1. **(d)** Half life $t_{1/2} = 5$ min

Total time $t = 20$ min

Number of half lives $= \frac{20}{5} = 4$

$\Rightarrow \frac{N}{N_0} = \left[\frac{1}{2}\right]^h = \left[\frac{1}{2}\right]^4$

$\Rightarrow \frac{N}{N_0} = \frac{1}{16}$

$N = \frac{N_0}{16}$

Disintegrated y $\Rightarrow \left[\frac{N_0 - N}{N_0}\right] \times 100 = \left[1 - \frac{N}{N_0}\right] \times 100$

$\Rightarrow \left[1 - \frac{1}{16}\right] \times 100 = 93.75\%$

2. **(c)** Truth table

This belongs to AND gate

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

3. **(b)** Current gain common emitter $B = \frac{i_C}{i_B}$

$B = \frac{95\% \text{ of } i_E}{5\% \text{ of } i_E}$

$B = \frac{95}{5} = 19$

4. **(a)** For $V_A > V_B$

Both diodes are forward biased so equivalent resistance $R_1 = \frac{50 \times 50}{50 + 50} = 25\Omega$

$V_A < V_B$

Both diodes are reverse biased so equivalent resistance is infinity

5. **(b)** Modulation index $\mu = \frac{A_m}{A_c}$

$A_m = \mu \cdot A_c = \left(\frac{50}{100}\right) \times 12$

$\Rightarrow A_m = 6$ volt

6. (d) Height of T.V. tower $= h_T$

Range $\propto \sqrt{h_T}$

and area $\propto$ (Range $)^2$

so Area $\propto h_T$

7. (d)

8. (c) Total energy of electron $E = -3.4eV$

Potential energy $U = 2E$

$\Rightarrow U = -6.8eV$

9. (b) $E_1 = E_2 = \frac{\sigma}{2\epsilon_0}$

Between plates $E = E_1 - E_2$

$\Rightarrow E = 0$

Outside plates $E = E_1 + E_2$

$\Rightarrow E = \frac{\sigma}{\epsilon_0}$

10. (c) Flux $= \frac{\text{Total enclosed charge}}{\epsilon_0}$

$\phi_1 = \frac{-q}{\epsilon_0}$, $\phi_2 = \frac{q}{\epsilon_0}$

11. (d) Capacitance $C = \frac{Q}{V}$

but $V = \frac{W}{Q}$

$C = \frac{Q^2}{W}$

$C = \frac{[Q^2]}{[ML^2\,T^{-2}]} = [M^{-1}\,L^{-2}\,T^2Q^2]$

12. (b)

13. (a) Work done by external agent in rotating the dipole

$W = PE[\cos\theta_1 - \cos\theta_2]$

$\theta_1 = 0$ and $\theta_1 = 180°$

$\Rightarrow W = 2PE$

14. (c) $i_1 = 2.5$ A

so $i = i_1 + i_2$

So voltage across $10\Omega = i \times R = 25$

Voltage across $40\Omega = 10 \times 2.5 = 25$ V

$$R = \frac{25}{i_1 + i_2}$$

$$i_2 = \frac{25}{40} \text{ A}$$

$\therefore R = 8\Omega$

15. (d) Brown Red Orange

$\Rightarrow 12k\Omega \pm 10\%$

16. (d) S_1 is open and S_2 is closed

So $i = \frac{12}{10}$

$\Rightarrow i = 1.2$ A

17. (c) Magnetic field due to first wire $B_1 = \frac{\mu_0 i}{2\pi r}$

Magnetic field due to second wire $B_2 = \frac{\mu_0 i}{6\pi r}$

Net Magnetic field at P, $B = B_1 + B_2$

$$B = \frac{\mu_0 I}{2\pi r} + \frac{\mu_0 I}{6\pi r}$$

$$= \frac{2}{3}\frac{\mu_0 i}{\pi r}$$

18. (d) Magnetic field inside the wire $B_{in} \propto r$

and out- side the wire $B_{out} \propto \frac{1}{r}$

19. (a) Force on moving charge in magnetic field

$F = qvB\sin\theta$

but $\theta = 90$

$F = qvB$

Hence velocity $v = \sqrt{\frac{2E}{m}}$ {E is kinetic energy of proton}

putting the values, we get

$F = 5.6 \times 10^{-12}$ N

20. (b) Due to parallel component of velocity to the field particle moves in direction of field and due to perpendicular component of velocity particle follows circular path so combined path is helical.

21. (d) $\frac{B^2}{2\mu_0} = \text{Energy density} = \frac{\text{Energy}}{\text{Volume}}$

$\Rightarrow \frac{[ML^2\ T^{-2}]}{[L^3]} = [ML^{-1}\ T^{-2}]$

22. (d) $\mu = \mu_0[1 + \chi_m]$

23. (c) High Low

24. (b) For astronomical telescope

$|v_1| = f_0$

$|u_2| \leq f_e$

25. (d) $d = 4$ cm

$\mu = 1.5$

$\mu = \frac{c}{v} \Rightarrow v = \frac{c}{\mu} = \frac{3 \times 10^8}{1.5} = 2 \times 10^8$ m/s

Time $t = \frac{d}{v} = \frac{4 \times 10^{-2}}{2 \times 10^8} = 2 \times 10^{-10}$ second.

26. (c) Magnifying power $M = \frac{D}{f} = \frac{25}{12.5} M = 2$

27. (d) Kinetic energy $\frac{1}{2}mv^2 = eV$

$v = \sqrt{\frac{2eV}{m}}$

Wavelength $\lambda = \frac{h}{mv}$

$\lambda = \frac{h}{m\sqrt{\frac{2eV}{m}}} = \frac{h}{\sqrt{2eVm}}$

28. (b) Energy of photon $E = \phi + \frac{1}{2}mv^2$

$V_{max} = \sqrt{\frac{2(E - \phi)}{m}}$

So putting values

$\frac{v_{max1}}{v_{max2}} = \sqrt{\frac{1 - 0.5}{2.5 - 0.5}}$

$\frac{v_{max1}}{v_{max2}} = \frac{1}{2}$

29. (b) Induced emf $e = NBA\omega \sin \omega t$

for $e_{max}\sin\omega t = 1$

So $e_{max} = NBA\omega$
putting values

$e_{max} = 4.5 \times 10^3$ volt

$e_{max} = 4.5kV$

30. (b) Time constant has the dimension same as that of time.

Time constant $= \frac{L}{R}$

31. (d) Power $P = I.V.\cos\theta$

$$\therefore \cos\theta = \frac{P}{IV} = \frac{63}{3 \times 210} = 0.1$$

32. (d) Comparing the equation by $I = I_0\cos(\omega t + \phi)$

$I_0 = 50$ A so $I_{rms} = \frac{I_0}{\sqrt{2}} = 25\sqrt{2}$ A

33. (b) $V = 5\cos 1000t$ volt

$V = V_0\cos\omega t$

$V_0 = 5volt\ \omega = 1000rad/s$

$L = 3 \times 10^{-3}H, R = 4\Omega$

Maximum current $10 = \frac{V_0}{Z}$

$$10 = \frac{5}{\sqrt{\omega^2L^2 + R^2}} = \frac{5}{5} = 1\text{ A}$$

34. (c)

35. (a) $f = 9GHz = 9 \times 10^9$ Hz

$c = 3 \times 10^8$ m/s

$$\lambda = \frac{c}{f} = \frac{3 \times 10^8}{9 \times 10^9} = \frac{10^{-1}}{3}\text{ m}$$

Number of waves in a given length

$$N = \frac{\text{length}}{\lambda} = \frac{1}{\frac{10^{-1}}{3}} = 30$$

36. (b) We know

$d\sin\theta = \pm m\lambda$

but $d = \lambda$
so $\sin\theta = \pm m$

for max. $\Rightarrow \sin\theta = 1$

$m = \pm 1$

so maximum number of bright fringes $= 3$

Central maxima + either side of central maxima

37. (d) Limit of resolution $\sin\theta = \theta = \frac{1.22\lambda}{D}$ putting values we get

38. (b) Intensity increases with density of atoms.

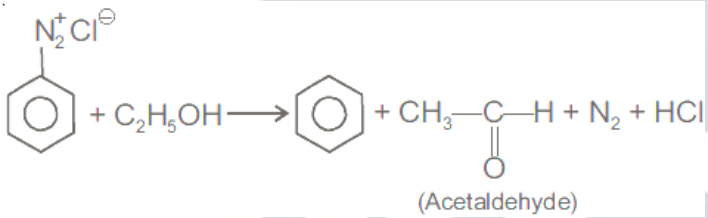
39. (b) Ionisation potential $V \propto \frac{1}{r}$

So $r_P < r_Q$ because $V_P > V_Q$

40. (a) Balancing atomic number and mass number on both sides ${}_0^1n$ (neutron)

Chemistry

41. (a)



42. (a)

43. (b)

44. (a) Bakelite is condensation as well as cross linked polymer.

45. (d)

46. (a)

47. (c) Veronal is Tranquilizer.

48. (c) $K_2[Ni(CN)_4] \Rightarrow Ni^{+2} \Rightarrow 3d^8 4s^0$

With cyanide, Ni^{+2} form square planar and diamagnetic complex.

$K_2[Ni(NH_3)_2Cl_2]$ → Diamagnetic and square planar complex.

49. (d)

50. (b) HgS is Rhombohedral

Hence, $a = b = c$.

51. (b) $\Delta T_b = iK_f m$

$0.0744 = i \times 1.86 \times 0.01$

$\Rightarrow i = 4$

So, $n = 4$

Formula is $K_3[Fe(CN)_6]$

52. (b) $\frac{1.6}{M} = \frac{2.4}{60}$

$\Rightarrow M = \frac{1.6}{2.4} \times 60 = 40\ g/mol$

53. (d) $\Delta T_b = 2.2 = i \times 2.2 \times 1$

$\Rightarrow i = 1$

54. (d) HCN is weak electrolyte.

55. (b)

$$\underset{c_1}{Cl^{\ominus}} \longrightarrow \underset{c_2}{Cl^{\ominus}}$$

$$E_{cell} = -0.059 \log \frac{c_2}{c_1}$$

$$= 0.059 \log \left(\frac{c_1}{c_2}\right)$$

$c_1 > c_2$

For spontaneous process so incorrect is B.

56. (b) During electrolysis H_2SO_4 form, so pH decrease.

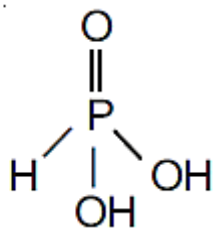
57. (c) Liquation is method of purification.

58. (d) Malachite $CuCO_3 \cdot Cu(OH)_2$

59. (b) $Zn + 4HNO_{3\,(conc.)} \longrightarrow Zn(NO_3)_2 + 2H_2O + 2NO_2$

60. (d) Phosphonic acid

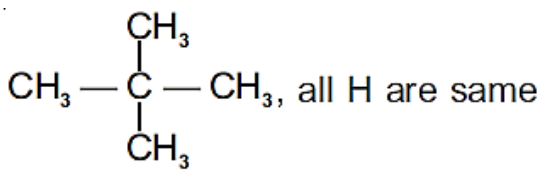
H_3PO_3



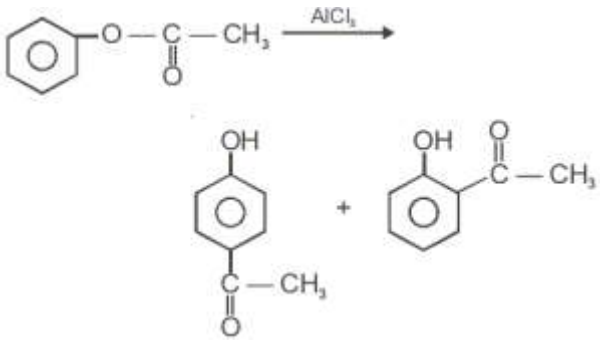
61. (d) S_N2 reaction

62. (b) Chloral $+Ca(OH)_2 \longrightarrow \underset{\text{Anaesthetic}}{CHCl_3} + (HCOO)_2Ca$

63. (c)

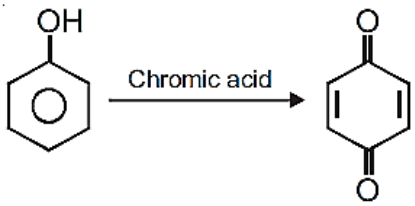


64. (b)



65. (d) $C_2H_5OH + Na \rightarrow C_2H_5O^{\ominus}Na^{(+)} + \frac{1}{2}H_2$

66. (d)



67. (b) $\Delta_R H$ = activation energy of forward reaction - activation energy of backward reaction.

$\Rightarrow -20 = 15 - ?$

So, +35 kJ.

68. (d) $A_0 \overset{15}{\rightarrow} \frac{A_0}{2} \overset{30}{\rightarrow} \frac{A_0}{4} \overset{45}{\rightarrow} \frac{A_0}{8} \overset{60}{\rightarrow} \frac{A_0}{16}$

3.125 g remain

Decayed = 46.875

69. (b) 3^{rd} order reaction

$t_{1/2} \propto (R_0)^{1-n}$

So $(R_0)^{-2}$

70. (b) $\log(x/m) = \log k + \frac{1}{n}\log p$

$\log k = 0.4771, k \simeq 3$

$\Rightarrow \frac{1}{n} = 0.5$

$\frac{x}{m} = (3)(4)^{0.5} \simeq 6$

71. (d)

72. (c) $Cr^{+3} = 3\ d^3$ 3 unpaired electron.

$Mn^{+2} = 3d^5$ 5 unpaired electron.

$Fe^{+3} = 3\ d^5$ 5 unpaired electron.

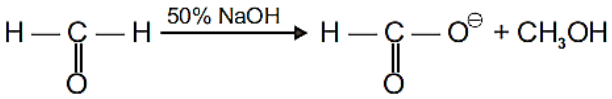
73. (b) Pm is not actinoids

74. (c) Wavelength of light absorb $\propto \frac{1}{\text{stability of complex}}$

75. (c) AgBr → Pale yellow

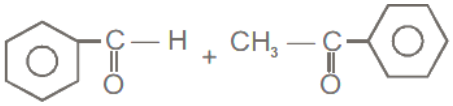
AgCl → White

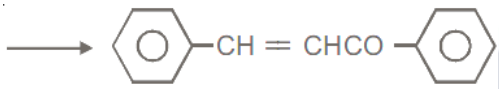
76. (d)



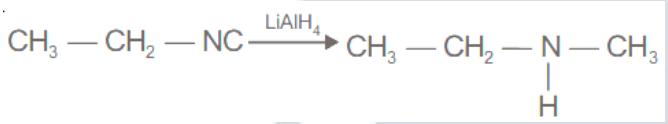
77. (b) Aromatic aldehyde not give Benedict test.

78. (d)





79. (c)



80. (b)

Mathematics

81. (b) $y\frac{dy}{dx} = k_1$

$\Rightarrow \int ydy = \int k_1 dx$

$\Rightarrow \frac{y^2}{2} = k_1 x + c$

at $x = 0, y = 0$

$\therefore y^2 = 2k_1 x$

$y^2 = kx, k \in R$

82. (c) $\frac{dx}{dy} = x + y + 2$

$\frac{dx}{dy} - x = y + 2$

$I.F = e^{\int -dy} = e^{-y}$

83. (c) $|a + b|^2 = |c|^2$

$|\vec{a}| + |\vec{b}| + 2\vec{a} \cdot \vec{b} = |c|^2$

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

$\alpha = \frac{\pi}{3}$

84. (d) $\overrightarrow{AB} = (4,1,3)$

$\overrightarrow{CD} = (1,-1,1)$

Now projection of $\overrightarrow{AB}$ on $\overrightarrow{CD}$ =

$\left(\frac{\overrightarrow{AB}\cdot\overrightarrow{CD}}{|CD|}\right)\cdot\widehat{CD}$

$= \left(\frac{4-1+3}{\sqrt{3}}\right)\cdot\frac{(1,-1,1)}{\sqrt{3}}$

$= (2,-2,2)$

85. (a) $p_1 = |z|$

$p_2 = \sqrt{x_1^2 + y_1^2}$

$p_1 + p_2 = 5 + 3 = 8$

86. (c)

$A\left(\frac{1}{a},0,0\right)\ B\left(0,\frac{1}{b},0\right)\ C\left(0,0,\frac{1}{c}\right)$

centroid $\Rightarrow \left(\frac{1}{3a},\frac{1}{3b},\frac{1}{3c}\right) = \left(\frac{1}{6},\frac{-1}{3},1\right)$

$\therefore a = 2, b = -1, c = 1/3$

$\therefore a + b + 3c = 2$

87. (a) $\frac{x-3}{4} = \frac{y-2}{-3} = \frac{z}{1}$

$\cos\alpha = \frac{4}{\sqrt{26}}\ \cos\beta = \frac{-3}{\sqrt{26}}\ \cos\gamma = \frac{1}{\sqrt{26}}$

$\therefore \cos\alpha + \cos\beta + \cos\gamma = \frac{2}{\sqrt{26}}$

88. (c) Directions ratio of normal to the plane is

$\left(\cos\frac{\pi}{4},\cos\frac{\pi}{4},\cos\frac{\pi}{2}\right)$

$\left(\frac{1}{\sqrt{2}},\frac{1}{\sqrt{2}},0\right)$

$\therefore \frac{x}{\sqrt{2}} + \frac{y}{\sqrt{2}} = \sqrt{2}$

$x + y = 2$

89. (b) $f(x) = \frac{3x+1}{5x-3}$

we know that if

$f(x) = \frac{ax + b}{cx + d}$

if $a + d = 0$

$f(x) = f^{-1}(x)$

90. (a) $g(f^{-1}(x))$

$= g\left(\frac{x-2}{3}\right)$

$= 6\left(\frac{x-2}{3}\right) + 5$

$= 2x + 1$, at $x = 10$

$= 21$

91. (a) As (1,1) is not there,

∴ it is not transitive

92. (c)

$\frac{\pi}{2} - \cot^{-1}(\cot x) + \frac{\pi}{2} - \tan^{-1}(\tan x)$

$= \pi - 2x$

93. (d) $\tan^{-1}\frac{1}{5} + \tan^{-1} 5 = \frac{\pi}{2}$

$\therefore \cos 2 \times \frac{\pi}{2} = \cos \pi = -1$

94. (b) $A + B + C = \pi$

$A + B = \frac{3\pi}{4}$

$\therefore C = \frac{\pi}{4}$

95. (b)

$10 = \frac{1}{2}\begin{vmatrix} 2 & 5 \\ 7 & k \\ 3 & 1 \\ 2 & 5 \end{vmatrix}$ k = 5 or -35

96. (b) $C_1 \to C_1 + C_2 + C_3$ and taking common

$k + p + q + r$

$$= 2k\begin{vmatrix}1 & p & q\\ 1 & k+p & q\\ 1 & p & k+q\end{vmatrix}$$

$= R_3 \to R_3 - R_1$

$= R_2 \to R_2 - R_1$

$$= 2k\begin{vmatrix}1 & p & q\\ 0 & k & 0\\ 0 & 0 & k\end{vmatrix}$$

$= 2k^3$

97. (c)

$D = 1(1+\cos^2\theta) + \cos\theta(\cos\theta + \cos\theta) - 1(\cos^2\theta - 1)$

$D = 1 + \cos^2\theta + 2\cos^2\theta - \cos^2\theta + 1$

$= 2(1+\cos^2\theta)$

$\therefore p = 4, q = 2$

$\therefore 2p + 3q = 14$

98. (a)

$\begin{bmatrix}1 & 4 & 4\\ 4 & 1 & 4\\ 4 & 4 & 1\end{bmatrix} \Rightarrow A^2 - 6A = 27I_3$

99. (c)

$$[20 \quad 20+2x \quad 21+4x]\begin{bmatrix}x\\ 2\\ 0\end{bmatrix} = 0$$

$\Rightarrow 24x + 40 = 0$

$\Rightarrow x = -\frac{5}{3}$

100. (b)

$\frac{d}{dx}\left(2\sin\left(2x + \frac{\pi}{3} + \frac{\pi}{6}\right)\right)$

$\frac{d}{dx}\left(2\sin\left(2x + \frac{\pi}{2}\right)\right)$

$\frac{d}{dx}(2\cos 2x)$

$\Rightarrow -4\sin 2x$

101. (d) $f'(c) = 2(c-5) = \frac{f(6)-f(4)}{6-4} = 0$

(using LMVT)

$\therefore\ c = 5$

$\therefore\ (5,0)$

102. **(a)** $f(1^-) = f(1^+) = f(1)$

$\lim_{x\to 1} e^{(\log_2 2x-1)\log_x 8}$

$\lim_{x\to 1} e^{(\log_2 2x-1)\frac{\log_2 8}{\log_2 x}}$

$e^3 = (k-1)^3$

$k = e + 1$

103. **(c)** $\int \frac{\sec^2 x dx}{\sqrt{2+2\tan x}}$

$\tan x = t$

$\sec^2 x dx = dt$

$\therefore \sqrt{2+2\tan x} + C$

104. **(a)** $\int \frac{\sin(5x-3x)}{\sin 5x \sin 3x} dx$

$\int \frac{\sin 5x\cos 3x - \cos 5x \sin 3x}{\sin 5x \sin 3x} dx$

$\int (\cot 3x - \cot 5x) dx$

$\therefore \frac{1}{3}\log|\sin 3x| - \frac{1}{5}\log|\sin 5x| + C$

$\Sigma P(x_i) = 1$

105. **(c)** $4C^3 + 4C - 13C^2 + 7C - 1 = 1$

$\therefore C = \frac{1}{4}$

106. **(a)** $2P(2) = 3P(3)$

$2 \times {}^6C_2 p^2 q^4 = 3 \times {}^6C_3 p^3 q^3$

On solving $p = \frac{1}{3}$

(as $p + q = 1$)

107. **(c)** $v = 5^2 = 25$

$\therefore E(x)^2 = 25 + 10^2 = 125$

$\therefore E\left(\frac{x^2 + 225 - 30x}{25}\right) = \frac{1}{25}(E(x)^2 + 225 - 30E(x))$

$= 2$

108. **(a)** $25p + 20q = 30q$

$5p = 2q$

109. **(b)** If $a_1x^2 + b_1y^2 = 1$ and $a_2x^2 + b_2y^2 = 1$ are orthogonal to each other

$\frac{1}{a_1} - \frac{1}{a_2} = \frac{1}{b_1} - \frac{1}{b_2}$

110. **(c)** $\frac{dA_2}{dA_1} = \frac{2y\frac{dy}{dt}}{2x\frac{dx}{dt}}$

$\underline{ydy}$

$x\frac{dx}{dx}$

$\therefore \frac{y}{x} \times (1 + 2x)$

$2x^2 + 3x + 1$

111. **(a)** - 9967

112. **(d)**

$\int \frac{4x^3dx}{4x^3 \times x\sqrt{x^8 - 1}}$

$\int \frac{4x^3dx}{4x^4\sqrt{x^8 - 1}}$

$(x^4 = t \quad 4x^3dx = dt)$

$\int \frac{dt}{4t\sqrt{t^2 - 1}} = \frac{1}{4}\sec^{-1}(x^4) + C$

113. **(a)**

$\int xe^{\sin x}\cos x - \int e^{\sin x}dx - \left[(\sec x \cdot e^{\sin x}) - \int e^{\sin x}dx\right]$

$e^{\sin x}(x - \sec x) + C$

114. **(a)** $\int \sin(10x + x)\sin^9 xdx$

$\int \sin 10x\cos x\sin^9 xdx + \int \cos 10x\sin^{10} xdx$

$\frac{\sin^{10} x}{10}\sin 10x - \frac{10}{10}\int \sin^{10} x\cos 10xdx + \int \cos(10x)\sin^{10} xdx$

$\frac{\sin^{10} x}{10}\sin(10x) + c$

115. **(b)**

$I = \int_{-\log 3}^{\log 3} \cot^{-1}\left(\frac{e^x-1}{e^x+1}\right) dx = \int_{-\log 3}^{\log 3} \cot^{-1}\left(\frac{1-e^x}{1+e^x}\right) dx$ adding

$2I = \pi \int_{-\log 3}^{\log 3} dx$

$I = \pi \log 3$

116. **(a)** $200\int_0^{\pi/2} \cos x dx = 200$

117. **(d)** $\int_0^{\pi/2} x dx$

$\frac{\pi^2}{8}$

118. **(a)** $2b(be + a\sin^{-1} e)$

119. **(c)** $3\int_0^1 \sin(\pi x) dx$

$\frac{6}{\pi}$

120. **(c)** order $\Rightarrow 2$

degree $\Rightarrow 3$

Biology

121. **(b)** Specific Bt toxin gene are isolated from B. thuringiensis and incorporated in plants.

122. **(a)** Turner's syndrome $= 44\ A + XO$.

Number of barr bodies

$=$ number of X chromosomes $(nx) - 1$.

$= 1 - 1$

$= 0$ (Zero)

123. **(a)**

124. **(c)** Zoospores of Chlamydomonas are biflagellated, haploid and asexual spores.

125. **(d)**

126. **(a)** Posterior pituitary secretes oxytocin and vasopressin melanocyte stimulating from intermediate pituitary somatotropic hormone from anterior lobe of pituitary.

127. **(b)** It occurs due to hypersecretion of adrenal hormone.

128. **(a)** Parasympathetic path is craniosaccral in origin.

129. **(c)** Parkinson is due to deficiency of dopamine. Sciatica is due to compression of spinal nerve root and pain radiates from back, hip to outer side of legs.

130. **(c)**

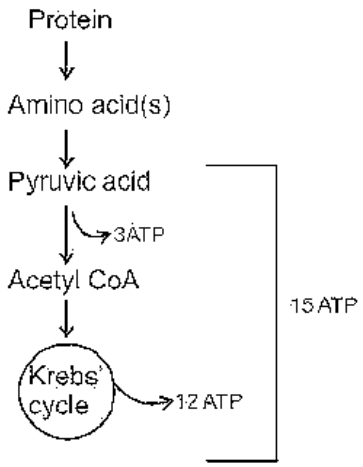
131. **(c)**

132. **(a)** Number of ATP molecules released $= 2 \times 4 = 8$

Number of ATP molecules utilized $= 18 \times 4 = 72$

133. **(b)** C_2 Cycle / Photorespiration

134. **(a)**



Oxidation of 1 amino acid leads to synthesis of 15 ATP molecules, so oxidation of dipeptide protein leads to synthesis of 30 ATP molecules.

135. **(b)** End product of glycolysis is pyruvate / pyruvic acid ($CH_3COCOOH$).

136. **(a)** Symplastic water movement.

137. **(b)** Lateral dominance

138. **(d)** Primary spermatocyte form spermatogonia by increasing theri size due to synthesizing new protoplasm

139. **(b)** Alkaptonuria is an autosomal recessive genetic disorder as well as a metabolic error.

140. **(c)** Only change in genetic composition or gene structure is heritable

141. **(c)** Human insulin consist of two polypeptide chain which are linked together by disulphide bonds. Total 51 amino acid present in two polypetide, out of which chain (polypeptide) A contains 21 amino acid and B contains 30 amino acid.

142. **(a)**

143. **(d)** During selective reabsorption, high throsold substance likes amino acid, glucose etc. are 100% reabsorbed from PCT.

144. **(b)** Frog is uricotelic so it excretes uric acid but tadpole is ammonotelic so it excretes ammonia. During metamorphosis of tadpole this type of change occurs. Also tadpole is aquatic but frog is terestrial in habit.

145. **(d)** Functional unit of myofibril or muscle constriction is called sarcomere. One sarcomere consist of on complete A-band and two half I-band.

146. **(b)** Skull consis of 8 cranial 14 facial, 1 -hyoid and 6 ear ossicle. In 8 cranial bone → Frontal - 1, Parital - 2, Temporal - 2, Occipital - 1, Sphenoid - 1 and Ethmoid - 1

147. **(c)** Reed swamp stage.

148. **(d)** Factual

NPP = GPP - Respiratory loss.

149. **(a)**

150. **(b)** ELISA is based on antigen-antibody reaction. The indirect ELISA is a test for the presence of antibody. In this known antigen is adsorbed to the inside of the well in a microtiter plate then the sample suspected of containing the antibody is added. Development of colour due to antigen antibody reaction indicates the presence of the antibody

151. **(d)** The activation of blood coagulation factor X by factor IX and non enzymatic cofactor. Phospholipid and Ca^{2+}

152. **(a)**

153. **(b)** Chemoreceptors present in carotid body, venacava and aortic sinus and responsible for receiving change in chemical composition of blood.

154. **(b)** Vocal cord generate sound during expiration

155. **(c)** Parotid gland is a largest salivary gland in human.

156. **(c)** Secretin stimulate pancrease for secretion of more pancreatic juice.

Cholecystokinine - Acts on gall bladder and increase contraction in it.

Gastrin - Secreted from stomach and increase secretion of gastric juice.

Enterogastrone - Inhibit gastric juice secretion.

157. **(a)** Marfan's syndrome is a genetic disorder of the connective tissue

158. **(c)**

159. **(a)**

160. **(b)**