(4) $\frac{12}{3}\pi r^3$

162. Synthetic fibres like nylon-6,6 is very strong because:

(1) They have high molecular weights and high melting points

(2) They have linear molecules consisting of very long chains

(3) They have a high degree of cross-linking by strong C-C bond

(4) They have linear molecules inter-linked with forces like hydrogen bonding

163. Compound $PdCl_4.6H_2O$ is a hydrated complex. One molal aqueous solution of it has freezing point 269.28 K. Assuming 100% ionisation of the complex, which of the following is the formula of the complex

$\left(K_f \text{ for water} = 1.86 \text{ K Kg mol}^{-1}\right)$?

(1) $\left[Pd\left(H_2O\right)_6\right]Cl_4$

(2) $\left[Pd\left(H_2O\right)_4 Cl_2\right]Cl_2.2H_2O$

(3) $\left[Pd\left(H_2O\right)_3 Cl_3\right]Cl.3H_2O$

(4) $\left[Pd\left(H_2O\right)_2 Cl_4\right].4H_2O$

164. What will be the emf of the given cell?

$Pt/H_2(10atm)/H^+(1M)IIH^+(1M)/H_2$ (1atm) / Pt

(1) +0.09V (2) +0.03V

(3) -0.12V (4) +0.12V

165. One Faraday of electricity is passed separately, through one litre of one molar aqueous solution of $AgNO_3$, $SnCl_4$ and $CuSO_4$. The number of moles of Ag, Sn and Cu deposited at cathode are respectively

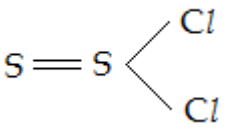
(1) $\frac{1}{4},\frac{1}{2},1$

(2) $\frac{1}{2},1,\frac{1}{4}$

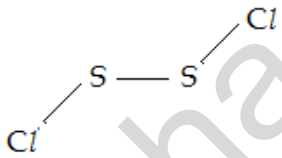
(3) $1,\frac{1}{2},\frac{1}{4}$

(4) $1,\frac{1}{4},\frac{1}{2}$

166. Which of the following is correct structure of S_2Cl_2?

(1) 

(2) $Cl-S-S-Cl$

(3) 

(4) $Cl=S=S=Cl$

167. Consider the following statements:

(i) $La(OH)_3$ is the least basic among hydroxides of lanthanides

(ii) Eu^{+2} acts as a reducing agent

(iii) Ce^{4+} acts as an oxidising agent.

Which of the above is/are true?

(1) i and iii

(2) ii and iii

(3) ii only

(4) i and ii

168. The temperature co efficient for reaction in which food deteriorates is '2'. Then food deteriorates --- times as rapidly at 25^0C as it does at 5^0C.

(1) 8 (2) 2

(3) 1 (4) 4

169. The copper matte obtained in the metallurgy of copper has the approximate composition

(1) FeS + CuO

(2) Cu + FeO

(3) Cu_2S+FeS

(4) CuS+FeS_2

170. The following are some statements about micelle

I) These are formed as aggregated particles when soap is a applied at lower conc.

II) The tail part of it dissolves the grease deposit or dirt

III) Hydrocarbon chain of soap micelle is hydrophilic end and its anion part is hydrophobic end

The correct statement(s) is/are

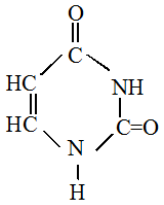
(1) All are correct

(2) Only I and II

(3) Only II and III

(4) Only II

171. Which of the following is incorrect?

(1) Structure of uracil is 

(2) During denaturation, primary structure of proteins is destroyed

(3) DNA has a double helical structure

(4) Nucleoside is the combination of sugar and base

172. Which of the following is not a function of DNA finger printing?

(1) In forensic laboratories for identification of criminals

(2) To determine paternity of an individual

(3) To identify the dead bodies in any accident by comparing the DNA's of parents

(4) In checking Biological activity in the human body

173.

List – I (use of polymer)	**List – II (Polymer)**
A) Making paints	**1) Bakelite**
B) Making tyre cords	**2) Teflon**
C) Making oil seals	**3) Nylon – 6**
D) Making combs	**4) Glyptal**

The correct match is

(1) A - 4, B - 2, C - 1, D – 3

(2) A - 4, B -3, C - 2, D – 1

(3) A - 3, B - 4, C - 2, D – 1

(4) A - 3, B - 2, C - 1, D - 4

174. Which among the following inhibits the synthesis of chemicals known as prostaglandins which stimulates inflammation in the tissue and cause pain is:

(1) zantac

(2) Chlorodiazepoxide

(3) Alitame (4) aspirin

175. Incorrect statement is

(1) Natural gas is an important source of helium

(2) Most abundant inert gas in atmosphere is Radon

(3) First noble gas compound prepared is $XePtF_6$

(4) Electron gain enthalpy (ΔH_{EG}) values of noble gases are positive

176. Which among the following is incorrect statement ?

(1) NH_3 is an electron rich hydride

(2) CaH_2 is known as Hydrolith

(3) Reaction involved in water gas shift reaction:
$CO(g) + H_2O(g) \rightarrow CO_2(g) + H_2(g)$

(4) Melting point of Heavy water (D_2O) is less than that of normal Water.

177. Largest ion among the following is

(1) $\left[Li(H_2O)_x\right]^+$

(2) $\left[Cs(H_2O)_x\right]^+$

(3) $\left[Rb\left(H_2O\right)_x\right]^+$

(4) $\left[K\left(H_2O\right)_x\right]^+$

178. The product obtained as a result of a reaction of nitrogen gas with hot CaC_2 is:

(1) Super phosphate of lime

(2) Nitrolim

(3) Plaster of paris

(4) Milk of lime

179. When acetic acid is heated with P_2O_5 then which compound will be formed?

(1) $\left(CH_3CO\right)_2O$ (2) CH_3COCH_3

(3) CH_3CHO (4) CH_4

180. Which of the following elements has least number of electrons in its 'M' shell?

(1) K

(2) Mn

(3) Ni

(4) Sc

MODEL NEET GRAND TEST KEY

BIOLOGY

1) **4**	2) **3**	3) **3**	4) **4**	5) **1**	6) **4**	7) **2**	8) **3**	9) **1**	10) **3**
11) **2**	12) **1**	13) **4**	14) **3**	15) **2**	16) **4**	17) **4**	18) **2**	19) **2**	20) **3**
21) **3**	22) **4**	23) **1**	24) **1**	25) **2**	26) **1**	27) **3**	28) **2**	29) **3**	30) **3**
31) **1**	32) **4**	33) **4**	34) **1**	35) **3**	36) **2**	37) **1**	38) **3**	39) **2**	40) **1**
41) **3**	42) **3**	43) **3**	44) **4**	45) **2**	46) **3**	47) **4**	48) **2**	49) **3**	50) **4**
51) **2**	52) **1**	53) **2**	54) **4**	55) **1**	56) **4**	57) **1**	58) **4**	59) **4**	60) **2**
61) **3**	62) **1**	63) **2**	64) **4**	65) **1**	66) **1**	67) **4**	68) **3**	69) **2**	70) **3**
71) **2**	72) **4**	73) **4**	74) **1**	75) **1**	76) **3**	77) **3**	78) **4**	79) **3**	80) **1**
81) **2**	82) **2**	83) **2**	84) **4**	85) **4**	86) **1**	87) **4**	88) **1**	89) **3**	90) **3**

PHYSICS

91) **2**	92) **3**	93) **1**	94) **4**	95) **3**	96) **3**	97) **3**	98) **4**	99) **1**	100) **1**
101) **2**	102) **2**	103) **4**	104) **2**	105) **4**	106) **1**	107) **2**	108) **4**	109) **3**	110) **2**
111) **3**	112) **1**	113) **3**	114) **1**	115) **2**	116) **2**	117) **2**	118) **3**	119) **1**	120) **3**
121) **4**	122) **4**	123) **2**	124) **2**	125) **3**	126) **3**	127) **3**	128) **1**	129) **1**	130) **1**
131) **3**	132) **2**	133) **4**	134) **4**	135) **3**					

CHEMISTRY

136) **2**	137) **2**	138) **4**	139) **3**	140) **3**	141) **2**	142) **1**	143) **3**	144) **2**	145) **3**
146) **2**	147) **3**	148) **4**	149) **3**	150) **3**	151) **2**	152) **4**	153) **1**	154) **2**	155) **3**
156) **3**	157) **3**	158) **1**	159) **2**	160) **3**	161) **3**	162) **4**	163) **3**	164) **2**	165) **4**
166) **3**	167) **2**	168) **4**	169) **3**	170) **4**	171) **2**	172) **4**	173) **2**	174) **4**	175) **2**
176) **4**	177) **1**	178) **2**	179) **1**	180) **1**					

MODEL NEET GRAND TEST SOLUTIONS

PHYSICS – SOLUTIONS

91. $B = \frac{E}{C} = 2.1 \times 10^{-6} T$

Here $\overline{E} \times \overline{B}$ should be along X direction.

So, $\overline{B}$ must be along Z direction.

92. $Z = \sqrt{R^2 + x^2} = \sqrt{9 + x^2}$ and

$\cos\phi = \frac{R}{Z} = \frac{3}{5}$ and $X = 4\Omega$

93. $TV = K \Rightarrow PV^2 =$ constant

$C = C_V + \frac{R}{1-x} \Rightarrow \Delta Q = \Delta U + \Delta W$

94. In the steady state as capacitor blocks DC, there will be no current in the remaining circuit between A and B

95. Zero after decimal point is also significant.

96. From Einstein's equation.

$E = \phi + K_{max}$

where $E = \frac{12400}{0.2 \times 10^4} = 6.2eV$

$K_{max} = 1.6V$

$\Rightarrow$ Maximum potential = 1.6V

97. If L_1 and L_2 are length of P_1 and P_2,

$\frac{V}{4L_1} = \frac{3V}{2L_2} \Rightarrow \frac{L_1}{L_2} = \frac{1}{6}$

98. $\frac{N}{N_0 - N} = \frac{1}{7} \Rightarrow \frac{N_0}{N} = 8$

$N = N_0\left(\frac{1}{2}\right)^x$ where $x = \frac{t}{T_{1/2}}$

$\frac{1}{8} = \left(\frac{1}{2}\right)^{\frac{t}{2}}$

$\Rightarrow t$ is 6

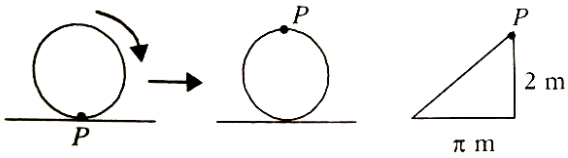
99. $n_1 = 5$ and $n_2 = 1$

So, $\frac{(2n_2 - 1)\lambda\Delta}{2d} - \frac{n_1\lambda D}{d} = 7mm$

$\Rightarrow \lambda$ = 600 nm.

100. It is NOT operation.

101.



In half rotation point P has moved horizontally.

$\frac{\pi d}{2} = \pi r = \pi \times 1m = \pi m$. $[\because radius = 1m]$

In the same time, it has moved vertically a distance which is equal to its diameter = 2m.

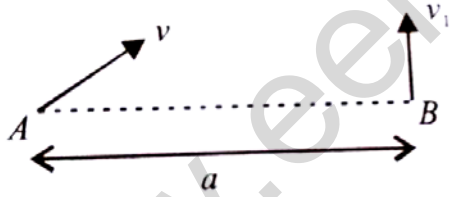
Therefore, Displacement of P = $\sqrt{\pi^2 + 2^2}$

$= \sqrt{\pi^2 + 4}m$

102. $P_0 + \frac{1}{2}(2d)V^2 = P_0 + 2dgh + 2dgh$

$\Rightarrow V = 2\sqrt{2gh}$

103.



$t = \frac{a}{v_r} = \frac{a}{\sqrt{v_2^2 - v_1^2}}$

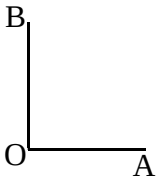
104. Thrust = $M(g+a) = u\frac{dm}{dt}$

$\frac{dm}{dt} = \frac{M(g+a)}{u}$

$= \frac{5000(10+20)}{800} = 187.5kg/s$

105. Total mss = M, total length = L

Moment of inertia of OA about O=Moment of inertia of OB about O.



$\Rightarrow M.I.total = 2 \times \left(\frac{M}{2}\right)\left(\frac{L}{2}\right)^2 . \frac{1}{3} = \frac{ML^2}{12}$

106. The minimum speed with which the particle should be projected from the surface of the earth so that it does not return back is known as escape speed and it is given by

$\upsilon_e = \sqrt{\frac{2GM}{(R+h)}}$

Here, h = 3R

$\therefore \upsilon_e = \sqrt{\frac{2GM}{(R+3R)}} = \sqrt{\frac{2GM}{4R}} = \sqrt{\frac{GM}{2R}}$

107. Capillary rise, $h = \frac{2T\cos\theta}{r\rho g}$

For given value of T and r, $h \propto \frac{\cos\theta}{\rho}$

Also, $h_1 = h_2 = h_3$ or

$\frac{\cos\theta_1}{\rho_1} = \frac{\cos\theta_2}{\rho_2} = \frac{\cos\theta_3}{\rho_3}$

Since, $\rho_1 > \rho_2 > \rho_3$,

so $\cos\theta_1 > \cos\theta_2 > \cos\theta_3$

For $0 \le \theta < \frac{\pi}{2}, \theta_1 < \theta_2 < \theta_3$

Hence, $0 \le \theta_1 < \theta_2 < \theta_3 < \frac{\pi}{2}$

108. Here, Specific heat of water, $s_w = 1 cal\,g^{-1o}C^{-1}$

Latent heat of steam, $L_s = 540\ cal\,g^{-1}$

Heat lost by m g of steam at 100ºC to change into water at 80ºC is

$Q_1 = mL_s + ms_w\Delta T_w$

$= m \times 540 + m \times 1 \times (100 - 80)$

=540m + 20 m = 560 m

Heat gained by 20 g of water to change its temperature from 10ºC to 80ºC is

$Q_2 = m_s s_w \Delta T_w = 20 \times 1 \times (80 - 10) = 1400$

According to principle of calorimetry, $Q_1 = Q_2$

Therefore, 560 m = 1400 or m = 2.5 g

Total mass of water present

= (20+m) g = (20 + 2.5) g = 22.5g

109. The coefficient of performance of a refrigerator is

$$\beta = \frac{T_2}{T_1 - T_2}$$

where T_1 and T_2 are the temperatures of hot and cold reservoirs (in Kelvin) respectively.

Here, β = 5,

T_2 = -20ºC=-20+273K=253K

T_1 = ?

$$\therefore 5 = \frac{253K}{T_1 - 253K}$$

$$5T_1 - 5(253K) = 253K$$

$$5T_1 = 253K + 5(253K) = 6(253K)$$

$$T_1 = \frac{6}{5}(253K) = 303.6K = 303.6 - 273$$

$$= 30.6^oC \approx 31^oC$$

110. Vapour pressure does not depend on the amount of substance. It depends on the temperature alone.

111. $x = a\sin\omega t$ and

$y = b\sin(\omega t + \pi) = -b\sin\omega t$.

or $\frac{x}{a} = -\frac{y}{b} or y = -\frac{b}{a}x$

112. Here $\upsilon' = \frac{9}{8}\upsilon$ source and observer are moving in opposite direction, apparent frequency

$$\upsilon' = \upsilon \times \frac{(v+u)}{(v-u)}$$

$$\upsilon' = \upsilon \times \frac{(v+u)}{(v-u)}$$

$$\Rightarrow 9 \times 340 - 9u = 8 \times 340 + 8u$$

$$\Rightarrow 17u = 340 \times 1 \Rightarrow u = \frac{340}{17} = 20 m/s$$

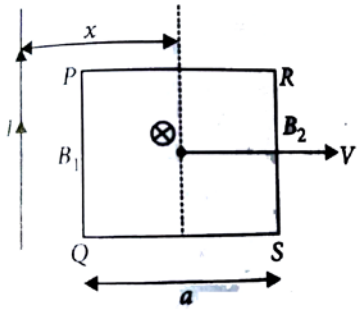
113. Net force on each of the charge due to the other charges is zero. However, disturbance in any direction other than along the line on which the charges lie, will not make the charges return.

114. For the negative resistance, when we increase the voltage, the current will decrease. Therefore from the graph, we

find that the current in CD is decreased when voltage is increased.

115. In both cases tension in string is T = W.

116. Here, PQ = RS = PR=QS=a



Emf induced in the frame

$$\varepsilon = B_1(PQ)V - B_2(RS)V$$

$$= \frac{\mu_0 I}{2\pi(x-a/2)}aV - \frac{\mu_0 I}{2\pi(x+a/2)}aV$$

$$= \frac{\mu_0 I}{2\pi}\left[\frac{2}{(2x-a)} - \frac{2}{(2x+a)}\right]aV$$

$$= \frac{\mu_0 I}{2\pi}\times 2\left[\frac{2}{(2x-a)(2x+a)}\right]aV$$

$$\therefore \varepsilon \propto \frac{1}{(2x-a)(2x+a)}$$

117. The shunt and galvanometer are in parallel. Therefore, $\frac{1}{R_{eq}} = \frac{1}{9} + \frac{1}{2}$, or

$R_{eq} = \frac{18}{11}\Omega$.

Using Ohm's law, $V = IR_{eq}$

$= 1\times\frac{18}{11} = \frac{18}{11}V$.

$\therefore$ Current through shunt $= \frac{V}{R_s}$

$= \frac{18/11}{2} = \frac{9}{11} \square\ 0.8amp$

118. $\vec{B} = \frac{1}{\pi}\left(\frac{Wb}{m^2}\right)$

Area of the disc normal to B is $\pi R^2 \cos 60^o$.

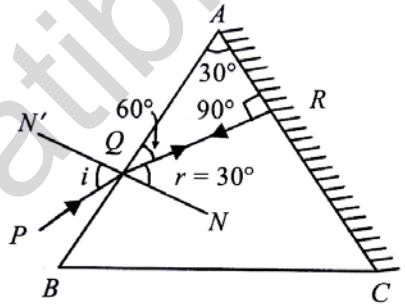
Flux = B×Area normal

$\therefore$ Flux $= \frac{1}{2}\times 0.04 = 0.02\ Wb$

119. $\frac{1}{f} = -\left(\frac{\mu_g}{\mu_l} - 1\right)\frac{2}{R} = -\left(\frac{1.5}{1.75} - 1\right)\frac{2}{R} = +\frac{2}{7R}$

So it behave as convergent lens of focal length 3.5 R

120.



The ray will retrace the path when the refrated ray QR is incident normally on the polished surface AC. Thus angle of refraction r = 30°

$$\mu = \frac{\sin i}{\sin r}$$

$$\therefore \sin i = \mu\times\sin r = \sqrt{2}\times\sin 30^o$$

$$\sin i = \sqrt{2}\times\frac{1}{2} = \frac{1}{\sqrt{2}} or i = \sin^{-1}\frac{1}{\sqrt{2}} = 45^o$$

121. Here, $\lambda = 600nm = 600\times10^{-9}m$

$a = 1mm = 10^{-3}m, D = 2m$

Distance between the first dark fringes on either side of the central bright fringe is also the width of central maximum.

Which of central maximum $= \frac{2\lambda D}{a}$

$= \frac{2 \times 600 \times 10^{-9} m \times 2m}{10^{-3} m}$

$= 24 \times 10^{-4} m = 2.4 \times 10^{-3} m = 2.4 mm$

122. $Be\upsilon = eE$ or $\upsilon = \frac{E}{B}$ ____ (i)

If V is the potential difference between the anode and the cathode, then

$\therefore \frac{1}{2} m\upsilon^2 = eV$

$\frac{e}{m} = \frac{\upsilon^2}{2V}$

Substituting the value of υ from equation (i) in equation (ii), we get

$\frac{e}{m} = \frac{E^2}{2VB^2}$

Specific charge of the cathode rays

$\frac{e}{m} = \frac{E^2}{2VB^2}$

123. $(13.6 - 12.1) ev = 1.5 ev$
$\Rightarrow electron\ is\ in\ 3rd\ energylevel$
$\Rightarrow No.of\ possible\ spectral$
$lines N = \frac{n(n-1)}{2} = \frac{3(3-1)}{2} = 3$

124. In the given graph,

Region (I) –Cutoff region

Region (II) – Active region

Region (III) – Saturation region

Using transistor as a switch it is used in cutoff region or saturation region.

125. Resistivity of a semiconductor decreases with increase in the temperature.

126. Voltage drop across diode (V_D)=0.5V; Maximum power rating of diode (P) = 100 m W

And source voltage $(V_s) = 1.5V$.

The resistance of diode (R_D)

$= \frac{V_D^2}{P} = \frac{(0.5)^2}{100 \times 10^{-3}} = 2.5\Omega .$

And current in diode

$(I_D) = \frac{V_D}{R_D} = \frac{0.5}{2.5} = 0.2\Omega .$

Therefore total resistance in circuit (R)

$= \frac{V_s}{I_D} = \frac{1.5}{0.2} = 7.5\Omega .$

And the value of the series resistor

= Total resistance of the circuit – Resistance of diode

$= 7.5 - 2.5 = 5\Omega .$

127. Given : At time t = 0, velocity, v =0.

Acceleration $f = f_0\left(1 - \frac{t}{T}\right)$

At $f = 0, 0 = f_0\left(1 - \frac{t}{T}\right)$

Since f_0 is a constant

$\therefore 1 - \frac{t}{T} = 0$ or $t = T$.

Also, acceleration $f = \frac{dv}{dt}$

$$\therefore \int_0^{v_x} dv = \int_{t=0}^{t=T} f dt = \int_0^T f_0\left(1-\frac{t}{T}\right)dt$$

$$\therefore v_x = \left[f_0 t - \frac{f_0 t^2}{2T} \right] = f_0 T - \frac{f_0 T^2}{2T} = \frac{1}{2} f_0 T .$$

128. Given ;

$$r = \frac{20}{\pi} m, v = 80 m/s, \theta = 2 rev = 4\pi rad .$$

Form equation $\omega^2 = \omega_0^2 + 2\alpha\theta\left(\omega_0 = 0\right)$

$$\omega^2 = 2\alpha\theta\left(\omega = \frac{v}{r} \text{ and } a = r\alpha\right)$$

$$a = \frac{v^2}{2r\theta} = 40 m/s^2 .$$

129. Apply conservation of linear momentum.

130. $U(x) = \frac{a}{x^{12}} - \frac{b}{x^6} or - \frac{12a}{x^{13}} - \frac{-6b}{x^7} = 0$

or $x^6 = \frac{2a}{b}$. Therefore $x = \left(\frac{2a}{b}\right)^{1/6}$.

131. $\frac{mg}{2} - T = \frac{m}{2}a; T\cos 60^\circ = \frac{ma}{\cos 60^\circ}$

on solving $a = \frac{2g}{9}$ (for the ring)

132. Heat conducted

$$= \frac{KA\left(T_1 - T_2\right)t}{l} = \frac{K\pi r^2\left(T_1 - T_2\right)t}{l}$$

The rod with the maximum ratio of All will conduct most. Here the rod with r = $2r_0$ and l = l_0 will conduct most.

133. $L_1 : L_2 : L_3 = 15 : 5 : 3$

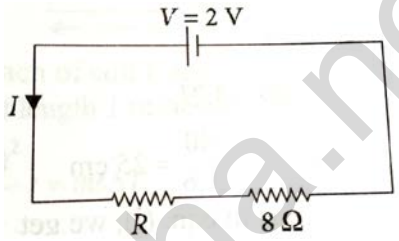
and $L_1 + L_2 + L_3 = 100 cm$

134. $\overline{E}.\overline{S} = zero$

135. Required potential gradient = 1 mV cm^{-1}

$$= \frac{1}{10} V m^{-1}$$

Length of potentiometer wire, l= 4m



So potential difference across potentiometer wire

$= \frac{1}{10} \times 4 = 0.4V$ ____ (i)

In the circuit, potential difference across 8Ω

$= I \times 8 = \frac{2}{8+R} \times 8$ _____(ii)

Using equation (i) and (ii), we get,

$0.4 = \frac{2}{8+R} \times 8$

$\frac{4}{8} = \frac{16}{8+R} = 8 + R = 40$

$\therefore R = 32\Omega$

CHEMISTRY SOLUTIONS

136.

Ion	ClO^-	ClO_2^-	ClO_3^-	ClO_4^-

Bond order	1	3/2	5/3	7/4

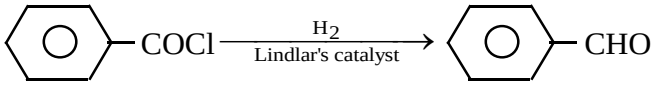
As bond order increases then Bond energy increases

Since bond order is proportional to bond energy.

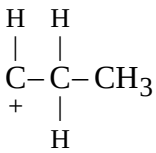
137. Below 50 parts per billion – Lead

Below 5 parts per million – Fluoxide

138. Blood red colour is formed, if the organic compound contains C, H, N, S, and O

139. 

It is Rosenmund's reaction

140.  is Benzyllic carbocation which is more stable

141. Number of of radial nodes = (n - l - 1)
For 3s orbital n = 3 and l = 0
For 2p orbital n = 2 and l = 1

142. Silicon dioxide has no reactivity towards nitric acid.

143. $BeCl_2$ is sp hybridization, 50% p-character and

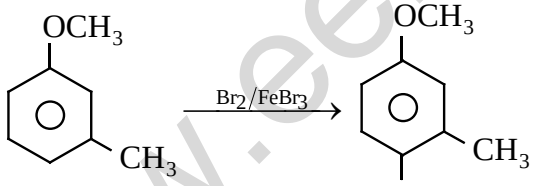
CCl_4 is sp^3 hybridisation, 75% p-character

144. Bond order in Li_2, Li_2^+ and Li_2^- are 1, 0.5 and 0.5 respectively

But Li_2^+, Li_2^- are same B.O.

Since Li_2^- the electron is present in antibonding orbital. Hence it becomes destabilized

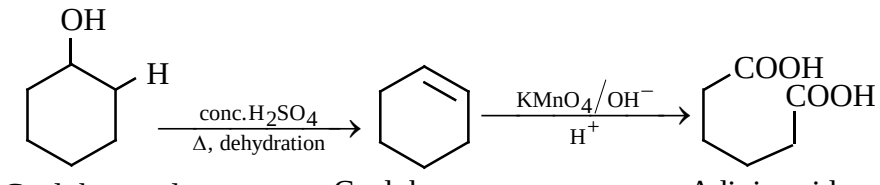
145. Surface tension is inversely proportional to temperature

146. 

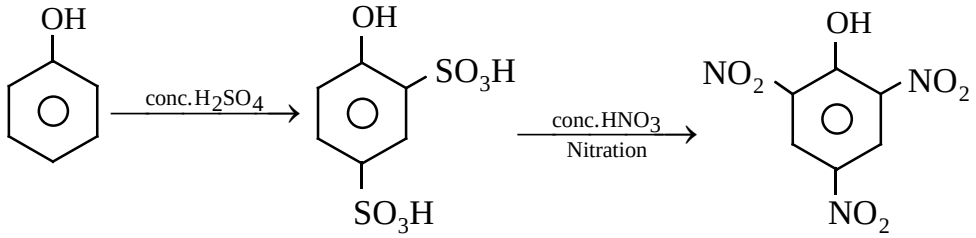
(major product)

147. Preparation of ether $2C_2H_5 - I + Ag_2O \longrightarrow C_2H_5 - O - C_2H_5 + 2AgI$

148. $RCH_2OH \xrightarrow{\text{Jones reagent}} R - COOH$; $RCH_2OH \xrightarrow[\text{Controlled oxidation}]{\text{PCC, } CrO_3} RCHO$

149. 

Cyclohexanol Cyclohexene Adipic acid

150. 

151. $2NH_{3(g)} \longrightarrow N_{2(g)} + 3H_{2(g)}$, $\Delta n = n_P - n_R = 4 - 2$

2 moles 4 moles

$\Delta n = 2$, i.e., $\Delta n > 0$, $\Delta H > \Delta E$

ΔH, ΔE depends on gaseous moles

152. For $N_{2(g)} + O_{2(g)} \rightleftharpoons 2NO_{(g)}, \Delta n = 2 - 2 = 0$

$\therefore K_P = K_C = 0.1$

153. $\underset{0}{\underline{Mg}} + H\underset{+5}{\underline{N}}O_3 \longrightarrow \underline{Mg}^{+2}(NO_3)_2 + \underset{-3}{\underline{N}}H_4\underset{+5}{\underline{N}}O_3 + 3H_2O$

$2e^- \times 4$, $8e^- \times 1$

i.e. 4 moles of $Mg \longrightarrow$ 1 mole of HNO_3

= (4 x 24 = 96 g)

154. $HgCl_2 \rightleftharpoons \underset{S}{Hg^{+2}} + \underset{2S}{2Cl^-}$

$K_{SP} = 4S^3$

$4 \times 10^{-15} = 4S^3$

$S = 10^{-5}$

$\therefore$ Conc. of $Cl^- = 2S = 2 \times 10^{-5}$ M

155. pH = 4, $p^{OH} = 10$

$\therefore \left[OH^-\right] = 10^{-10}$ N

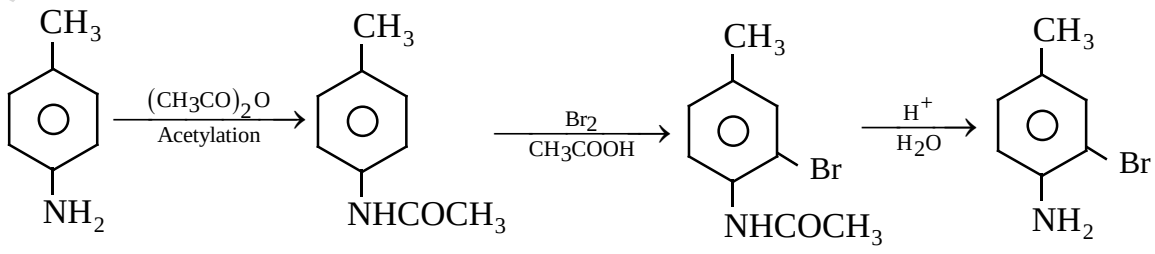
No. of OH^- ions $= 10^{-10} \times \frac{1}{1000} \times 6 \times 10^{23} = 6 \times 10^{10}$

156. $CH_3 - C \equiv CH \xrightarrow{NaNH_2} CH_3 - C \equiv \bar{C} - Na^+ \xrightarrow{C_2H_5Cl} CH_3 - C \equiv C - C_2H_5$ (2 - pentyne)

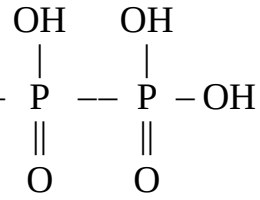
Positional isomer of 2 - Pentyne is 1 - Pentyne

157. Highest P_{ka} is least acidic. i.e., where CH_3 is E.D.G (+ I)

158. Gallium melts, jut above room temperature

159. 

160. $H_4P_2O_6$ is



161. Number of atoms per unit cell in end centred =

$8\times\frac{1}{8}+2\times\frac{1}{2}=2$

Therefore, the volume of atoms present in end centred cubic unit cell

$=2\times\frac{4}{3}\pi r^3=\frac{8}{3}\pi r^3$

162. Intermolecular attraction forces

163. $\Delta T_f = K_f \times \text{molality} \times i$

(273 – 269.28) = 1.86 x 1 x i

$\therefore$ i = 2

for ionization, i = 1 + (n - 1) α

$2 = 1 + (n - 1)\ \frac{100}{100}$

n = 2

Therefore, the complex is $[Pd(H_2O)_3Cl_3]\ Cl.\ 3H_2O$

164. $\underset{(10\ atm)}{H_2} + \underset{(1M)}{2H^+} \longrightarrow \underset{(1M)}{2H^+} + \underset{(1atm)}{H_2}$

$E^0_{cell} = E^0_{H_2} - E^0_{H_2} = 0 - 0 = 0\ \text{volt}$

$\therefore E_{cell} = E^0_{cell} - \frac{0.059}{2}\log\frac{[\text{product}]}{[\text{reactants}]}$

$E_{cell} = 0 - \frac{0.059}{2}\log\frac{(1)^2(1)}{10(1)^2} = \frac{0.059}{2} = \frac{0.06}{2}$

E_{cell} = 0.03 volt

165. a) $Ag^+ + e^- \rightarrow Ag$

$1F \rightarrow 1\text{mole of Ag}$

b) $Sn^{+4} + 4e^- \rightarrow Sn$

$4F \rightarrow 1\text{mole of Sn}$

$1F \rightarrow ?\ = \frac{1}{4}$ mole of Sn

c) $Cu^{+2} + 2e^- \rightarrow Cu$

$2F \rightarrow 1$ mole of Cu

$1F \rightarrow ?\ = \frac{1}{2}$ mole of Cu

166. S_2Cl_2 is similar to H_2O_2, i.e., open book structure

167. $25^0C \rightarrow 15^0C,$ halved

$15^0C \rightarrow 5^0C$, again halved

Therefore, rate decrease of 4 times

168. $5^0C \xrightarrow{2} 15^0C \xrightarrow{2^2} 25^0C$ i.e., 4 times

169. Matter has chemical composition Cu_2FeS_2

170. Tail part is hydrophobic in nature.
Grease and dirt are dissolved in tail

171. Denaturation does not destroy the primary structure of a protein.

172. DNA finger printing has no relation to biological activity

173. Examples of synthetic polymers

174. Drug action of aspirin

175. Argon is most abundant noble gas in air

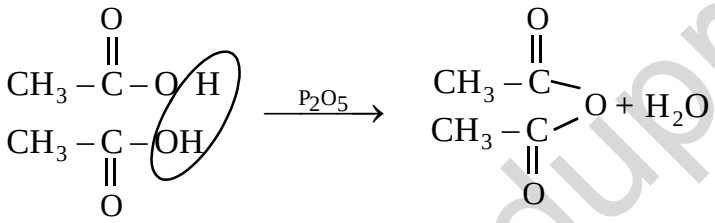
176. Heavy water freezes and boils at temperatures more than those of water

177. Lithium cation is most hydrated. Hence, Li^+ has longer size and high hydration energy.

178. $CaC_2 + N_2 \longrightarrow \underset{\text{Calcium cyanamide}}{CaCN_2} + \underset{\text{Graphite}}{C}$

This mixture of cyanamide and graphite is called Nitrolium

179. Dehydrated is given as,



Acetic acid Acetic anhydride

180.

Element	Number of electrons in 'M' Shell
K	8, $3s^2 3p^6$
Mn	13, $3s^2\ 3p^6\ 3d^5$
Ni	16, $3s^2\ 3p^6\ 3d^8$
Sc	9, $3s^2\ 3p^6\ 3d^1$