



## LEADER & ACHIEVER COURSE

PHASE : MLA, MLB, MLC, MLP, MLO, MLR, MLS, MLT, MLU, MLV, MAZA, MAZB, MAZC, MAZD, MAZE,  
MAZF, MAZP, MAZO, MAZR, MAZV, MAZX, MAZY, MAZK, MAPA, MAPB, MSP1, MSP2, LAKSHYA

**TARGET : PRE-MEDICAL 2024**

Test Type : MAJOR

Test Pattern : NEET (UG)

**TEST DATE : 27-03-2024**

### ANSWER KEY

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

### HINT – SHEET

#### SUBJECT : BOTANY

#### SECTION-A

1. **Ans ( 3 )**

NCERT XII Pg. # 238 [E], 261 [H]

2. **Ans ( 2 )**

NCERT XII Pg. # 233, 234, 236, 237 [E]  
253, 254, 255, 256, 257, 258 259 [H]

3. **Ans ( 2 )**

NCERT-XII, Pg. # 229 [E], 251 [H]

4. **Ans ( 4 )**

NCERT-XII Pg. # 236, 237 [E], 259, 260 [H]

5. **Ans ( 4 )**

NCERT XII Pg. # 233 [E], 255, 256 [H]

6. **Ans ( 4 )**

NCERT XII Pg. # 235, Para # 13.2.4 [E], 258 [H]

7. **Ans ( 4 )**

NCERT-XII, Pg. # 227 (E), 249 (H)

8. **Ans ( 3 )**

NCERT XII Pg. # 235 (E), 257 (H)

9. **Ans ( 3 )**

NCERT XII, Pg. # 236 (E), 258, 259 (H)

10. **Ans ( 3 )**

NCERT XII, Pg. # 235 (E), 258 (H)

11. **Ans ( 2 )**

NCERT XII, Pg. # 235 (E), 257 (H)

12. **Ans ( 3 )**

NCERT XII, Pg. # 235 (E), 258 (H)

- |   |   |  |
|---|---|--|
| 13. <b>Ans (4)</b><br>NCERT-XII, Pg. # 243 (E), 267 (H)<br>Environmental factors Nutrient availability<br>Photosynthetic capacity of plants | 27. <b>Ans (2)</b><br>NCERT-XII, Pg. # 261 (15.1.2) (E), 288 (H)  |  |
| 14. <b>Ans (1)</b><br>NCERT XII Pg. # 244 (E), 269 (H)<br>All given factors   | 28. <b>Ans (4)</b><br>NCERT-XII, Pg. # 261 (15.1.2) (E), 287 (H)  |  |
| 15. <b>Ans (1)</b><br>NCERT-XII, Pg. # 244 (E), 269 (H)   | 29. <b>Ans (2)</b><br>NCERT XII Pg. # 259, 260 (E), 285, 286 (H)  |  |
| 16. <b>Ans (4)</b><br>NCERT-XII, Pg. # 242 (E), 266 (H)   | 30. <b>Ans (2)</b><br>NCERT-XII, Pg. # 260 (E), 286 (H)           |  |
| 17. <b>Ans (1)</b><br>NCERT XII Pg. # 246 (E), 271 (H)  | 31. <b>Ans (3)</b><br>NCERT-XII, Pg. # 259 (E), 285 (H)           |  |
| 18. <b>Ans (4)</b><br>NCERT XII, Pg. # 249, 250 (E), 275, 273, 274 (H)  | 32. <b>Ans (4)</b><br>NCERT-XII, Pg. # 262 (15.1.2) (E), 288 (H)  |  |
| 19. <b>Ans (2)</b><br>NCERT XII, Pg. # 249 (E), 274 (H)   | 33. <b>Ans (4)</b><br>NCERT-XII, Pg. # 259, 260 (E), 286 (H)      |  |
| 20. <b>Ans (4)</b><br>NCERT XII, Pg. # 250 (E), 274 (H)   | 34. <b>Ans (4)</b><br>NCERT-XII, Pg. # 264, 265 (E), 290, 291 (H) |  |
| 21. <b>Ans (4)</b><br>NCERT-XII Pg. # 243 (E), 268 (H)  | 35. <b>Ans (3)</b><br>NCERT XII Pg. # 265, 266 (E), 292 (H)       |  |
| 22. <b>Ans (3)</b><br>NCERT XII Pg. # 242 (E), 266 (H)  | <b>SECTION-B</b>  |  |
| 23. <b>Ans (3)</b><br>NCERT XII Pg. # 264 (E), 290 (H)  | 36. <b>Ans (2)</b><br>NCERT-XII, Pg. # 227 [E], 249 [H]           |  |
| 24. <b>Ans (3)</b><br>NCERT XII, Pg. # 245 (E), 269 (H)   | 37. <b>Ans (2)</b><br>NCERT-XII Pg. # 242 [E], 266 [H]            |  |
| 25. <b>Ans (2)</b><br>NCERT-XII Pg. # 263 (15.1.3) (E), 289 (H)<br>['a' is correct]   | 38. <b>Ans (4)</b><br>NCERT XII, Pg. # 236 (E), 258 (H)           |  |
| 26. <b>Ans (3)</b><br>NCERT-XII, Pg. # 262 (15.1.2) (E), 288 (H)  | 39. <b>Ans (3)</b><br>NCERT XII, Pg. # 234 (E), 256 (H)           |  |
|   | 40. <b>Ans (2)</b><br>NCERT-XII, Pg. # 247 (E), 271 (H)           |  |
|   | 42. <b>Ans (4)</b><br>NCERT-XII, Pg. 247 (E), 271 (H)             |  |

43. <b>Ans ( 4 )</b> NCERT-XII, Pg. # 246, 248 (E), 270 (H)	57. <b>Ans ( 1 )</b> NCERT Pg # 152
44. <b>Ans ( 3 )</b> NCERT-XII, Pg. # 248, 249 (E), 273, 274 (H)	62. <b>Ans ( 4 )</b> NCERT (XII) Pg # 162
45. <b>Ans ( 3 )</b> NCERT-XII, Pg. # 263 (15.1.3) (E), 289 (H)	67. <b>Ans ( 2 )</b> Module No. # 11, Pg. No. # 11
46. <b>Ans ( 2 )</b> NCERT-XII, Pg3 # 262 (15.1.2) (E), 288 (H)	69. <b>Ans ( 3 )</b> NCERT-XII, Pg. # 152
47. <b>Ans ( 2 )</b> NCERT-XII, Pg. # 261 (15.1.2) (E), 287 (H)	70. <b>Ans ( 3 )</b> NCERT-XII, Pg. # 157
48. <b>Ans ( 4 )</b> NCERT-XII, Pg. # 261 (E), 287 (H)	71. <b>Ans ( 1 )</b> XII NCERT Page. No :- 102
49. <b>Ans ( 4 )</b> NCERT XII, Pg. # 263, 264 (E), 290 (H)	72. <b>Ans ( 2 )</b> Module-3, Pg. # 120
50. <b>Ans ( 2 )</b> NCERT XII Pg. # 260 [E], 284, 286 [H]	73. <b>Ans ( 1 )</b> NCERT Page No. 132
<b>SUBJECT : ZOOLOGY</b>	
<b>SECTION-A</b>	
51. <b>Ans ( 2 )</b> NCERT Pg # 47 (E), 53 (H)	75. <b>Ans ( 4 )</b> NCERT Page No. 133
52. <b>Ans ( 2 )</b> NCERT Pg # 133 (E), 145 (H)	76. <b>Ans ( 1 )</b> NCERT Page No. 139
53. <b>Ans ( 1 )</b> NCERT Pg # 131-132 (E), 144 (H)	77. <b>Ans ( 1 )</b> NCERT Page No. 127
54. <b>Ans ( 4 )</b> NCERT (XII) Pg # 160	78. <b>Ans ( 1 )</b> NCERT Page No. 127
55. <b>Ans ( 4 )</b> NCERT (XII) Pg # 21	79. <b>Ans ( 1 )</b> NCERT Page No. 138, 140
56. <b>Ans ( 4 )</b> NCERT Pg # 134 (E), 162 (H)	80. <b>Ans ( 4 )</b> NCERT Page No. 131

**81. Ans (4)**

NCERT Page No. 127

**82. Ans (1)**

NCERT Page No. 133

**83. Ans (3)**

Module-11, Pg. # 91

**84. Ans (3)**

NCERT-XII, Pg. No. # 131, 132

**85. Ans (4)**

Module-11, Pg. # 110, 111

## SECTION-B

**86. Ans (3)**

NCERT Page No. 133

**87. Ans (3)**

NCERT-XII

**90. Ans (4)**

Module-11 Page No. #106

**91. Ans (2)**

Axillary bud

**93. Ans (4)**

NCERT Pg. 154

**95. Ans (4)**

NCERT (XII) Pg # 161

**96. Ans (2)**

NCERT (XII) Pg # 160-161

**97. Ans (1)**

NCERT Pg # 135 (E), 162 (H)

**99. Ans (3)**

Cannabinoid molecule

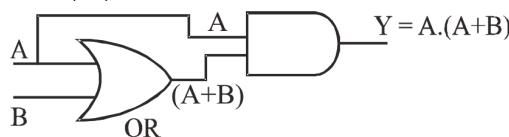
**100. Ans (4)**

Module No. # 11, Pg. No. # 8

## SUBJECT : PHYSICS

### SECTION-A

**101. Ans (1)**



$$Y = A.(A + B)$$

$$Y = A.A + A.B$$

$$= A + AB = A(1 + B) = A.1 = A$$

**102. Ans (4)**

Threshold frequency is more for blue colour than Red.

**104. Ans (2)**

$$\sigma = N_i e [\mu_e + \mu_h]$$

$$\sigma = 1.56 \times 10^{16} \times 1.6 \times 10^{-19} \times [0.135 + 0.065]$$

$$\sigma = 1.56 \times 1.6 \times 10^{-3} \times 0.2$$

$$= 0.5 \times 10^{-3}$$

$$\rho = \frac{1}{\sigma} = \frac{1}{0.5 \times 10^{-3}} \\ = 2000$$

**105. Ans (4)**

$$m = -5 = \frac{f_o}{f_e} \Rightarrow f_o = 5 f_e ,$$

$$L = f_o + f_e = 36$$

$$6f_e = 36$$

$$\Rightarrow f_e = 6 \text{ cm}, f_o = 5f_e = 30 \text{ cm}$$

**106. Ans (1)**

$$D = 80, x = 20$$

$$f = \frac{D^2 - x^2}{4D} \\ = \frac{80^2 - 20^2}{320} \\ = 18.75 \text{ cm}$$

**107. Ans (1)**

$$\text{Use } f = \frac{R}{2(\mu - 1)}$$

$$\text{and } \frac{1}{v} - \frac{1}{u} = \frac{1}{f}$$

**108. Ans (4)**

$$m = \frac{-1}{4}$$

$$\Rightarrow \frac{f}{f+u} = \frac{-1}{4}$$

$$\Rightarrow \frac{30}{30+u} = \frac{-1}{4}$$

$$120 = -30 - u$$

$$\Rightarrow u = -150 \text{ cm}$$

**109. Ans (2)**

$$\delta = i + e - A$$

$$\Rightarrow A = 45^\circ (i = 15^\circ; e = 60^\circ)$$

**110. Ans (1)**

$$\frac{1.5}{V} - \frac{1}{-15} = \frac{0.5}{30}$$

$$\frac{1.5}{V} = \frac{1}{60} - \frac{1}{15} = \frac{-3}{60}$$

$$V = -30 \text{ cm}$$

**111. Ans (1)**

$$\text{Shift} = t \left( 1 - \frac{1}{\mu} \right)$$

$$\Rightarrow = 3 \left( 1 - \frac{1}{1.5} \right)$$

= 1 cm upwards

**113. Ans (3)**

For concave mirror

$$u = -30 \text{ cm}, -\frac{v}{u} = -2, v = -60 \text{ cm}$$

$$\text{use } \frac{1}{f} = \frac{1}{v} + \frac{1}{u}$$

$$= \frac{1}{-60} + \frac{1}{-30} = -\frac{1}{20}$$

$$f = -20 \text{ cm}$$

For another location object at a distance  $x$  from pole then

$$u = -x, -\frac{v}{u} = 2, v = 2x$$

$$\text{use again } \frac{1}{v} + \frac{1}{u} = \frac{1}{f}$$

$$\Rightarrow \frac{1}{2x} + \frac{1}{-x} = \frac{1}{-20}$$

$$\Rightarrow x = 10 \text{ cm}$$

$$\Rightarrow u = -10 \text{ cm}$$

**114. Ans (1)**

Focal length of spherical mirror depends only on its radius not on medium.

**115. Ans (4)**

$$\tan i_B = \mu$$

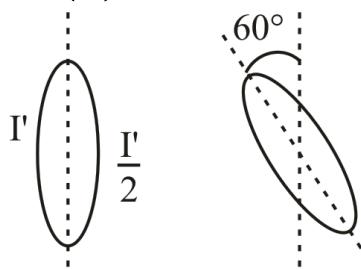
$$\mu = \tan 60$$

$$\mu = \sqrt{3}$$

$$i_c = \sin^{-1} \left( \frac{1}{\mu} \right)$$

$$i_c = \sin^{-1} \left( \frac{1}{\sqrt{3}} \right)$$

**116. Ans (3)**



$$I = \frac{I'}{2} \cos^2 60^\circ = \frac{I'}{2} \times \left( \frac{1}{2} \right)^2 = \frac{I'}{8}$$

$$\Rightarrow \frac{I'/8}{I'} \times 100 = \frac{100}{8} = 12.5\%$$

**117. Ans (1)**

$$\sin \theta = \frac{3\lambda}{2a}$$

$$\Rightarrow \theta = \frac{3\lambda}{2a}$$

$$\theta = \frac{3 \times 5890 \times 10^{-10}}{2 \times 25 \times 10^{-5}}$$

$$= 3.534 \times 10^{-3} \text{ rad.}$$

**118. Ans (1)**

$$\sin \theta = \frac{\Delta x}{a}$$

For seconds max  $\Delta x = 2\lambda$

$$\sin 30^\circ = \frac{2\lambda}{a}$$

$$\lambda = \frac{a}{4} = 6000\text{\AA}$$

**119. Ans (2)**

$$I = I_1 + I_2 + 2\sqrt{I_1}\sqrt{I_2} \cos \phi$$

$$I_1 = I_2 = I'$$

$$\text{for } \Delta = \lambda, \phi = 2\pi$$

$$I_{\max} = 4I' = I_0$$

$$I' = \frac{I_0}{4}$$

$$\text{for } \Delta = \frac{\lambda}{3}, \phi = \frac{2\pi}{3}$$

$$I = \frac{I_0}{4} + \frac{I_0}{4} + 2\sqrt{\frac{I_0}{4}}\sqrt{\frac{I_0}{4}} \cos \frac{2\pi}{3}$$

$$I = \frac{I_0}{2} + 2 \times \frac{I_0}{4} \times \left(-\frac{1}{2}\right) = \frac{I_0}{2} - \frac{I_0}{4} = \frac{I_0}{4}$$

**120. Ans (3)**

$$n\lambda_1 = (n+1)\lambda_2$$

$$7500 n = 6000 (n+1)$$

$$5n = 4n + 4$$

$$n = 4$$

**122. Ans (1)**

$$\underline{\underline{Y}} = \underline{\underline{A}} + \underline{\underline{B}} = \underline{\underline{AB}}$$

Given circuit is AND gate so output is high only when both input are high.

So, option (1) is correct

**123. Ans (2)**

$$\begin{aligned} \text{Energy of } \gamma\text{-ray photon} &= 0.5 + 0.5 + 0.78 \\ &= 1.78 \text{ MeV} \end{aligned}$$

**125. Ans (1)**

$$(i) Z = 92 - 35 = 57$$

$$\begin{aligned} A &= (235 + 1) - (85 + 3 \times 1) \\ &= 148 \end{aligned}$$

$$(ii) Z = 4 - 2 = 2$$

$$A = (6 + 2) - 4 = 4$$

**126. Ans (2)**

$$\Delta m = \text{Mass of reactant} - \text{Mass of product}$$

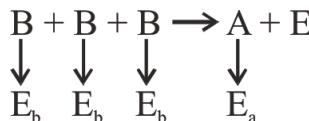
$$= 2 \times 2.014741 - [3.016977 + 1.008987]$$

$$= 0.003518 \text{ amu}$$

$$1 \text{ amu} = 931 \text{ MeV}$$

$$BE = 0.003518 \times 931 = 3.27 \text{ MeV}$$

**127. Ans (3)**



$$E = E_a - 3E_b$$

$$E_a - E = 3E_b$$

**128. Ans (3)**

$$R \propto A^{1/3} \Rightarrow \frac{R_1}{R_2} = \left( \frac{16}{128} \right)^{1/3}$$

$$\Rightarrow \frac{3 \times 10^{-15}}{R_2} = \frac{1}{2}$$

$$R_2 = 6 \times 10^{-15} \text{ m}$$

**129. Ans (3)**

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

$$\lambda = \frac{6.6 \times 10^{-34}}{1.6 \times 10^{-19} \times 0.625 \times 6.6 \times 10^{-3}}$$

$$\lambda = 0.01 \text{\AA}$$

**130. Ans (1)**

Saturation current is different so intensity is different but stopping potential is same and frequency is same so cathode material also same.

**131. Ans (2)**

$$K_{\max} = E - \phi$$

$$\frac{1}{2}mv_1^2 = hf_1 - \phi$$

$$\frac{1}{2}mv_2^2 = hf_2 - \phi$$

$$\Rightarrow h(f_1 - f_2) = \frac{1}{2}m(v_1^2 - v_2^2)$$

$$v_1^2 - v_2^2 = \frac{2h}{m}(f_1 - f_2)$$

**132. Ans (2)**

$$\text{By using } \frac{hc}{e} \left( \frac{1}{\lambda} - \frac{1}{\lambda_0} \right) = V_0$$

$$\Rightarrow \frac{hc}{e} \left( \frac{1}{\lambda} - \frac{1}{\lambda_0} \right) = 4.8 \quad \dots(i)$$

$$\text{and } \frac{hc}{e} \left( \frac{1}{2\lambda} - \frac{1}{\lambda_0} \right) = 1.6 \quad \dots(ii)$$

From equation (i) by (ii),

$$\frac{\left( \frac{1}{\lambda} - \frac{1}{\lambda_0} \right)}{\left( \frac{1}{2\lambda} - \frac{1}{\lambda_0} \right)} = \frac{4.8}{1.6} \Rightarrow \lambda_0 = 4\lambda$$

**133. Ans (4)**

$$E = \phi_0 + K_{\max}$$

$$E = \frac{12400}{\lambda(A)} \text{ eV}$$

$$E = \frac{12400}{4000} = 3.1 \text{ eV}$$

$$\phi_0 = 2.5 \text{ eV}$$

$$K_{\max} = E - \phi_0 = 0.6 \text{ eV}$$

**134. Ans (2)**

$$F_R = mg$$

$$P/C = mg$$

$$P = mgC$$

$$= 10 \times 10^{-3} \times 10 \times 3 \times 10^8$$

$$= 3 \times 10^7 \text{ W}$$

**135. Ans (1)**

$$P = \frac{E}{C} = \frac{1 \times 10^6 \times 1.6 \times 10^{-19}}{3 \times 10^8}$$

$$= 0.53 \times 10^{-21} \text{ kg ms}^{-1}$$

**SECTION-B**

**136. Ans (4)**

The P-N junction will conduct only when it is

forward biased i.e. when  $-5\text{V}$  is fed to it, so it will conduct only for 3rd quarter part of signal shown and when it conducts potential drop 5 volt will be across both the resistors, so output voltage across  $R_2$  is  $2.5\text{V}$ .

$$\therefore V_0 = -2.5\text{V}$$

**137. Ans (1)**

(1) At  $V = -8\text{V}$

$$R = \frac{-8}{-1\mu} \\ = 8M\Omega$$

(2) At  $I_d = 10 \text{ mA}$

$$R = \frac{\Delta V}{\Delta I} \\ = \frac{0.8 - 0.6}{(15 - 5) \times 10^{-3}} \\ = 20\Omega$$

**138. Ans (2)**

Here,  $f_0 = 1.2 \text{ cm}$ ,  $f_e = 6.25 \text{ cm}$

$$u_0 = -2 \text{ cm}, v_e = -25 \text{ cm}$$

$$\text{For objective } \frac{1}{v_0} - \frac{1}{u_0} = \frac{1}{f_0}$$

$$\Rightarrow \frac{1}{v_0} = \frac{1}{1.2} - \frac{1}{2}$$

$$\Rightarrow v_0 = 3 \text{ cm}$$

$$\text{For eyepiece } \frac{1}{v_e} - \frac{1}{u_e} = \frac{1}{f_e}$$

$$\Rightarrow \frac{1}{-25} - \frac{1}{u_e} = \frac{1}{6.25}$$

$$u_e = -5 \text{ cm}$$

$$\text{Distance between two lenses} = |v_0| + |u_e|$$

$$= 3 + 5 = 8 \text{ cm}$$

**139. Ans (2)**

$$\sin \theta = \sqrt{n_1^2 - n_2^2}$$

$$\sin \theta = \sqrt{\left(\frac{2}{\sqrt{3}}\right)^2 - 1}$$

$$\theta = \sin^{-1} \left( \frac{1}{\sqrt{3}} \right)$$

**140. Ans (1)**

$$A_I = m^2 A_0 = \left( \frac{f}{f-4} \right)^2 A_0$$

**141. Ans (1)**

$$\therefore \frac{x}{D} = \frac{\Delta}{2d} \text{ and } \Delta = (\mu - 1)t$$

$$x = \frac{(\mu - 1)tD}{2d}$$

$$= \frac{(5/3 - 1)t D}{2d}$$

**142. Ans (3)**

$$\begin{aligned} \frac{I_1}{I_2} &= 4 \Rightarrow \frac{I_{\max} - I_{\min}}{I_{\max} + I_{\min}} \\ &\Rightarrow \frac{(\sqrt{I_1} + \sqrt{I_2})^2 - (\sqrt{I_1} - \sqrt{I_2})^2}{(\sqrt{I_1} + \sqrt{I_2})^2 + (\sqrt{I_1} - \sqrt{I_2})^2} \\ &\Rightarrow \frac{4\sqrt{I_1}\sqrt{I_2}}{2I_1 + 2I_2} \end{aligned}$$

$$\Rightarrow \frac{2\sqrt{I_1}\sqrt{I_2}}{I_1 + I_2} = \frac{2\sqrt{\frac{I_1}{I_2}}}{\frac{I_1}{I_2} + 1} = \frac{2\sqrt{4}}{4+1} = \frac{4}{5}$$

**143. Ans (3)**

$$V = V^1 - \frac{V^1}{4}$$

$$V = \frac{3V^1}{4}$$

$$V^1 = \frac{4}{3} V$$

**144. Ans (3)**

based on nuclear phenomenon.

**145. Ans (2)**

$$R = n^2 a_0$$

$$2.12 = n_1^2 \times 0.53$$

$$n_1 = 2$$

$$4.77 = n_2^2 \times 0.53$$

$$n_2 = 3$$

$$\begin{aligned} E &= 13.6 \left( \frac{1}{4} - \frac{1}{9} \right) \\ &= \frac{13.6 \times 5}{36} = \frac{68}{36} \end{aligned}$$

**147. Ans (1)**

Alternate

$$\lambda_e = \frac{12.27}{\sqrt{V}} \text{ Å} \quad \lambda_1 = 100 \text{ pm}, \lambda_1 = 100 \times 10^{-2} \text{ Å}$$

$$\sqrt{V_1} = \frac{12.27}{100 \times 10^{-2}} = 12.27$$

$$\text{or } V_1 = 150 \text{ volt}$$

$$\sqrt{V_2} = \frac{12.27}{0.5}$$

$$\Rightarrow V_2 = 4 \times 150 \text{ volt}$$

$$\Delta E = e(V_2 - V_1) = 450 \text{ volt} = 0.45 \text{ keV}$$

148. Ans (2)

$$\text{Max. frequency } f = \frac{15\omega}{2\pi}$$

$$\text{So, } v_0 = \frac{h\nu}{e} - \frac{\phi}{e}$$

$$v_0 = \frac{h}{e} \left( \frac{15\omega}{2\pi} \right) - \frac{\phi}{e}$$

149. Ans (1)

Saturation current is proportional to intensity while stopping potential increases with increase in frequency. Hence A & B same intensity. B & C same frequency. Therefore, the correct option is (1)

150. Ans (1)

5% of 100 W

$$\text{is as visible light} = n \frac{hc}{\lambda}$$

Here n = Number of quanta

per second.

$$n \frac{hc}{\lambda} = \frac{5}{100} \times 100W$$

$$n = \frac{5\lambda}{hc}$$

$$n = \frac{5 \times 5.6 \times 10^{-7}}{6.6 \times 10^{-34} \times 3 \times 10^8}$$

$$n = 1.4 \times 10^{19}$$

## SUBJECT : CHEMISTRY

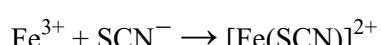
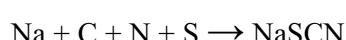
### SECTION-A

151. Ans (4)

NCERT XII Part II Biomolecules

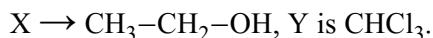
152. Ans (2)

NCERT XII Part II Purification of organic chemistry

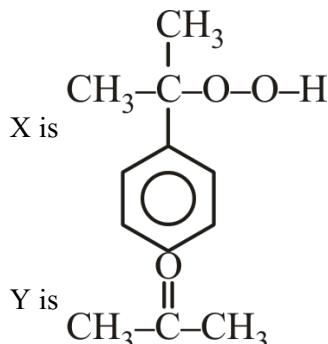


Blood red

153. Ans (4)



155. Ans (3)



156. Ans (4)

$\text{NaBH}_4$  does not reduce ester.

157. Ans (3)

Compound Y is aspirin.

158. Ans (2)

Reaction will proceed through  $\text{S}_{\text{N}}1$  Mechanism.

159. Ans (2)

Anisole gives para substituent as a major product.

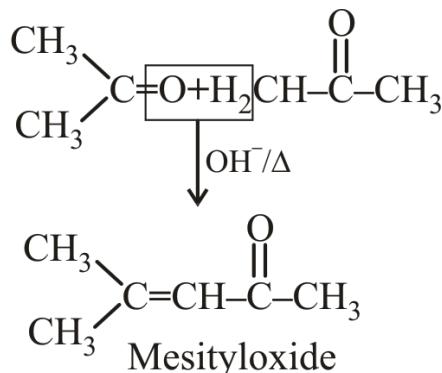
160. Ans (2)

NCERT XII Pg. # 362

161. Ans (4)

Benzaldehyde does not reduce Fehling solution.

164. Ans (2)



167. Ans (1)

It is Cannizarro reaction.

**168. Ans (1)**

NCERT XII Part-II, Edition (2023-24) Pg.169

Boiling point and molecular mass

**169. Ans (4)**

NCERT XII Part II, Edition (2023-24) Pg.# 164

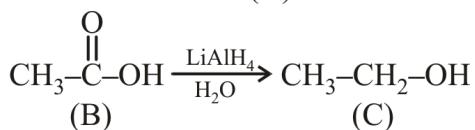
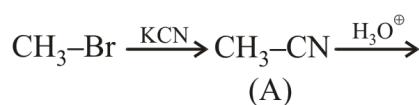
**170. Ans (3)**

Edition (2023-24)

Rate of reaction  $\propto$  Stability of carbanion.

**171. Ans (4)**

NCERT XII Part-II, Edition (2023-24) Pg. # 170



**172. Ans (2)**

NCERT XII Part-II, Edition (2023-24) Pg. # 173

$$\text{Rate of S}_{\text{N}}2 \propto \frac{1}{\text{Steric crowding}}$$

**173. Ans (1)**

NCERT XII Part-II, Pg. # 174

Rate of S<sub>N</sub>1  $\propto$  Stability of carbocation.

**174. Ans (2)**

NCERT XII Part-II, Edition (2023-24) Pg. # 182

The presence of an electron withdrawing group ( $-\text{NO}_2$ ) at ortho and para positions increases the reactivity of haloarenes.

**175. Ans (3)**

Product x is  $\text{CH}_3\text{CH}_2\text{CN}$

Product y is  $\text{CH}_2\text{CH}_2\text{NC}$

**176. Ans (1)**

NCERT XII Part-II, Edition (2023-24) Pg. # 184

**177. Ans (3)**

NCERT XII<sup>th</sup>, Pg. # 386

**178. Ans (1)**

NCERT XII<sup>th</sup>, Pg. # 389

**179. Ans (1)**

NCERT XII<sup>th</sup>, Pg. # 387

**180. Ans (1)**

NCERT XII<sup>th</sup>, Pg. # 393

**181. Ans (3)**

NCERT XII Pg. # 393

**182. Ans (4)**

NCERT XII Pg. # 393

**183. Ans (1)**

NCERT XII Pg. # 393

**184. Ans (2)**

NCERT XII Pg. # 394

**185. Ans (1)**

NCERT XII Pg. # 398

## SECTION-B

**186. Ans (1)**

NCERT XII Part-II Biomolecules

**187. Ans (4)**

NCERT XII Part II Biomolecules

**188. Ans (1)**

NCERT XII Part-II Biomolecules

**189. Ans (4)**

NCERT XII Part II Purification of organic chemistry

**190. Ans (1)**

NCERT XII Part II Purification of organic chemistry

**191. Ans (1)**

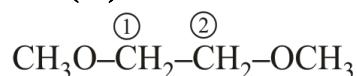
NCERT XII Part II Purification of organic chemistry

233 g  $\text{BaSO}_4$  contains = 32 g S

0.4813 g  $\text{BaSO}_4$  contains =  $\frac{32 \times 0.4813}{233}$  g S

% of S =  $\frac{32 \times 0.4813 \times 100}{233 \times 0.157} = 42.10\%$

192. Ans (4)



193. Ans (4)

NCERT XII Part-II, Edition (2023-24) Pg. # 180

Alkyl part in Grignard reagent act as an nucleophile as well as base.

194. Ans (1)

NCERT XII Part-II, Edition (2023-24) Pg.# 178

195. Ans (3)

NCERT XII Part-II, Edition (2023-24) Pg. # 181 and 189

196. Ans (3 )

NCERT XII, Pg. # 384, 385

197. Ans ( 4 )

NCERT XII<sup>th</sup>, Pg. # 384, 385, 386

198. Ans ( 4 )

NCERT XII<sup>th</sup> Pg. # 393

199. Ans ( 1 )

NCERT XII Pg. # 393

Diazotisation of aliphatic amine produced N<sub>2</sub> gas, so this reaction used in estimation of amino acid and proteins.

200. Ans ( 4 )

NCERT XII Pg. # 397, 398