV} = \dfrac{L}{Rq} = \dfrac{L}{R\, i\, t}$

$= \dfrac{L}{vt} = \dfrac{1}{t} = \dfrac{dt}{d\, it}$

$= \dfrac{1}{\text{current}}$

102. $\dfrac{A_1 + A_2}{A_1 - A_2} = \dfrac{5}{3}$

$\Rightarrow \dfrac{A_1}{A_2} = \dfrac{8}{2} = \dfrac{4}{1}$

$\Rightarrow \dfrac{r_1}{r_2} = \dfrac{2}{1}$

$P \propto \dfrac{1}{r}$

103. $V = a - bt$

$\dfrac{ds}{dt} = a - bt$

$ds = (a - bt).dt$

$\int ds = \int a.dt - \int bt.dt$

$s = at - \dfrac{bt^2}{2}$ small animals are rarely found in polar region

Given $v = 0$

$(a - bt) = 0 \qquad \Rightarrow t = \dfrac{a}{b}$

$s = a\left(\dfrac{a}{b}\right) - \dfrac{b}{2}.\dfrac{a^2}{b^2}$

$s = \dfrac{a^2}{2b}$

104. $x = u\sqrt{\dfrac{2h}{g}}$

$100 = 500\sqrt{\dfrac{2h}{10}}$

$h = 0.2m = 20 \text{ cm}$

105. $v = \sqrt{2gh}$

$= \sqrt{2 \times 9.8 \times 10}$

$= 14$

106. $M(g+a) = (M-m)\left(g + a^1\right)$

$Mg + Ma = Mg - mg + (M - m)\, a^1$

$\dfrac{Ma + mg}{(M - m)} = a^1$

107. $M_A g = kx$ and

$Kx = \mu M_B g$, so

$M_A g = \mu M_B g$

$$M = \mu M_B$$

$$M_B = \frac{M}{\mu}$$

108 : Loss in K.E. $= \frac{m_1 m_2}{2(m_1 + m_2)}(v_1 - v_2)^2$

$$= \frac{4 \times 6}{2 \times 10} \times (12 - 0)^2 = 172.8J$$

109. $s = \frac{1}{2}a\,t^2$

$$z = \frac{1}{2}a \times 16$$

$$\boxed{a = \frac{1}{4}}$$

$$a = r\,\alpha$$

$$\frac{1}{4} = \frac{1}{2} \times \alpha$$

$$\alpha = \frac{1}{2} = 0.5$$

110. When man moves on boat, force applied by the man is internal force which cannot change C.M.

111. $\frac{dw}{dQ} = \left(1 - \frac{1}{r}\right)$

$$\frac{dw}{Q} = \left(1 - \frac{3}{5}\right) = \frac{2}{5}$$

$$Dw = \frac{2Q}{5}$$

112. About diagonal of square $= \frac{ML^2}{12}$

So, for given sheet $= \frac{ML^2}{12}$

113. Upward in both the cases.

114. conceptual

115: Thrust force $F = F_1 - F_2 = \rho a v_1^2 - \rho a v_2^2$

$$= \rho a(2gh_1) - \rho a(2gh_2) = 2\rho ag(h_1 - h_2)$$

$$= 2\rho agh$$

116. $\frac{1}{2}F.\Delta l = M\,s\,\Delta t$

$$\frac{1}{2}F.\frac{Fl}{AY} = M\,s\,\Delta t$$

$$\frac{F^2 l}{2AY.Ms} = \Delta t$$

117. $I\omega = Const.$

$$\omega\alpha\frac{1}{I}$$

$$\frac{\Delta\omega}{\omega} = -1 \times \frac{\Delta I}{I}$$

$$\Rightarrow \Delta\omega\,\alpha\,\omega$$

118. $P_{avg} = F.V$

$$P_{avg} = (Ad\upsilon^2)\left(\frac{0+\upsilon}{2}\right)$$

$$= \frac{Ad\upsilon^3}{2}$$

119. Black concave reflection absorb the radiation and shiny bulb also reflect the radiation.

120. $mgh = \frac{M}{5}.L$

$$\Rightarrow h = \frac{L}{5g}$$

121. If P – T graph is straight line passing through the origin, then volume 'V' as constant, So workdone is zero.

122. $v_L r_L \Delta t = v_g r_g \Delta t$

$$v_L \times 180 = 1000 \times 27$$

$$v_L = \frac{2700}{18}$$

= 150 ml

123. $f_n = f_1 + (n-1).d$

$2f_1 = f_1 + (n-1).d$

$f_1 = (n-1).b$

124: $m = \dfrac{f_0}{f_e} = \dfrac{200}{2} = 100$

Angle made by object =

$\theta_0 = \dfrac{50}{2000} = \dfrac{1}{40} rad$

Angle made by image at

eye= $\dfrac{1}{40}(100) = 2.5 rad$

$\dfrac{\text{height of image}}{\text{distance of image}} = 2.5$

Height of image $= 2.5 \times 2cm = 5cm$

125. $A = 30°, i_1 = 60°$

$r_2 = 0, i_2 = 0°$

$A = r_1 + r_2$

$\boxed{30° = r_1}$

$\mu = \dfrac{Sin\ i_1}{Sin\ r_1} = \dfrac{\sqrt{3}/2}{\dfrac{1}{2}} = \sqrt{3}$

126. $I_1 = \dfrac{I_0}{2} Cos^2 30°$

$I_2 = \dfrac{I_0}{2} Cos^2 60°$

$\dfrac{I_1}{I_2} = \dfrac{3/4}{1/4} = \dfrac{3}{1}$

127.
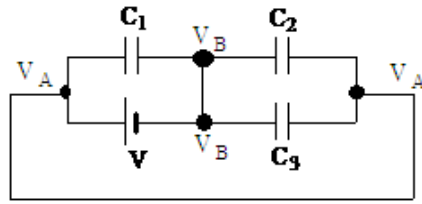
Let V_A be the potential on one side of battery, V_B be the potential on the other side of battery.

By seeing the above figure, potential difference across any capacitor is $(V_A - V_B)$, i.e., constant =

∴ All '3' carry same charge.

128. $i = \dfrac{V}{R} = \dfrac{6}{300}$

$i = \dfrac{1}{50} A$

p.d. across 200Ω, $V = \dfrac{1}{50} \times 200$

$V = \dfrac{1}{4}$ volt

$q = C\ V$

$= 10\ x\ 4$

$= 40\ \mu C$

129. $V_r = \dfrac{1}{2} \times V_c$

$\dfrac{a}{r} = \dfrac{1}{2} \times \dfrac{q}{R}$

$r = 2R$

130. $V_{each} = \dfrac{240}{20} = 12V$

$P = v\ i$

$= 12\ x\ 0.25$

$= 3w$

131 : Conservation of charge.

132. $q = \dfrac{d\phi}{R}$

$\phi_1 = BAN$

$\quad = 2 \times 100 \times 10^{-4} \times 1$

$\quad = 2 \times 10^{-2}$

$\phi_2 = 1 \times 100 \times 10^{-4} \times 1$

$\quad = 1 \times 10^{-2}$

$d\phi = 1 \times 10^{-2}$

$q = \dfrac{1 \times 10^{-2}}{0.1} = 10^{-1}C$

$\quad = 0.1 \ C$

133. F.L.R. can be called as motor rule.

134. $M = i.\pi r^2$

$M_R = \sqrt{M_1^2 + M_2^2}$

$\quad = \sqrt{2}.M$

$\quad = \sqrt{2}.\pi r^2 i$

135. From F.L.R., induced current flows from 'A' to 'B', so e^- move from 'B' to 'A', hence 'B' gets +ve charge.

SECTION-B

136. $\lambda = \dfrac{12.22 A°}{\sqrt{v}}$

$\lambda = \dfrac{12.22}{\sqrt{16}} = \dfrac{12.22}{4}$

$\lambda = 3A°$

137. $F = \dfrac{2N(mC)}{t}$

$t = 1 \ , \ E = (mC).C$

$F = 2N. \dfrac{E}{C}$

$F = 2N \ x \ \dfrac{hc^1/\lambda}{C} = \dfrac{2Nh}{\lambda}$

138. $h\nu = w + KE_{max}$

139. Decrease the velocity of fast neutrons.

140: $\dfrac{x_1}{x_2} = \dfrac{N_0 e^{-(8\lambda)t}}{N_0 e^{-(3\lambda)t}} = \dfrac{1}{t} \Rightarrow e^{-(5\lambda)t} = e^{-1}$

$t = \dfrac{1}{5\lambda}$

141. $i = \dfrac{12 - 1.8}{5}$

$\quad = \dfrac{10.2}{5}$

$\quad = 2.04$

142. Positive half cycles pass through diode. So output will have negative half cycles.

143: For Lyman series

$\left(\dfrac{1}{\lambda_{max}}\right)_L = R(1)^2 \left[\dfrac{1}{(1)^2} - \dfrac{1}{(2)^2}\right]$

$(\lambda_{max})_L = \dfrac{4}{3R}$

For Balmer series

$\left(\dfrac{1}{\lambda_{max}}\right)_B = R(1)^2 \left[\dfrac{1}{(2)^2} - \dfrac{1}{(3)^2}\right]$

$(\lambda_{max})_B = \dfrac{36}{5R}$

$\dfrac{(\lambda_{max})_L}{(\lambda_{max})_B} = \dfrac{4}{3R} \times \dfrac{5R}{36} = \dfrac{5}{27}$

144: $T = 2\pi\sqrt{\dfrac{m}{k}} \Rightarrow \dfrac{T_2}{T_1} = \sqrt{\dfrac{m_2}{m_1}}$

$\Rightarrow \dfrac{3}{2} = \sqrt{\dfrac{m+2}{m}} \Rightarrow \dfrac{9}{4} = \dfrac{m+2}{m} \Rightarrow m = \dfrac{8}{5}kg = 1.6kg$

145: $\lambda_A = \dfrac{V - V_S}{n}$ $\qquad$ $\lambda_B = \dfrac{V + V_S}{n}$

$\dfrac{\lambda_A}{\lambda_B} = \dfrac{V - V_S}{n + V_S}$

146. $V^2 = 2a\,S$

$V^2 = 2\,a_T \times 2\pi R$

$a_c = \dfrac{V^2}{R} = \dfrac{2\,a_T\,2\pi R}{R}$

$a_c = a_T \times 4\pi$

$\Rightarrow \dfrac{a_c}{a_T} = 4\pi$

147. Perpendicular distance of st.line

$r = \dfrac{C}{\sqrt{a^2 + b^2}} = \dfrac{C}{\sqrt{1^2 + 1^2}} = \dfrac{C}{\sqrt{2}}$

$I_z = I_{given}$

$\dfrac{MR^2}{2} = \dfrac{MR^2}{4} + Mr^2$

$\dfrac{MR^2}{4} = M\,r^2$

$\dfrac{R^2}{4} = \dfrac{C^2}{2}$

$C = \dfrac{R}{\sqrt{2}} = \dfrac{14.14}{\sqrt{2}}$

$\boxed{C = 10}$

148. $L = \dfrac{\mu_r \mu_0 N^2 A}{l}$

149. $\tau = MB\,\mathrm{Sin}\theta$

$\dfrac{d\tau}{d\theta} = MB\,\mathrm{Cos}\theta$

If $\theta = 0°, \mathrm{Cos}\theta = 1$

$\dfrac{d\tau}{d\theta}$ is maximum.

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150. $F = mg.\tan\theta$
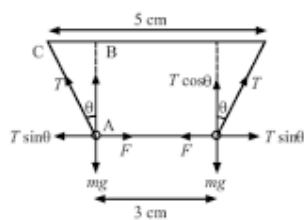
151. For 's' orbital $\ell = 0$, $m = 0$

152. Total volume of CH_4 and $C_2H_6 = 2.24$ lit

$V \propto n$

$\therefore$ Volume of $CH_4 = 1.12$ lit

Volume of $C_2H_6 = 1.12$ lit

. i.e., 22.4 lit $\rightarrow$ 16g CH_4 22.4 lit $\rightarrow$ 30 g

1.12 lit $\rightarrow ? = 0.8$ g 1.12 lit $\rightarrow ? = 1.5$ g

$\therefore$ Total weight of a gaseous mixture = 0.8 + 1.5 = 2.3 g

153. $Hg_2^{+2} \rightarrow 2Hg^{+2}$ $\qquad$ $S^{-2} \rightarrow SO_4^{-2}$

$Hg_2^{+2} \xrightarrow{\ 2e^-\ } Hg^{+4}$

$S^{-2} \xrightarrow{\ 8e^-\ } S^{+6}$
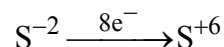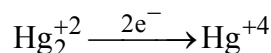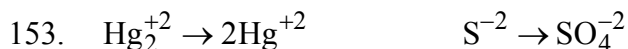
n – factor of Hg_2S is 2 + 8 =10

154. $NaCl$, $NH_3, CaCO_3$ are used as raw materials in Solvay's process.

155. Amount left $= \dfrac{\text{Initial amount}}{2^n}$

n = number of half life periods $= \dfrac{5}{10} = \dfrac{1}{2}$

Amount left $= \dfrac{2}{2^{1/2}} = \dfrac{2}{\sqrt{2}} =$

1.414grams

156. $\Delta S = -ve$ for $Fe(l) \rightarrow Fe(S)$

157.

A) Calcination   b) $Fe_2O_3, xH_2O_{(s)}$

$$\rightarrow Fe_2O_{3(s)} + xH_2O_{(g)}$$

B) Roasting   a) $2Cu_2S + 3O_2$

$$\rightarrow 2Cu_2O + 2SO_2$$

C) Flux   d) $SiO_2 + FeO$

$$\rightarrow FeSiO_3$$

D) Thermite   c) $Cr_2O_3 + 2Al$

$$\rightarrow Al_2O_3 + 2Cr$$

158. $K \; \alpha$ concentration x number ions

$$\wedge (or) \; \mu \; \alpha \; \frac{1}{\text{Concentration x number of ions}}$$

159. $PCl_{5(g)} \; f \;\; PCl_{3(g)} + Cl_{2(g)}$

$$P_{PCl_5} = T.P \times M.F_{PCl_5} = 3 \times \frac{3}{9} = 1$$

$$P_{PCl_3} = 3 \times \frac{3}{9} = 1$$

$$P_{Cl_2} = 3 \times \frac{3}{9} = 1$$

$$\therefore Kp = \frac{P_{PCl_3} \times P_{Cl_2}}{P_{PCl_5}} = \frac{1 \times 1}{1} = 1$$

160. Glucose $\xrightarrow{Red.P}$ Hexane .

161. Misch metal is an alloy of Lanthanoid metal (95%) and Fe (5%) along traces of S, C, Ca and Al.

162. n-type semiconductor.

163. Gelatin has highest protective power.

164.
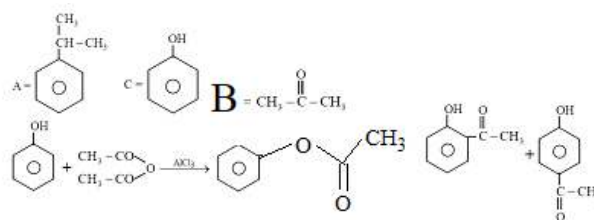
165. Hydrated sodium aluminium silicate is treated with hard water, the sodium ions are exchanged with Ca^{+2} and Mg^{+2}

166. 56% of N_2 is used in Respiratory kit in scuba diving.

167. Urea formaldehyde resin.

168. Antacid and anti allergic

169. $CN^- + H_2O \; f \;\; KCN + OH^-; K_1 = 10^{-9}$

$HCN + OH^- \; f \;\; CN^- + H_2O \; ; K_2 = ?$

$$\downarrow$$

Neutralisation

$$K_2 = \frac{1}{K_1} = \frac{1}{10^{-9}} = 10^9$$

170. Solubility of ferric hydroxide is maximum more in acidic medium.

171. Vant Hoff's factor increase with the dilution.

172. Nitrogen has half filled electronic configuration.

173. In aqueous state

For ethyl : $2° > 3° > 1° > Me$

For methyl : $2° > 1° > 3° > Me$

174. The maximum permissible limit is

$SO_4^{-2} = 500 \; ppm, \; NO_3^- = 50 \; ppm,$

$Pb = 50 \; ppb$

175. $r \propto \dfrac{1}{\sqrt{M.wt}}$
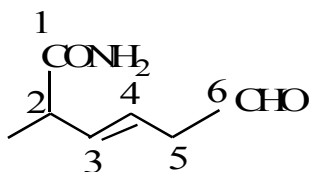
i.e., $r_1 : r_2 : r_3 = \dfrac{1}{\sqrt{64}} : \dfrac{1}{\sqrt{32}} : \dfrac{1}{\sqrt{16}}$

$$= \dfrac{1}{8} : \dfrac{1}{4\sqrt{2}} : \dfrac{1}{4}$$

$$= \dfrac{1}{2} : \dfrac{1}{\sqrt{2}} : \dfrac{1}{1}$$

$$= \dfrac{1}{2} : \dfrac{\sqrt{2}}{2} : \dfrac{1}{1}$$

$$= 1 : \sqrt{2} : 2$$

176. $R_f \propto \dfrac{1}{\text{adsorption power}}$

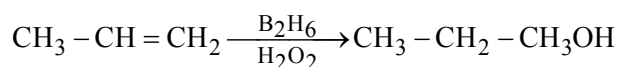177. Aldehydes are more reactive for nucleophilic attack than ketones. EWG increases the addition reaction further due to polarization of carbonyl group.

178. Among the Mono-derivatives of isopentane only 2-chloro - 3 methyl butane and 2-chloro 2-methyl butane are optically active.

179.

2-Methyl-6-oxohex-3-enamide

(Priority : Amide > Aldehyde)

180.

$CH_3 - CH = CH_2 \xrightarrow[H_2O_2]{B_2H_6} CH_3 - CH_2 - CH_3OH$

It follows antimarkownikoff rule.

181.

182. $2CH_3Cl + Si \xrightarrow[573K]{Cu} (CH_3)_2 SiCl_2$

183.

$HC_3 - CH = CH_2 + H^+ \rightarrow H_3C - \overset{\oplus}{CH} - CH_3$
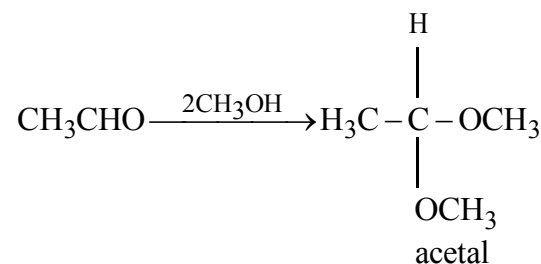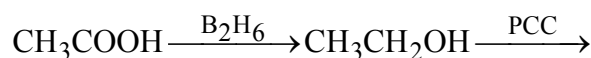
(2° carbocation)
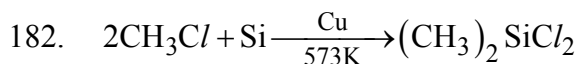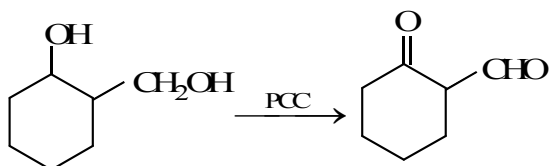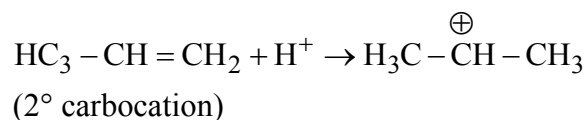
Peroxide effect is shown only by HBr. So electrophilic addition reaction takes place.

184. Tl has positive SRP value. (+1.26V)

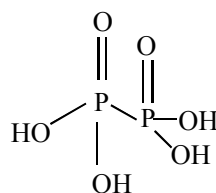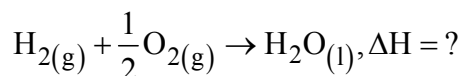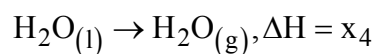185. Nitrogen(g) does not exhibit allotropy.

186.

$CH_3COOH \xrightarrow{B_2H_6} CH_3CH_2OH \xrightarrow{PCC}$

$CH_3CHO \xrightarrow{2CH_3OH} H_3C - \overset{\overset{\displaystyle H}{|}}{\underset{\underset{\displaystyle OCH_3}{|}}{C}} - OCH_3$

acetal

187.

188. Hydrochloric acid does not decomposes salts of strong acids.

189. XeF_4 is non-polar molecule.

190. ΔH_f^o of water

$$H_{2(g)} + \dfrac{1}{2} O_{2(g)} \rightarrow H_2O_{(l)}, \Delta H = ?$$

Latent heat of vapourization is

$$H_2O_{(l)} \rightarrow H_2O_{(g)}, \Delta H = x_4$$
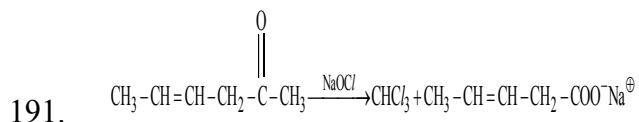
i.e.

$$\Delta H^o_{f(water)} = B.E_R - B.E_P = \left(E_{H-H} + \frac{1}{2}E_{O=O}\right) - (2E_{O-H})$$

$$\Delta H^o_{f(water)} = x_1 + \frac{1}{2}x_2 - 2x_3$$

But $\Delta H^o_f H_2O = x_1 + \frac{1}{2}x_2 - 2x_3 - x_4$

191.

$$CH_3-CH=CH-CH_2-\overset{\overset{O}{\|}}{C}-CH_3 \xrightarrow{NaOCl} CHCl_3 + CH_3-CH=CH-CH_2-COO^-Na^{\oplus}$$
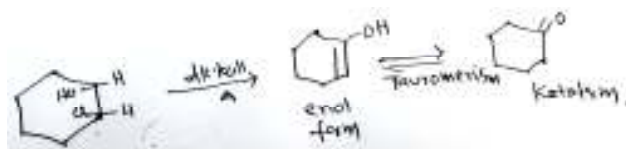
It is an iodoform reaction.

192. In B_2H_6, bridges 'H' atom are present and is electron deficient molecule. It cannot possess dative Bond
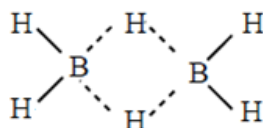
193.

194. $H_2O > C_2O_4^{-2} > OH^-$ order of strength ligand.

195. Phenol does not decomposes $NaHCO_3$.

196. Conductivity depends on solvation of ions

197. Since atoms A are present at corner point thus $A = \frac{1}{8} \times 8 = 1 atom$

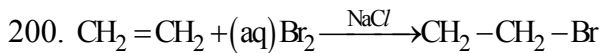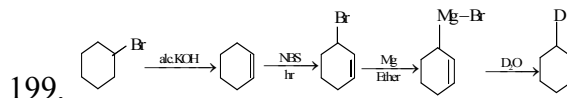B atoms are present at face centre and one is missing from site thus $= \frac{1}{2} \times 5 = \frac{5}{2}$

Therefore, the formula of ionic compound is $AB_{5/2}$ or A_2B_5.

198. conceptual

199.

200. $CH_2 = CH_2 + (aq)Br_2 \xrightarrow{NaCl} CH_2 - CH_2 - Br$

The π-electrons will attack an electrophile forming the carbocation.

Now, the carbocation will be attacked by a nucleophile.

Hence, the product will be a mixture of $Br - CH_2 - CH_2 - Br$, $Br - CH_2 - CH_2 - Cl$

and $Br - CH_2 - CH_2 - OH$.

Hence, $Cl - CH_2 - CH_2 - Cl$ doesn't formed.

Thus, the correct option is (4)