

# **CLASSROOM CONTACT PROGRAMME**

(Academic Session : 2024 - 2025)

## **ENTHUSE COURSE SRG**

PHASE: MEA,B,C,D,L,M,N,O,P & MEQ TARGET: PRE-MEDICAL 2025

Test Type : SRG-MAJOR Test Pattern : NEET (UG)

**TEST DATE: 16-12-2024** 

**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. | 1   | 2   | 1   | 2   | 2   | 3   | 4   | 4   | 4   | 4   | 2   | 1   | 3   | 2   | 3   | 4   | 3   | 2   | 2   | 1   | 3   | 3   | 3   | 4   | 2   | 1   | 1   | 2   | 4   | 1   |
| 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   | 2   | 2   | 3   | 3   | 2   | 1   | 4   | 4   | 2   | 1   | 2   | 3   | 2   | 1   | 2   | 4   | 2   | 1   | 1   | 3   | 1   | 4   | 3   | 1   | 1   | 3   | 4   | 3   |
| 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   | 4   | 3   | 3   | 1   | 1   | 2   | 3   | 3   | 2   | 3   | 4   | 3   | 2   | 4   | 2   | 2   | 2   | 2   | 3   | 3   | 3   | 1   | 4   | 2   | 1   | 2   | 1   | 2   |
| 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   | 2   | 2   | 2   | 2   | 4   | 3   | 4   | 2   | 1   | 2   | 4   | 4   | 4   | 1   | 3   | 2   | 2   | 2   | 3   | 3   | 3   | 2   | 2   | 1   | 3   | 3   | 1   | 3   | 2   |
| 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 |

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# HINT - SHEET

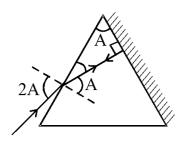
### **SUBJECT: PHYSICS**

#### **SECTION - A**

### 1. Ans (1)

Apparat depth = 
$$\frac{x}{2\mu_1} + \frac{x}{2\mu_2} = \frac{x}{2} \left( \frac{\mu_2 + \mu_1}{\mu_1 \times \mu_2} \right)$$

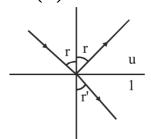
#### 2. Ans (2)



$$1 \times \sin 2A = \mu \times \sin A$$

$$\Rightarrow u = 2\cos A$$

### 3. Ans (1)



$$\sin i_c = \frac{1}{r_{\mu_d}}....(1)$$
  
or  $r + r' = 90^{\circ}$ 

or 
$$r + r' = 90^{\circ}$$
  
or  $r' = (90 - r)$ 

According to Snell's law

$$\mu \sin r = 1 \sin r' \Rightarrow \mu \sin r = \sin (90 - r)$$

$$\frac{\sin r}{\cos r} = \frac{1}{\mu} \qquad \dots (2)$$

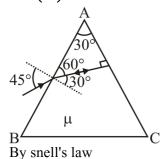
Hence, from equation (1) and (2), we get

$$\sin i_c = \tan r \Rightarrow i_C = \sin^{-1}(\tan r)$$

### 4. Ans (2)

By theory of minimum deviation for equilateral prism.

$$\delta \propto \mu$$



$$1 \times \sin 45^{\circ} = \mu \sin 30^{\circ}$$

$$\frac{1}{\sqrt{2}} = \mu \left(\frac{1}{2}\right)$$

$$\Rightarrow \mu = \sqrt{2}$$

### 7. Ans (4)

$$I_{1} = \frac{I_{0}}{2}$$

$$I_{2} = I_{1}\cos^{2}60$$

$$= \frac{I_{0}}{2} \left(\frac{1}{4}\right) = \frac{I_{0}}{8}$$

### 8. Ans (4)

$$\sin \theta_{\rm c} = \frac{\mu_{\rm R}}{\mu_{\rm D}} = \frac{\frac{4}{3}}{\frac{5}{3}} = \frac{4}{5}$$

For TIR

$$i > \theta_c$$

$$\sin i > \sin \theta_c$$

$$\sin i > \frac{4}{5}$$

$$i > \sin^{-1} \left(\frac{4}{5}\right)$$

### 9. Ans (4)

VIBGYOR λ↑

$$\lambda_R > \lambda_G > \lambda_B$$

$$\Rightarrow \beta_R > \beta_G > \beta_R$$

#### 10. Ans (4)

$$I = I_0 + I_0 + 2\sqrt{I_0} \quad \sqrt{I_0} \cos \phi$$

$$I = 2 (I_0) + 2I_0 \cos \phi$$

$$I = 2I_0 (1 + \cos \phi)$$

#### 11. Ans (2)

$$I_{mix} = \left(\sqrt{9I} + \sqrt{I}\right)^2 = 16 \text{ I}$$

$$I_{min} = \left(\sqrt{9I} - \sqrt{I}\right)^2 = 4 \text{ I}$$

#### 12. Ans (1)

$$\beta = \frac{I_1}{I_2}$$

$$\begin{aligned} & \text{fringe visible} = \frac{I_{max} - I_{min}}{I_{max} + I_{min}} = \frac{2\sqrt{I_1I_2}}{I_1 + I_2} = \\ & \frac{2\sqrt{\frac{I_1}{I_2}}}{I_1 + I_2} = \frac{2\sqrt{\beta}}{I_1 + I_2} \end{aligned}$$

### 13. Ans (3)

 $\alpha$ -decay decreases the mass number by 4 and atomic number by 2. The  $\beta$ -decay increases the atomic number by 1. In - $\gamma$ -decay , there is no change in atomic as well as mass number.

#### 14. Ans (2)

By using

$$E = \phi + K_{max} \Rightarrow K_{max} = E - \phi_0$$

Hence, 
$$K_1 = 1 - 0.5 = 0.5$$

and 
$$K_2 = 2.5 - 0.5 = 2 \Rightarrow \frac{K_1}{K_2} = \frac{1}{4}$$

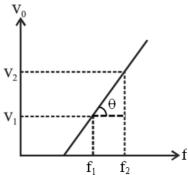
#### 15. Ans (3)

- (1) For 1 < A < 50, on fusion mass number for compound nucleus is less than 100
- ⇒ Binding energy per nucleon remains same
- ⇒ No energy is released
- (2) For 51 < A < 100, on fusion mass number for compound nucleus is between 100 & 200
- ⇒ Binding energy per nucleon increases
- ⇒ Energy is released.
- (3) For 100 < A < 200, on fission, the mass number of product nuclei will be between 50 & 100
- ⇒ Binding energy per nucleon decreases
- ⇒ No energy is released
- (4) For 200 < A < 260, on fission, the mass number of product nuclei will be between 100 & 130
- ⇒ Binding energy per nucleon increases
- $\Rightarrow$  Energy is released.

### **ALLEN®**

#### Ans (4) 16.

Slope of graph  $m = \tan \theta = \frac{h}{1}$ 



$$\frac{h}{e} = \left(\frac{v_2 - v_1}{f_2 - f_1}\right)$$

Now at frequency  $f_2$  stopping voltage is  $v_2$ using einstein Equation for photoelectric effect.

$$hf_2 = \phi + ev_2$$

$$\phi = hf_2 - ev_2$$

$$\phi = \left(\frac{\mathbf{v}_2 - \mathbf{v}_1}{\mathbf{f}_2 - \mathbf{f}_1}\right) \, \mathbf{e} \mathbf{f}_2 - \mathbf{e} \mathbf{v}_2$$

$$\phi = \frac{ev_2f_2 - ev_1f_2 - ev_2f_2 + ev_2f_1}{f_2 - f_2}$$

$$\phi = \frac{ev_2f_1 - ev_1f_2}{f_2 - f_1}$$

#### 17. Ans (3)

$$A + B \rightarrow C + \epsilon$$
 (fusion)

$$F \rightarrow D + E + \varepsilon$$
 (fission)

#### 18. Ans (2)

$$\frac{R_{\rm N}}{R_{\rm He}} = 14^{1/3}$$

$$\cdot \cdot \mathbf{P} \propto \Lambda^{1/3}$$

$$\left(\frac{A_{\rm N}}{A_{\rm He}}\right)^{1/3} = 14^{1/3}$$

$$\frac{A_{N}}{A_{He}}$$
=14

$$A_N = 14 \times 4 = 56$$

$$N+P = 56$$

atomic number = P = 56 - 30 = 26

#### 19. Ans (2)

$$Q = 4 (x_2 - x_1) [:: {}_1H^2 + {}_1H^2 \rightarrow {}_2H_e^4 + Q]$$

#### 20. Ans (1)

Since  $N_A > N_D$ 

 $\Rightarrow$  height of  $N_A >$  height of  $N_D$ 

also width  $\propto \frac{1}{\text{Doping}}$ 

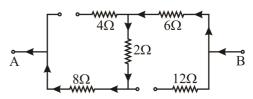
 $\Rightarrow$  Lower width on p-side

#### 21. Ans (3)

According to the given figure A is at lower potential w.r.t. B. Hence both diodes are in reverse biasing, so equivalent, circuit can be redrawn as follows.

⇒ Equivalent resistance between A and B

$$R = 8 + 2 + 6 = 16 \Omega$$



#### 22. Ans (3)

→ In +ve half cycle of input signal, diode is in

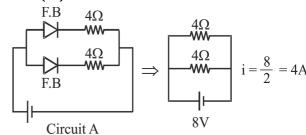
F.B. so we will get output across  $R_L$ .

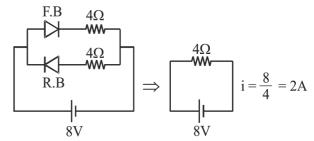
 $\rightarrow$  In –ve half cycle of input signal, D  $\rightarrow$  R.B.

$$\rightarrow$$
 O/C

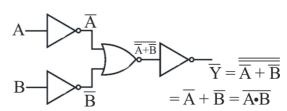
So, no output across R<sub>L</sub>.

#### 23. Ans (3)





#### 24. Ans (4)

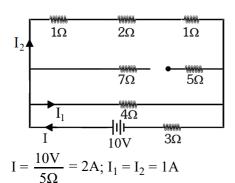


#### 25.

In F.B. barrier height decreases & In R.B. barrier height increases.

### 26. Ans (1)

 $D_1$ ,  $D_2$  are forward baised and  $D_4$  reverse baised.



#### 27. Ans (1)

$$I = \frac{12 - 0.7 - 0.3}{5.6 \times 10^3} = 1.96 \text{ mA}$$

$$n_e = N_D = 10^{21} \text{ m}^{-3}$$

$$n_h = \frac{n_i^2}{n_e} = \frac{(1.41 \times 10^{16})^2}{10^{21}} = 2 \times 10^{11} \text{m}^{-3}$$

#### 29. Ans (4)

$$I_{L} = \frac{V_{z}}{R_{L}} = \frac{10}{1500} A$$

$$I = \frac{V - V_{z}}{R} = \frac{15 - 10}{500} = \frac{5}{100} A$$

$$I_{Z} = I - I_{L} = \frac{5}{100} - \frac{10}{1500} = 3.33 \text{mA}$$

#### 30. Ans (1)

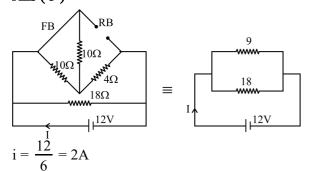
$$D_1 \longrightarrow F_B \longrightarrow S/C$$

$$D_2 \rightarrow R_B \rightarrow O/C$$

$$D_3 \rightarrow F_R \rightarrow S/C$$

 $\therefore I = \frac{E}{R} \quad [\because \text{ all current will pass through } D_3$  due to R = O in that wire].

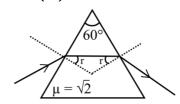
### 31. Ans (3)



### 32. Ans (4)

Dynamic resistance
$$= \frac{1.7 - 1.5}{(8 - 4) \times 10^{-3}} = 50 \Omega$$

#### 33. Ans (2)



$$A = 60^{\circ}, \mu = \sqrt{2}$$

$$\Rightarrow$$
 r =  $\frac{A}{2}$  = 30° & i = e

$$\Rightarrow 1 \times \sin i = \sqrt{2} \times \sin 30^{\circ}$$

$$\Rightarrow$$
 i = 45° = e

#### 34. Ans (2)

$$\frac{\text{Shift}}{\text{D}} = \frac{\text{Path difference}}{d}$$

$$\text{Shift} = \frac{t(\mu - 1)D}{d}$$

$$= \frac{2.5 \times 10^{-5} (1.5 - 1) \times 1.00}{0.5 \times 10^{-3}}$$

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

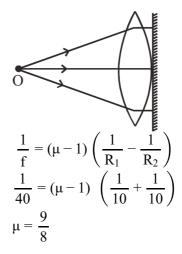
#### 35. Ans (3)

$$\lambda = \frac{h}{\sqrt{2mqv}} \Rightarrow \lambda \propto \frac{1}{\sqrt{m}}$$

### **SECTION - B**

#### 36. Ans (3)

'O' act as focal point



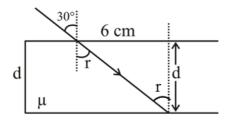


#### 37. Ans (2)

v = 20 % less in liver than in air.

$$V_{f} = 0.8 \text{ C}$$

$$\mu_{\ell} = \frac{C}{V} = \frac{C}{0.8C} = \frac{5}{4}$$



By snell's law

$$\sin 30^\circ = \frac{5}{4} \sin r \Rightarrow \sin r = \frac{2}{5}$$

$$\tan r = \frac{6}{d} \Rightarrow \frac{2}{\sqrt{21}} = \frac{6}{d}$$

$$\Rightarrow$$
 d =  $3\sqrt{21}$  cm.

#### 38. Ans (1)

For concave mirror

$$u = +120 \text{ cm}$$

$$f = -60 \text{ cm}$$

$$v = \frac{uf}{u - f} = \frac{(120)(-60)}{120 - (-60)} = -40 \text{ cm}$$

$$m_{II} = -\frac{v}{u} = -\frac{-40}{120} = +\frac{1}{3}$$

For convex mirror:

$$u = +(40 - 15) = +25$$
 cm

$$f = +30 \text{ cm}$$

$$m_2 = \frac{f}{f - u} = \frac{30}{30 - 25} = +6$$

$$m_{\text{net}} = m_1 \times m_2 = \frac{1}{3} \times 6 = +2$$

#### 39. Ans (4)

After silvering focal length

$$F = \frac{-R}{2(\mu - 1)} = \frac{-R}{2(1.5 - 1)} = -R$$

Image

$$v = \frac{fu}{u - f} = \frac{-R \times -2R}{-2R + R} = -2R$$

#### 40. Ans (4)

- ⇒ The nuclear force is charge independent.
- $\Rightarrow$  No. of nucleons = No. of protons + no. of neutrons = Mass number
- ⇒ All nuclei have masses that are less than the sum of the masses of its constituents. The difference in mass of a nucleus and its constituents is known as mass defect.
- ⇒ Nucleons belong to the family of hadrons while electrons belong to family of leptons.

#### 41. Ans (2)

As momentum 
$$P = \frac{h}{\lambda}$$

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

Recoil speed 
$$V = \frac{h}{M\lambda}$$

Where 
$$\frac{1}{\lambda} = R \left( \frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$

$$= \frac{h}{M} \times R \left( \frac{1}{1^2} - \frac{1}{3^2} \right)$$
$$= \frac{hR}{M} \left( 1 - \frac{1}{9} \right)$$

$$=\frac{hR}{M}\left(\frac{8}{9}\right)$$

#### 42. Ans (1)

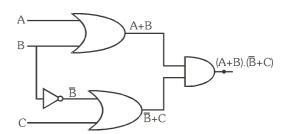
$$\lambda_e = \lambda_p = \lambda$$

$$\frac{E_e}{E_{ph}} = \frac{\frac{1}{2} m_e v_e^2}{\frac{hc}{2}} \qquad \left( \because \lambda_e = \frac{h}{m_e v_e} \right)$$

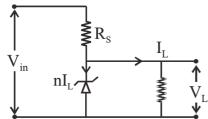
$$= \frac{\frac{1}{2} \left(\frac{h}{\lambda_{e} v_{e}}\right) v_{e}^{2}}{\frac{hc}{\lambda_{p}}}$$

$$= \frac{\frac{1.5 \times 10^{8}}{2 \times 3 \times 10^{8}}}{\frac{1.5 \times 10^{8}}{2 \times 3 \times 10^{8}}} = \frac{1}{4}$$

#### 43. Ans (2)



#### 44. Ans (3)



In case of voltage regulation

$$\begin{aligned} &V_{in} > V_{z} \\ &V_{in} = V_{Rs} + V_{L} \\ &V_{in} = (n+1)I_{L}R_{S} + V_{L} \\ &(V_{in} - V_{L}) = (n+1)I_{L}R_{S} \\ &R_{S} = \frac{(V_{in} - V_{L})}{(n+1)I_{L}} \end{aligned}$$

#### 45. Ans (2)

$$X = \overline{AB}, Y = \overline{BC}$$
 $Z = X + Y = X Y$ 
 $\Xi = \Xi$ 
 $Z = AB \cdot BC = ABC (AND gate)$ 

#### 46. Ans (1)

Max supply voltage = 10 V

$$V_2 = 10 \text{ V}, V_S = 10 - 8 = 2V$$
 $I_z = \frac{1.6W}{8V} = 0.2 \text{ A},$ 
 $I_L = \frac{8}{10} = 0.8 \text{ A}$ 
 $I_s = I_2 + I_L = 1\text{ A}$ 
 $\Rightarrow R_S = \frac{V_s}{I_s} = \frac{2}{1} = 2 \Omega$ 

#### 47. Ans (2)

$$\Delta R = \frac{\Delta V}{\Delta I} = \frac{1.2 - 1}{(15 - 10) \times 10^{-3}}$$
$$= \frac{0.2 \times 1000}{5} = \frac{200}{5} = 40\Omega$$

#### 48. Ans (4)

 $\Rightarrow \delta = i + e - A$  (for minimum derivation i = e)

 $\therefore$  minimum deviation = 2i - A

$$60^{\circ} = 2 \times 60^{\circ} - A \implies \therefore A = 60^{\circ}$$

$$\Rightarrow n = \frac{\sin\left(\frac{A + \delta_m}{2}\right)}{\sin\left(\frac{A}{2}\right)} = \frac{\sin\left(\frac{60^\circ + 60^\circ}{2}\right)}{\sin\left(\frac{60^\circ}{2}\right)} = \sqrt{3}$$

$$\Rightarrow \delta_1 = i_1 + e - A$$

$$65^{\circ} = i_1 + 70^{\circ} - 60^{\circ} \text{ or } i_1 = 55^{\circ}$$

 $\Rightarrow$  the  $\delta$  versus i curve is not parabolic

#### 49. Ans (2)

$$P = \frac{n(h\nu)}{t}$$

no. of photon per sec incident

$$= \frac{10^{-3} \times 5000 \times 1.6 \times 10^{-19}}{12400}$$
$$= 2.5 \times 10^{15}$$

$$i = \frac{ne}{t}$$

total number of electron per lec produce

$$= \frac{0.16 \times 10^{-6}}{1.6 \times 10^{-19}} = 1 \times 10^{12}$$

$$\Rightarrow \frac{1 \times 10^{12}}{2.5 \times 10^{15}} \times 100 = 0.04\%$$

#### **SUBJECT: CHEMISTRY**

#### **SECTION - A**

#### 51. Ans (1)

 $S_N1$  reaction rate  $\propto$  stability of carbocation  $\propto$ leaving ability of group

#### 52. Ans (3)

 $\beta$ -Hydrogen is absent.

#### 55. Ans (3)

NCERT Class XII part-II ed. 23-24 Pg: No. 170

#### 56. Ans (1)

Alkanol, ethyl alcohol & Aldehyde ketone having – COCH<sub>3</sub> group can give Iodo form test.

#### 57. Ans (1)

(2) 
$$CH_3$$
- $ONa$ +  $CH_3$ - $C-Br$ 
 $E2$ 
 $CH_3$ - $C=CH_2$ 
 $CH_3$ 
 $CH_3$ - $C=CH_2$ 

(3) 
$$CH_3 - \overset{\circ}{O}N\overset{\circ}{a} + \overset{\circ}{O}H$$
 No. reaction

(2) 
$$CH_3$$
— $ON^{\oplus}$  +  $CH_3$ — $C-Br$ — $E2$   $CH_3$ — $C=CH_2$ 
 $CH_3$ 

(3)  $CH_3$ — $ON^{\oplus}$  +  $CH_3$ — $C-X$ — $CH_3$ 

(4)  $CH_3$ — $C-O$  +  $CH_3$ — $C-X$ — $CH_3$ — $C-X$ — $CH_3$ — $C$ 

#### 58. Ans (3)

$$OH \longrightarrow OH \longrightarrow OH \longrightarrow O-C-CH_3$$

$$C-OH \longrightarrow OH$$

$$C-OH \longrightarrow OH$$

$$C-OH \longrightarrow OH$$

$$C-OH \longrightarrow OH$$

$$C-OH$$

#### 59. Ans (4)

#### 60. Ans (3)

$$\begin{array}{c|c}
OH & OH \\
\hline
Br_2 \text{ in } CS_2 \\
\hline
273 \text{ K}
\end{array}$$

So incorrect

#### 61. Ans (4)

$$\begin{array}{c}
OH \\
(i) CO_2, NaOH
\end{array}$$

$$\begin{array}{c}
OH \\
COOH$$

Correct product

### 62. Ans (4)

EWG increases reactivity for NAR and EDG decreases reactivity for NAR aldehydes are more reactive than ketones.

#### 63. Ans (4)





(B) By aldol reaction

#### 64. Ans (3)

$$CH_3 - C - CH_3$$
 $\parallel$ 
 $O$ 

#### 65. Ans (3)

(1) 
$$CH_3$$
 C=O + H-CN  $\longrightarrow$  CH<sub>3</sub>-CH-CN Cyanohydrin

(2) 
$$CH_3$$
  $C=0 + 2Et-OH \rightarrow CH_3$   $CH_3$   $CO-Et$ 

Ketal

(3) 
$$\stackrel{\text{CH}_3}{\text{H}}\text{C=0} + 2\text{Et-OH} \longrightarrow \stackrel{\text{CH}_3}{\text{H}}\text{C} \stackrel{\text{O-Et}}{\text{O-Et}}$$
Acetal

(4) 
$$CH_3-CH_2-CHO \xrightarrow{NaOH} OH$$

$$CH_3-CH_2-CH-CH-CHO$$

$$Aldol CH_3$$

### 66. Ans (1)

Rate of hydrolysis  $\alpha$  Amount of +ve charge at carboxyl carbon.

#### 67. Ans (1)

Reactivity of hydrolysis of ester  $\propto \frac{-M, -I}{+M, +I}$ .

### 69. Ans (3)

NCERT XII Pg. # 402,406

A.  $\bigcirc$ Br  $\bigcirc$ Br  $\bigcirc$   $\bigcirc$ Br  $\bigcirc$ 

#### 70. Ans (3)

Product is 
$$Et$$
  $N$ - $C$ - $CH_3$ 

#### 71. Ans (2)

Rate of dehydration of Alcohol depends on stability of carbocation.

#### 72. Ans (3)

$$\begin{array}{c}
C \\
(H,O,\pi)
\end{array}$$
COOH

Oxidation

### 73. Ans (4)

Fact

#### 74. Ans (3)

Maltose has  $1, 4 - \alpha$  – Glycosidic linkage

#### 75. Ans (2)

Ascorbic acid is vitamin C. Aspartic acid is an amino acid. Adipic acid and saccharic acid are dicarboxylic acids.

#### 76. Ans (4)

RNA and DNA are chiral molecules have chirality due to B - D - ribose and B-D-Z deoxyribose respectively.

### 77. Ans (2)

Isoelectric point

### 78. Ans (2)

Excess of vitamin is harmful so vitamin pills should not be taken without the advice of doctor.

#### 80. Ans (2)

(A) Sucrose 
$$\xrightarrow{\text{H}_2\text{O}/\text{H}^{\oplus}}$$
 Glucose + Fructose

(B) Maltose 
$$\xrightarrow{\text{H}_2\text{O}/\text{H}^{\oplus}}$$
 Glucose + Glucose

(C) Lactose  $\xrightarrow{\text{H}_2\text{O/H}^{\oplus}}$  Galactose + Glucose

#### 81. Ans (3)

 $\alpha$ -Glucose and  $\alpha$ -Galactose differ in configuration of one asymmetric carbon. Thus, they are epimers.

 $\alpha$  and  $\beta\mbox{-glucose}$  differ at anomeric carbon. Thus they are anomers.

 $\alpha$ -Glucose and  $\alpha$ -fructose have difference functional groups. Thus they are functional isomers.  $\alpha$ -Glucose and  $\alpha$ -Ribose are homologous.

#### 82. Ans (3)

In case nitrogen and sulphur both are present in an organic compound, sodium thiocyanate is formed, it give blood red colour and no prussian blue since there are no free cyanide Ions

$$Na + C + N + S \longrightarrow NaSCN$$
  
 $Fe^{+3} + SCN^{\Theta} \longrightarrow [Fe(SCN)]^{2+}$   
Blood red

#### 83. Ans (3)

NaCN compound will give Lassaigne's test for nitrogen.

#### 84. Ans (1)

Sodium fusion extract is acidified with acetic acid & lead acetate is added to it, a-black ppt of lead sulphide is formed, which indicate presence of sulphur.

$$Na_2S + (CH_3COO)_2Pb \longrightarrow PbS + 2CH_3COONa$$
  
Black

#### 85. Ans (4)

Propane - 1 - amine & Propane - 2- amine, both are 1° Amine. Hence Cannot be distinguished by Hinsberg reagent.

#### **SECTION - B**

#### 86. Ans (2)

$$(x) \xrightarrow{CH_3ONa} No reaction$$

Due to resonance C-Br bond acquires double bond character

(y) 
$$ONa$$
 +CH<sub>3</sub>Br  $S_N^2$  OCH<sub>3</sub>
(NCERT XII Pg.#304, 338, part II)

### 87. Ans (1)

$$\begin{array}{cccc}
CH_{3} & CH_{3} \\
CH-CH_{3} & H-O-O-C-CH_{3}
\end{array}$$

$$+ O_{2} \longrightarrow O$$

$$\begin{array}{cccc}
H_{Q/H} + \downarrow \\
OH & CH_{3} C-H_{3}
\end{array}$$

#### 88. Ans (2)

$$R-OH \xrightarrow{SOCl_2} SN^2$$
Inversion of configuration

89. Ans (1)

NCERT XII, Topic # 11.3

90. Ans (2)

$$\begin{array}{c|c}
CHO & CH_2-OH & COO-\\
\hline
OH & OH & Br
\end{array}$$

$$\begin{array}{c|c}
CH_2-OH & COO-\\
\hline
Br
\end{array}$$

Alcohol

Salt

91. Ans (2)

92. Ans (2)

Y cannot give tollen's test Y is acetone.

93. Ans (2)

- (A) Acetophenone gives +ve iodoform test with  $I_2$ /NaOH while benzophenone not give same test.
- (B) Benzoic acid react with NaHCO<sub>3</sub> while phenol not react with NaHCO<sub>3</sub>.
- (C) Ethanal gives +ve iodoform test with  $I_2/NaOH$  propanal gives negative iodoform test.
- (D) Acetone react with NaHSO<sub>3</sub> and form crystalline product but acetophenone not form crystaline product with NaHSO<sub>3</sub>.
- 94. Ans (2)

In fisher esterification reaction 'OH' of  ${\rm H_2O}$  comes from acid.

96. Ans (4)

Theoretical

97. Ans (3)

During denaturation of protein  $2^{\circ}$  and  $3^{\circ}$  structure get destroyed but  $1^{\circ}$  structure remain the same.

98. Ans (4)

It is sucrose so non-reducing

100. Ans (1)

While testing for halogens, lassaigne's extract is boiled with conc. HNO<sub>3</sub> to decompose Na<sub>2</sub>S and NaCN if formed.

#### **SUBJECT: BOTANY**

#### **SECTION - A**

101. Ans (2) NCERT XII Pg. # 198

**102. Ans (4)** NCERT-XII, Pg. # 200

**103. Ans (4)** NCERT-XII, Pg. # 191 (E), 209 (H)

**104. Ans (4)** NCERT-XII, Pg. # 200, 201

**105. Ans (1)** NCERT-XII, Pg. # 199

**106. Ans (3)** NCERT-XII, Pg. # 199

**107. Ans ( 2 )**NCERT XII Pg. # 196

108. Ans (2) NCERT, Pg # 191-192

**109. Ans (2)** NCERT, Pg # 191-192

110. Ans (3) NCERT, Pg. # 192

111. Ans (3) NCERT-XII Pg#207

112. Ans (3) NCERT-XII Pg#209,210

113. Ans ( 2 ) NCERT-XII (old), Pg. # 245

114. Ans (2) NCERT Pg. # 206,207

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115. Ans (1)

NCERT, Pg # 210

117. Ans (3)

NCERT XII Pg. # 223

118. Ans (1)

NCERT XII, pg.# 225

119. Ans (3)

NCERT XII, Pg.# 222

120. Ans (2)

NCERT XII Pg.# 218

121. Ans (3)

NCERT-XII, Pg # 221

122. Ans (1)

New NCERT, Pg # 217,218,219

123. Ans (1)

NCERT-XII, Pg. # 232

124. Ans (2)

NCERT-XII, Pg. # 198, 201

125. Ans (3)

NCERT-XII, Pg. # 243

126. Ans (4)

NCERT-XII Pg. # 243

127. Ans (2)

NCERT, Pg # 213

128. Ans (4)

NCERT-XII, Pg # 260-E, 285-H

129. Ans (1)

NCERT, Pg # 223

130. Ans (3)

NCERT Pg # 261

131. Ans (4)

NCERT Page No. 262

132. Ans (1)

NCERT, Pg # 221,225

133. Ans (3)

NCERT-XII, Pg. # 207

134. Ans (4)

NCERT-XII, Pg. # 198, 199

135. Ans (4)

NCERT- XII, Pg # 198

#### **SECTION - B**

136. Ans (3)

NCERT-XII, Pg. # 201 (E), 220 (H)

137. Ans (3)

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

138. Ans (3)

NCERT-XII, Pg. # 265

139. Ans (2)

NCERT-XII, Pg. # 213

140. Ans (4)

NCERT-XII, Pg. # 246

141. Ans (3)

NCERT-XII, Page No. # 247

142. Ans (3)

NCERT-XII, Pg. # 265

143. Ans (4)

Module Pg # 63

144. Ans (2)

NCERT XII Pg # 263

145. Ans (1)

NCERT, Pg. # 202

146. Ans (3)

NCERT, Page No. 245 (E)

147. Ans (3)

NCERT XII Pg # 224

148. Ans (1)

NCERT-XII, Pg. # 223, 224

149. Ans (4)

NCERT-XII, Pg. # 220

150. Ans (3)

NCERT Pg # 259, 260

### **SUBJECT: ZOOLOGY**

#### **SECTION - A**

- 151. Ans (3) NCERT Pg. # 136
- 152. Ans (1)
  Allen module
- **153. Ans ( 2 )** NCERT-XII, Pg. # 143
- **154. Ans ( 3 )** NCERT-XII, Page # 149 (E), 161(H)
- 155. Ans (4) NCERT (XIIth) Pg. # 152 (para-8.2.3)
- **156. Ans ( 3 )**NCERT XII Pg # 159
- **157. Ans (4)** NECER-XII, Pg # 138 (E), 151 (H)
- **158. Ans (1)** NCERT-XII, Pg.#156, Para.-1
- 159. Ans (2)
  NCERT Pg. # 157
- **160. Ans (4)** NCERT (XII<sup>th</sup>) Pg. # 147; para-8.1
- **162. Ans ( 1 )** NCERT-XII, Pg. # 142
- **165. Ans (2)** NCERT-XII Pg. # 151, 152
- **166. Ans ( 1 )** NCERT Pg.# 131/132/133
- **167. Ans ( 3 )** NCERT-XII Pg. No. 159 (E)
- **168. Ans (4)**NCERT XII Pg. # 153
- **169. Ans ( 3 )**NCERT XII<sup>th</sup> Pg.#111
- **170. Ans ( 3 )** NCERT\_XII<sup>th</sup> Pg. No. 116

- **171. Ans ( 4 )** NCERT Pg # 127(E), 137(H)
- 172. Ans (4) NCERT XII, Pg.# 131, para 7.3
- **173. Ans (3)** NCERT-12th, Pg. # 137
- **174. Ans ( 3 )** NCERT (XII<sup>th</sup>) Pg. # 140-141
- **175. Ans ( 1 )**NCERT XII<sup>th</sup> Pg.#140
- **176. Ans (3)** NCERT XII, Pg. # 115
- 177. Ans (2) NCERT (XII) Page#128/139(H) Para:7.2
- **178. Ans (4)** NCERT(XII) Pg#138/148(H) Para: 7.8
- **179. Ans (3)** NCERT, Pg # 129
- **180. Ans ( 2 )** NCERT XII<sup>th</sup> Pg.#134
- **181. Ans ( 1 )**NCERT (XII) Pg. # 137, 138
- **182. Ans (1)** NCERT (XII) Pg#132/142(H) para 7.3
- **183. Ans ( 3 )** NCERT XII, Page # 136; Fig. 7.8 (a, b & c)
- **184. Ans (4)** NCERT Pg # 157
- 185. Ans (3) NCERT-Pg. # 160,158

#### **SECTION - B**

- **186. Ans (4)** NCERT Pg. # 143
- 187. Ans (3) NCERT Pg. # 131
- **188. Ans (3)**NCERT XII Pg # 159

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189. Ans (1)

NCERT XII Pg # 151

190. Ans (4)

NCERT Pg.No. 142,143

191. Ans (2)

NCERT-XII, Page No. 151-152 (E) and 163- 164 (H), Para 8.2.2, 8.2.3, 8.2.4

192. Ans (2)

NCERT (XII) Pg. # 146

193. Ans (2)

NCERT XII, Pg. # 154

194. Ans (3)

NCERT Pg. # 138

195. Ans (4)

NCERT(XII) Pg#140/151(H) Para:7.9

196. Ans (1)

NCERT(XII) Pg#141/151(H) Para:7.9

197. Ans (1)

NCERT (XII<sup>th</sup>) Pg. # 132 (E); Pg. # 142(H)

198. Ans (3)

NCERT Pg. No. # 120

199. Ans (3)

NCERT XII<sup>th</sup>, Pg.119

200. Ans (2)

NCERT XII<sup>th</sup> Pg.#140