ANSWER KEY FOR MOCK TEST- 9 (FOR 2020 ASPIRANTS) 10th April 2020

1. (1)	2. (3)	3. (4)	4. (1)	5. (4)
6. (3)	7. (2)	8. (Bonus)	9. (1)	10. (1)
11. (2)	12. (1)	13. (3)	14. (1)	15. (4)
16. (4)	17. (4)	18. (3)	19. (2)	20. (2)
21. (2)	22. (2)	23. (2)	24. (3)	25. (2)
26. (2)	27. (3)	28. (3)	29. (1)	30. (1)
31. (2)	32. (2)	33. (2)	34. (1)	35. (2)
36. (4)	37. (4)	38. (3)	39. (3)	40. (2)
41. (3)	42. (3)	43. (2)	44. (1)	45. (2)
46. (3)	47. (1)	48. (4)	49. (3)	50. (4)
51. (4)	52. (1)	53. (4)	54. (2)	55. (2)
56. (2)	57. (1)	58. (1)	59. (1)	60. (1)
61. (3)	62. (3)	63. (2)	64. (3)	65. (3)
66. (1)	67. (1)	68. (4)	69. (1)	70. (4)
71. (4)	72. (1)	73. (3)	74. (2)	75. (1)
76. (4)	77. (4)	78. (2)	79. (2)	80. (3)
81. (2)	82. (2)	83. (3)	84. (1)	85. (2)
86. (3)	87. (4)	88. (3)	89. (3)	90. (4)
91. (1)	92. (2)	93. (3)	94. (1)	95. (3)
96. (1)	97. (3)	98. (1)	99. (1)	100. (2)
101. (4)	102. (1)	103. (4)	104. (2)	105. (1)
106. (4)	107. (1)	108. (2)	109. (3)	110. (3)
111. (3)	112. (4)	113. (3)	114. (3)	115. (4)
116. (4)	117. (2)	118. (2)	119. (4)	120. (1)
121. (4)	122. (2)	123. (1)	124. (1)	215. (1)
126. (2)	127. (2)	128. (3)	129. (3)	130. (2)
131. (1)	132. (1)	133. (2)	134. (4)	135. (2)
136. (2)	137. (3)	138. (2)	139. (1)	140. (1)
141. (2)	142. (4)	143 (4)	144. (2)	145. (1)
146. (1)	147. (1)	148. (1)	149. (1)	150. (4)
151. (1)	152. (1)	153. (3)	154. (1)	155. (1)
156. (1)	157. (1)	158. (1)	159. (1)	160. (1)
161. (3)	162. (2)	163. (3)	164 (4)	165. (3)
166. (1)	167. (1)	168. (1)	169. (1)	170. (2)
171. (4)	172. (3)	173. (3)	174. (2)	175. (3)
176. (1)	177. (1)	178. (1)	179. (3)	180. (4)

Solutions

Sr No	Answer	Topic Name	Details	Easy, Medium Difficult
1	1	Morphology of flowering plant	XI pg no. 67, 5.1.1	M
2	3	Photosynthesis in higher plant	XI pg no. 216,217 and 218, 13.7.2	M
3	4	Enhancement in food production	XII pg no.177, 9.4	E
4	1	Microbes in human welfare	XII pg no.183 and 184, 10.3	E
5	4	Transport in Plants	XI pg no. 180 and 181	M
6	3	Anatomy of flowering plant	XI pg no. 90, 91 and 92, 6.3	D
7	2	Principles of inheritance and variation	XII pg no. 71,72, 73 and 74	E
8	4	Photosynthesis in higher plant	XI pg no. 208	E
9	1	Cell : The unit of life	XI pg no. 140, 8.5.11	E
10	1	Microbes inhuman welfare	XII pg no.187, 4th paragraph	E
11	2	The living world	XI pg no.10	E
12	1	Anatomy of flowering plants	XI pg no. 93, 6.3.5	M
13	3	Reproduction in organisms	XII pg no.7 and 8	E
14	1	Principles of inheritance and variation	XII pg no. 89 and 90	E
15	4	Molecular basis of inheritance	XII pg no. 121,122 and 123	E
16	4	Photosynthesis in higher plants	XI pg no. 213 and 214, 13.6.3	D
17	4	Plant kingdom	XI pg no. 42 and 43	M
18	3	Cell: The unit of life	XI pg no. 138 and 139 8.5.10	M
19	2	Enhancement in food production	XII pg no. 173, sngarcage	E
20	2	Cell cycle and cell division	XI pg no. 164 and 165, 10.2	E
21	2	Morphology of flowering plants	XI pg no. 75, 5.5.1.3	M
22	2	Mineral Nutrition	XI pg no. 201,202,203 12.6.2	M
23	2	Environmental Issues	XII pg no. 274,276,282 and 283	M
24	3	Organisms and Populations	XII pg no. 230	E
25	2	Biological Classification	XI pg no. 23,24	E
26	2	Plant growth and development	XI pg no.248,249,250,251,15.4.3	M
27	3	Cell: The unit of life	XI pg no.133 and 134, 8.5.3.2	E
28	3	Respiration in plants	XI pg no. 232 and 233 14.4.2	D

29	1	Sexual reproduction in flowering plants	XII pg no. 24 2nd paragraph	E
30	1	Molecular basis of inheritance	XII pg no. 115, 3rd paragraph	M
31	2	Ecosystem	XII pg no. 246, 2nd paragraph	E
32	2	Biodiversity and Conservation	XII pg no.267 last paragraph	E
33	2	Mineral nutrition	XI pg no. 197 and 198	E
34	1	Biodiversity and Conservation	XII pg no. 261 and 262 15.1.2 (i) and (ii)	M
35	2	Plant growth and development	XI pg no. 252	E
36	4	Molecular basis of inheritance	XII pg no. 106 and 107 6.4.2	M
37	4	Sexual reproduction in flowering	XII pg no. 30	E
38	3	Respiration in plants	XI pg no. 236 and 237 14.7	E
39	3	Plant Kingdom	XI pg no. 30 and 31 3.1	E
40	2	Cell cycle and cell division	XI pg no. 166, 10.2.5	E
41	3	Ecosystem	XII pg no. 248 and 249 fig 14.4(c)	M
42	3	Organisms and populations	XII pg no. 235 and 236	E
43	2	Biodiversity and conservation	XII pg no. 265 and 266 15.2.1	M
44	1	Principles of inheritance and variation	XII pg no. 88 5.6.2	E
45	2	Morphology of flowering plant	XI pg no. 71 5.3.4	E

46	3	Plant growth and development	XI pg no. 251 and 252, 15.5	E
47	1	Sexual reproduction in flowering plants	XII pg no. 35, 2.4.2	M
48	4	Respiration in plants	XI pg no. 231 14.4	E
49	3	Transport in plants	XI pg no. 190 11.5.2	E
50	4	Biological Classification	XI pg no. 25 and 26 2.6	E

53. Aquatic arthropods have gills or book gills and terrestrial have book lung or trochea
54. Nucleotidase cleaves nucleotide (S Phosphoester bond) to form nucleoside
55. Epithelial tissue mainly used for absorption and exchange of material
59. Lecithin in one of the phospholipid
62. In Hepatic portal system vein carries the nutrient from digestive system to the liver
66. During ventricular contraction deoxygenated bloom right ventricle pumped into pulmonary artery and oxygenated blood from left ventricle pumped into aorta
70. Troponin is present irregularly on actin, troponyosin in present throughout the actin as wrapping actin helically
    F-actin fibrous protein made up of G-monomer
74. PTH is parathormone, released by parathyroid gland it stimulated during low Ca^{++} in blood. It increases Ca^{++} by releasing from bone
76. Vegetative phase and jurenile phase in same
77. Seminiferous tubule in found in lobule of testes
79. Trophoblast in outer layer of blastocyst which forms the chorinic placenta
81. Lactational amenorrhea is stop of menstrual cycle till cmance lactation
83. Thorn of bougenvillea & tendril of cucurbita in modified axillary bud

84. Normalizing selection in also called stabilizing selection

85. administration at vaccine comes under acquired active artificial immunity

87. Pathogen of elephantiasis transmits through culex mosquito

89. Bacillus thuringiensis from cry protein during spore formation

90. Lymphocytes have limited life span

91. (1) Dimension of $\alpha t = [M^0L^0T^0]$ $\therefore [\alpha] = [T^{-1}]$

Again $\left[\frac{v_0}{\alpha}\right] = [L]$ so $[v_0] = [LT^{-1}]$

92. (2) For vertically upward motion, $h_1 = v_0 t - \frac{1}{2} g t^2$ and for vertically down ward motion,

$h_2 = v_0 t + \frac{1}{2} g t^2$

$\therefore$ Total distance covered in *t* sec $h = h_1 + h_2 = 2v_o t$.

93. (3) Equation of trajectory for oblique projectile motion is

$$y = x\tan\theta - \frac{gx^2}{2u^2\cos^2\theta}$$

Substituting $x = D$ and $u = v_0$

$$h = D\tan\theta - \frac{gD^2}{2u_0^2\cos^2\theta}.$$

94. (1) $T = \frac{2m_1m_2}{(m_1+m_2)}(g+a) = \frac{2m_1m_2(g+g)}{m_1+m_2}$

$\Rightarrow T = \frac{4m_1m_2}{m_1+m_2} g = \frac{4w_1w_2}{w_1+w_2}$

95. (3) $\mu_k = \frac{F}{N} = \frac{F}{mg} = \frac{19.6}{5\times 9.8} = \frac{2}{5} = 0.4$

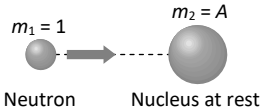
96. (1) By conservation of energy, $mgh = \frac{1}{2}mv^2$

$\Rightarrow v = \sqrt{2gh} = \sqrt{2\times 9.8\times 1} = \sqrt{19.6} = 4.43$ m/s

97. (3) $E = \frac{1}{2}mv^2$. Differentiating *w.r.t. x*, we get

$$\frac{dE}{dx} = \frac{1}{2}m\times 2v\frac{dv}{dx} = mv\times\frac{dv}{dt}\times\frac{dt}{dx} = mv\times\frac{a}{v} = ma$$

98. (1)



$$\left(\frac{\Delta k}{k}\right)_{\text{retained}} = \left(\frac{m_1-m_2}{m_1+m_2}\right)^2 = \left(\frac{1-A}{1+A}\right)^2 = \left(\frac{A-1}{A+1}\right)^2$$

99. ANS: (1)

100. (2)

$$I = \frac{\left(\frac{M}{2}\right)\left(\frac{L}{2}\right)^2}{3} + \frac{\left(\frac{M}{2}\right)\left(\frac{L}{2}\right)^2}{3} = 2\left(\frac{ML^2}{24}\right) = \frac{ML^2}{12}$$

101. (4)

$$KE_i + U_i = KE_f + U_f$$

$$0 + 0 = \frac{1}{2}mv^2\left(1 + \frac{k^2}{R^2}\right) - mg(3a)$$

$$3mga = \frac{3}{4}mv^2$$

$$v = \sqrt{4ga}$$

102. (1) Velocity of liquid through orifice, $v = \sqrt{2gy}$

and time taken by liquid to reach the ground

$$t = \sqrt{\frac{2(h + h - y)}{g}} = \sqrt{\frac{2(2h - y)}{g}}$$

$\therefore$ Horizontal distance covered by liquid

$$x = v.t. = \sqrt{2gy} \times \sqrt{\frac{2(2h - y)}{g}} = \sqrt{4y(2h - y)}$$

$$\Rightarrow x^2 = 4y(2h - y)$$

$$\Rightarrow \frac{d(x)^2}{dy} = 8h - 8y$$

for *x* to be maximum, $\frac{d}{dy}(x^2) = 0$

$\therefore 8h - 8y = 0$ or $h = y$

So $x_m = \sqrt{4h(2h - h)} = 2h$

103. (4) Rate of flow under a constant pressure head,

$$V = \frac{\pi pr^4}{8\eta l} \Rightarrow V \propto \frac{r^4}{l} \Rightarrow \frac{V_2}{V_1} = \left(\frac{r_2}{r_1}\right)^4 \times \frac{l_1}{l_2} = \left(\frac{1}{2}\right)^4 \times \frac{1}{2}$$

$$\Rightarrow V_2 = \frac{V_1}{32} = \frac{V}{32}$$

104. (2) Because if the length available is less than required, then water will rise upto available height and adjust its radius of curvature.

105. (1) $Y = \frac{FL}{A\Delta\ell} = \frac{1000 \times 100}{10^{-6} \times 0.1} = 10^{12}\,N/m^2$

106. (4) $K = \frac{1}{2}mv^2 = \frac{1}{2}m\left(\frac{GM}{r}\right)$

$$\frac{K_A}{K_B} = \frac{r_B}{r_A} = \left(\frac{R + h_B}{R + h_A}\right) = \left(\frac{R + 2R}{R + R}\right) = \frac{3}{2}$$

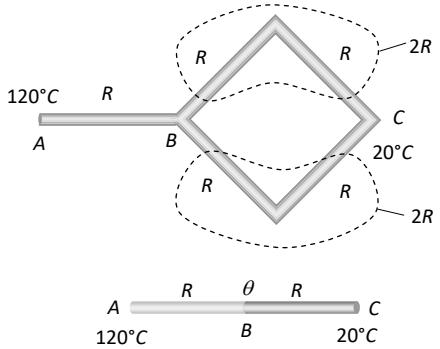
107. (1) The forces that act on the block are qE and mg. Since qE and mg are constant forces, the only variable elastic force changes by kx. Where x is the elongation in the spring $\Rightarrow$ unbalanced (restoring) force $= F = -kx$

$$\Rightarrow\ -m\omega^2 X = -KX \Rightarrow\ \omega = \sqrt{\frac{k}{M}} \Rightarrow T = 2\pi\sqrt{\frac{M}{k}}$$

108. (2) If the sheet is heated then both d_1 and d_2 will increase since the thermal expansion of isotropic solid is similar to true photographic enlargement.

109. (3) $\theta_{mix} = \dfrac{\theta_w - \dfrac{L_i}{C_W}}{2} = \dfrac{100 - \dfrac{80}{1}}{2} = 10°C$

110. (3) If thermal resistance of each rod is considered R then, the given combination can be redrawn as follows



$(\text{Heat current})_{AC} = (\text{Heat current})_{AB}$

$$\frac{(120-20)}{2R} = \frac{(120-\theta)}{R} \Rightarrow \theta = 70°C$$

111. (3) $W_{AB} = -P_0V_0$, $W_{BC} = 0$ and $W_{CD} = 4P_0V_0$

$\Rightarrow W_{ABCD} = -P_0V_0 + 0 + 4P_0V_0 = 3P_0V_0$

112. (4) $v_{rms} = \sqrt{\dfrac{3RT}{M}} \Rightarrow v_{rms} \propto \sqrt{\dfrac{T}{M}}$

$$\frac{v_2}{v_1} = \sqrt{\frac{M_1}{M_2}\times\frac{T_2}{T_1}} = \sqrt{\frac{1}{2}\times\frac{1}{2}} \Rightarrow v_2 = \frac{v_1}{2} = \frac{300}{2} = 150\text{m/sec}$$

113. (3) Fundamental frequency of closed pipe

$$n = \frac{v}{4\ell} = 220\,\text{Hz} \Rightarrow v = 220\times 4\ell$$

If $\dfrac{1}{4}$ of the pipe is filled with water then remaining length of air column is $\dfrac{3\ell}{4}$

Now fundamental frequency = $\dfrac{v}{4\left(\dfrac{3\ell}{4}\right)} = \dfrac{v}{3\ell}$ and

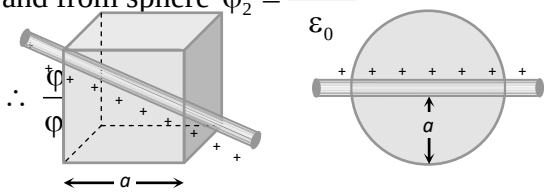
First overtone = $3\times$ fundamental frequency

$$= \frac{3v}{3\ell} = \frac{v}{\ell} = \frac{220\times 4\ell}{\ell} = 880\text{Hz}$$

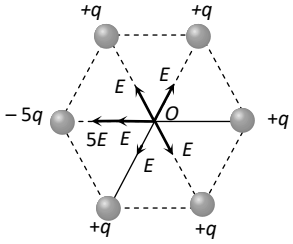
114. (3) Flux coming out of the cube $\varphi_1 = \dfrac{\lambda . a\sqrt{3}}{\varepsilon_0}$ .....(i)

and from sphere $\varphi_2 = \dfrac{\lambda \cdot 2a}{\varepsilon_0}$ .....(ii)

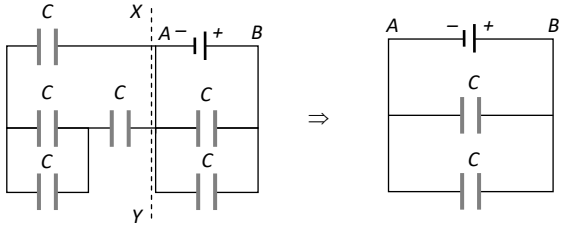
$\therefore \dfrac{\varphi}{\varphi}$



115. (4) To obtained net field 6*E* at centre *O*, the charge to be placed at remaining sixth corner is – 5*q*. (see following figure)



116. (4) All capacitor lying in left side of line *XY* are short circuited so circuit can be reduced as follows



$C_{AB} = 2C$

117. (2) Work done by the field $W = q(-dV) = -e(V_A - V_B)$

$= e(V_B - V_A) = e(V_C - V_A)$ $(\because V_B = V_C)$

$\Rightarrow (V_C - V_A) = \dfrac{W}{e} = \dfrac{6.4\times10^{-19}}{1.6\times10^{-19}} = 4V$

118. (2) When switch *S* is open total current through ammeter.

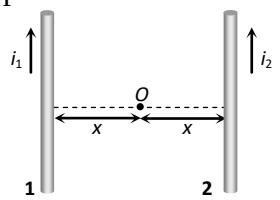
$i = \dfrac{20}{(3+2)} = 4A$.

When switch is closed $i = \dfrac{20}{3+(2 \parallel 2)} = 5A$.

119. (4) Initially when wires carry currents in the same direction as shown.
Magnetic field at mid point *O* due to wires 1 and 2 are respectively

$B_1 = \dfrac{\mu_0}{4\pi}.\dfrac{2i_1}{x} \otimes$

and $B_2 = \dfrac{\mu_0}{4\pi}.\dfrac{2i_2}{x} \odot$



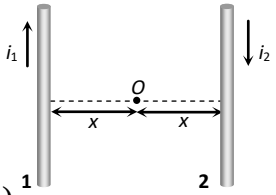
Hence net magnetic field at *O* $B_{net} = \dfrac{\mu_0}{4\pi} \times \dfrac{2}{x} \times (i_1 - i_2)$

$\Rightarrow 10\times10^{-6} = \dfrac{\mu_0}{4\pi}.\dfrac{2}{x}(i_1 - i_2)$ ..... (i)

If the direction of i_2 is reversed then

$B_1 = \frac{\mu_0}{4\pi}.\frac{2i_1}{x}\otimes$

and $B_2 = \frac{\mu_0}{4\pi}.\frac{2i_2}{x}\otimes$

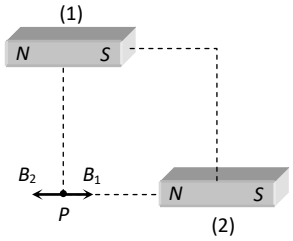


So $B_{net} = \frac{\mu_0}{4\pi}.\frac{2}{x}(i_1 + i_2)$

$\Rightarrow 40\times10^{-6} = \frac{\mu_0}{4\pi}.\frac{2}{x}(i_1 + i_2)$ ..... (ii)

Dividing equation (ii) by (i) $\frac{i_1 + i_2}{i_1 - i_2} = \frac{4}{1} \Rightarrow \frac{i_1}{i_2} = \frac{5}{3}$

120. (1) Point *P* lies on equatorial line of magnet (1) and axial line of magnet (2) as shown



$B_1 = \frac{\mu_0}{4\pi}\cdot\frac{M}{d^3} = 10^{-7}\times\frac{1000}{(0.1)^3} = 0.1\,T$

$B_2 = \frac{\mu_0}{4\pi}\cdot\frac{2M}{d^3} = 10^{-7}\times\frac{2\times1000}{(0.1)^3} = 0.2\,T$

$\therefore\ B_{net} = B_2 - B_1 = 0.1\,T$

121. (4) Induced emf $e = Bvl \Rightarrow e = Bv(2R) = \frac{2BvL}{\pi}$

122. (2) $V_0 = i_0 Z \Rightarrow 200 = 100\ Z \Rightarrow Z = 2\Omega$

Also $Z^2 = R^2 + X_L^2 \Rightarrow (2)^2 = (1)^2 + X_L^2 \Rightarrow X_L = \sqrt{3}\Omega$

123. (1) Crosses (×) linked with the loop are decreasing, so induced current in it is clockwise *i.e.* from *B* → *A*. Hence electrons flow from plate *A* to *B* so plate *A* becomes positively charged.

124. (1) The direction of EM wave is given by the direction of $\vec{E}\times\vec{B}$.

125. (1) By using $\frac{\mu_2}{v} - \frac{\mu_1}{u} = \frac{\mu_2 - \mu_1}{R}s$

where $\mu_1 = \frac{4}{3}$, $\mu_2 = 1$, $u = -6\,cm$, R = - 10 cm, *v* = ?

On putting values $v = -5.2\,cm$

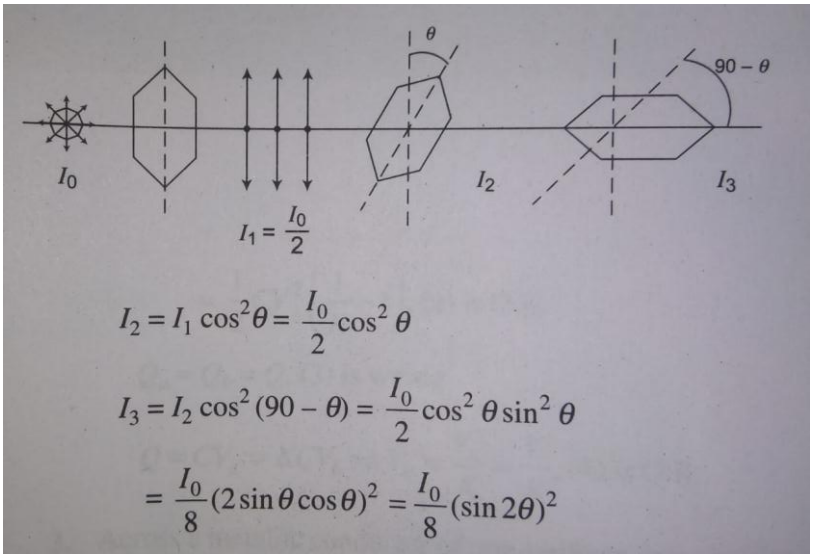
126. (2) For TIR at *PQ* ; $\theta < C$

From geometry of figure $\theta = 60$ *i.e.* $60 > C \Rightarrow \sin 60 > \sin C$

$\Rightarrow \frac{\sqrt{3}}{2} > \frac{\mu_{Liquid}}{\mu_{Prism}} \Rightarrow \mu_{Liquid} < \frac{\sqrt{3}}{2}\times\mu_{Prism}$

$\Rightarrow \mu_{Liquid} < \frac{\sqrt{3}}{2}\times1.5 \Rightarrow \mu_{Liquid} < 1.3$.

127. (2)



$$I_2 = I_1\cos^2\theta = \frac{I_0}{2}\cos^2\theta$$

$$I_3 = I_2\cos^2(90-\theta) = \frac{I_0}{2}\cos^2\theta\sin^2\theta$$

$$= \frac{I_0}{8}(2\sin\theta\cos\theta)^2 = \frac{I_0}{8}(\sin 2\theta)^2$$

128. (3) Path difference at point $\Delta = \frac{xd}{D}$

Phase difference at point $\Phi = \left(\frac{2\pi}{\lambda}\right)\left(\frac{xd}{D}\right) = \frac{2\pi x}{\beta}$

Resultant intensity at point P is

$$I_{res} = I_{max}\cos^2\left(\frac{\Phi}{2}\right)$$

$$= I_0\cos^2\left(\frac{\pi x}{\beta}\right)$$

129. (3) $E = \frac{12375}{4000} = 3.09\,eV$ Photoelectrons emits if energy of incident light > work function.

130. (2) $\lambda_{k\alpha} \propto \frac{1}{(Z-1)^2} \Rightarrow \frac{\lambda_{Ni}}{\lambda_{Co}} = \left(\frac{Z_{Co}-1}{Z_{Ni}-1}\right)^2 = \left(\frac{27-1}{28-1}\right)^2$

$$\Rightarrow \lambda_{Ni} = \left(\frac{26}{27}\right)^2 \times \lambda_{Co} = \left(\frac{26}{27}\right)^2 \times 179 = 165.9\,pm < 179\,pm\,.$$

131. (1) Energy of the electron, when it comes out from the second plate = 200 eV – 100 eV = 100 eV
Hence accelerating potential difference = 100 *V*

$$\lambda_{Electron} = \frac{12.27}{\sqrt{V}}A^\circ = \frac{12.27}{\sqrt{100}} = 1.23A^\circ$$

132. (1) We know that $E_n = -13.6\frac{Z^2}{n^2}eV$ and $r_n = 0.53\frac{n^2}{Z}(Å)$

Here for n =1, E_1 = – 54.4 eV

Therefore $-54.4 = -13.6\frac{Z^2}{1^1} \Rightarrow Z = 2$

Hence radius of first Bohr orbit $r = \frac{0.53(1)^2}{2} = 0.265\,Å$

133. (2) $N = N_0e^{-\lambda t}$

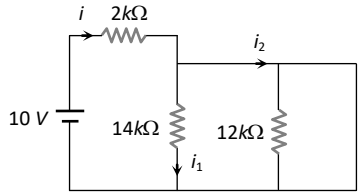
$$\frac{N_A}{N_B} = \frac{N_0e^{-5\lambda t}}{N_0e^{-\lambda t}}$$

$$\frac{1}{e^2} = e^{-4\lambda t}$$

$$2 = 4\lambda t$$

$$t = \frac{1}{2\lambda}$$

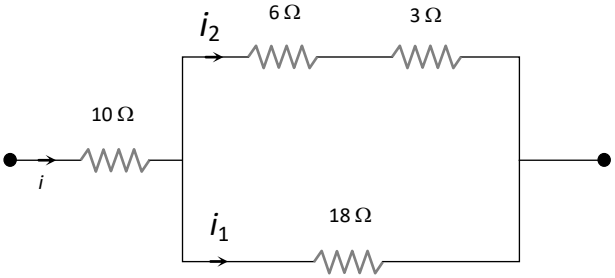
134. (4) Equivalent circuit can be redrawn as follows



$$i = \frac{10}{2} = 5\,mA = i_2$$

$i_1 = 0$

135. (2) The given circuit can be redrawn as follows



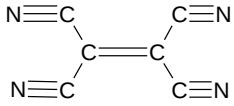
$$\frac{i_1}{i_2} = \frac{9}{18} = \frac{1}{2}$$

and $i = i_1 + i_2$

$$\Rightarrow \frac{i}{i_1} = 1 + \frac{i_2}{i_1} = 1 + 2 = 3$$

From $P = i^2R \Rightarrow \frac{P_{10\Omega}}{P_{18\Omega}} = \left(\frac{i}{i_1}\right)^2\left(\frac{10\Omega}{18\Omega}\right) \Rightarrow P_{10\Omega} = 10W$

136. (2) $E = hc / \lambda$

137. (3)  $\Rightarrow 9\ \sigma$, $\Rightarrow 9\ \pi$

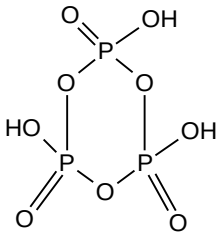
138. (2) $\therefore$ NaF has highest M.P

139. (1) Fajan's rules

140. (1) Due to small size and high polarising power of Li . $Li_2CO_3 \rightarrow Li_2O + CO_2$

141. (2) $\frac{z}{e} \alpha \frac{1}{size}$ $\therefore F^- < O^{2-} < N^{3-}$

142. (4) NO_2 is a reddish-brown gas.

143. 
(4)
$H_3P_3O_9$ (cyclic oxoacid)

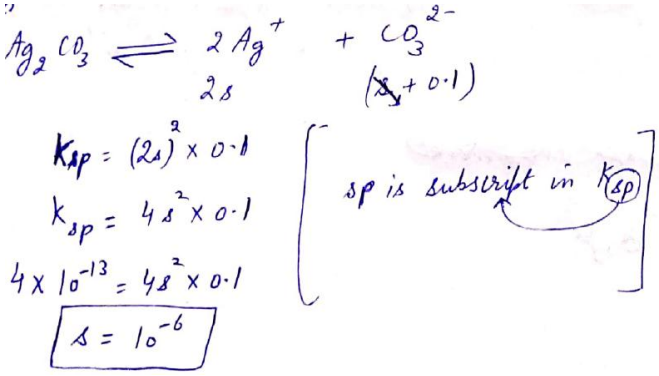
144. (2) CO burns with a blue flame and is colourless
$CuO + CO \rightarrow Cu + CO_2$

145.
$$\left(P + \frac{a}{V^2}\right)V = RT$$
(1)
$$PV + \frac{a}{V} = RT$$
$$\frac{PV}{RT} = 1 - \frac{a}{VRT}$$
$$Z = 1 - \frac{a}{VRT}$$

146. (1)
$$SO_3^{2-} \rightarrow SO_4^{2-} + 2e^-$$
$$5e^- + MnO_4^- \rightarrow Mn^{+2}$$

147. (1) Number = $\frac{5.6}{22.4} \times 6.02 \times 10^{23} = 1.5 \times 10^{23}$

148. (1)



149. (1) Conjugate acid of NH_2^-

$= NH_3$

150. (4) Equilibrium with remain same

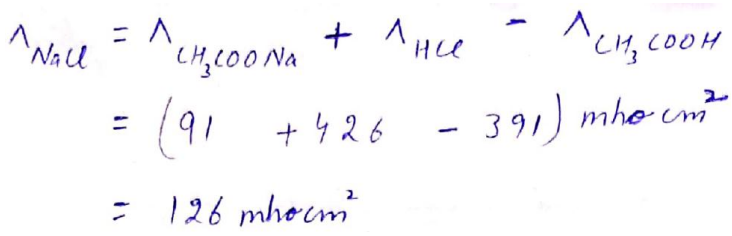
151. (1) $k = Ae^{-E_a/RT}$

152. (1)

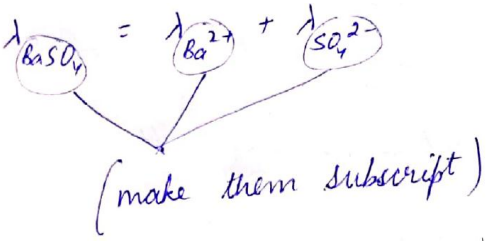
153. (3) $E = -0.0591 \log 10 \dfrac{C_1}{C_2}$

$E > 0$ when $C_2 > C_1$

154.



155. (1)



156. (1) $P_A = Y_A P_T \Rightarrow 0.35 \times 600 = 210$

$P_A = P_A^0 X_A \Rightarrow P_A^0 = \dfrac{P_A}{X_A} = \dfrac{210}{0.7} = 300$

157. (1) unit cells $= 2 \times 12.08 \times 10^{23}$

$\Rightarrow 24.16 \times 10^{23}$

158. (1) not depends on path

159. (1) $\Delta n_g = -0.5$

160. (1) A → no symmetry

161.

(3) C → $Ni(CO)_4 \Rightarrow n = 0$, $Ni(CN)_4^{-2} \Rightarrow n = 0$, $[NiCl_4]^{2-} \Rightarrow n = 2$

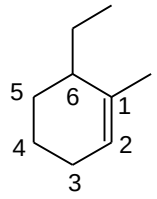
162. (2) $Cr \to 6$, $Fe \to +3$, $V \to 5$, $Mn \to +7$

163. (3) Forth floatation is based on wetting property of ore

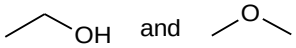
164. (4) By catalyst no affect on equilibrium constant

165. (1) Only increases the rate of reaction

166. (1)



6-Ethyl-1-methyl cyclohex-1-en

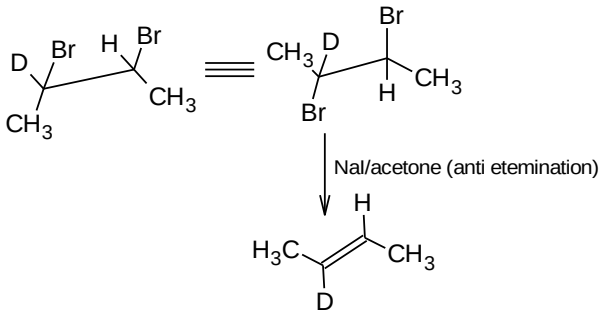


167. (1) functional

168. (1) $-O^- > -NH_2 > -OH > -NHCOCH_3$

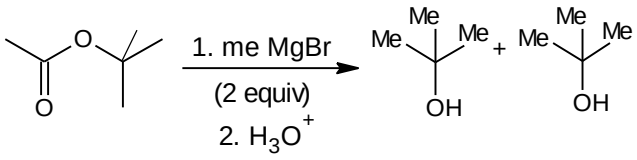
169. (1) $^-NO_2 > -CN > COOH > -Cl$

170. (2)



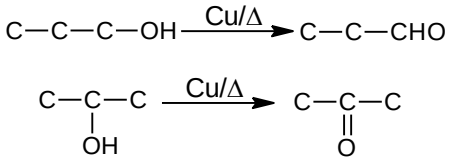
171. (4) In halides as size increases van der waal's attractions increases

172.



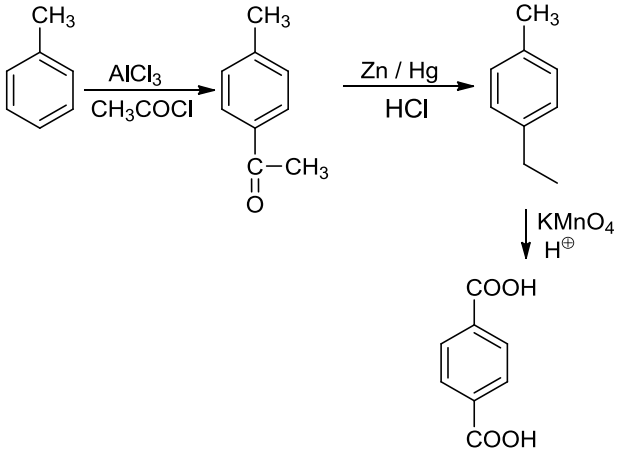
(3)

173.



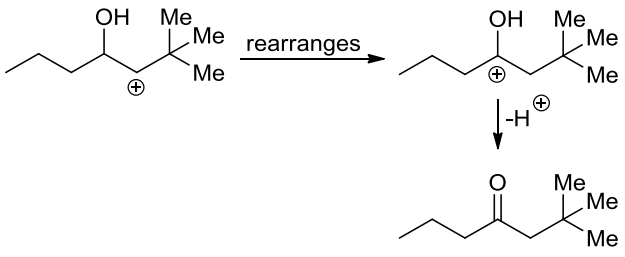
(3)

174. (2)



175. (3) CO_2 evolved is from $NaHCO_3$

176.



(1)

177. (1) $R-N\equiv C \xrightarrow{H_2O} RNH_2$

178. (1) Fact

179. (3) Fact

180. (4) Fact