NEET(UG)–2017 TEST PAPER WITH ANSWER & SOLUTIONS
(HELD ON SUNDAY 07th MAY, 2017)

136. Name the gas that can readily decolourise acidified $KMnO_4$ solution :

(1) SO_2 (2) NO_2 (3) P_2O_5 (4) CO_2

Ans. (1)

Sol. $\underset{(O.A.)}{\overset{+7}{KMnO_4}} + \underset{(R.A.)}{\overset{+4}{SO_2}} \rightarrow \underset{\text{Colourless}}{MnSO_4} + H_2SO_4 + K_2SO_4$

137. Mechanism of a hypothetical reaction

$X_2 + Y_2 \rightarrow 2XY$ is given below :

(i) $X_2 \rightarrow X + X$(fast)

(ii) $X + Y_2 \rightleftharpoons XY + Y$ (slow)

(iii) $X + Y \rightarrow XY$ (fast)

The overall order of the reaction will be :

(1) 2 (2) 0 (3) 1.5 (4) 1

Ans. (3)

Sol. According to law of mass action

$r = K[X][Y_2]$ ....(1)

From fast step-1

$$K_{eq} = \frac{[X]^2}{[X_2]}$$

$[X]^2 = K_{eq.}\ [X_2]$

$[X] = \sqrt{K_{eq.}}[X_2]^{1/2}$ ....(2)

From equation (1) & (2)

$$r = K.\sqrt{K_{eq.}}[X_2]^{1/2}[Y_2]$$

$r = K'[X_2]^{1/2}[Y_2]$.

Overall order of reaction = 1 + 0.5 = 1.5

Option (3)

138. The element Z = 114 has been discovered recently. It will belong to which of the following family/group and electronic configuration ?

(1) Carbon family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^2$

(2) Oxygen family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^4$

(3) Nitrogen family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^6$

(4) Halogen family, $[Rn]\ 5f^{14}\ 6d^{10}\ 7s^2\ 7p^5$

Ans. (1)

Sol. $Z = 114\ [Rn]^{86}\ 7s^2\ 5f^{14}\ 6d^{10}\ 7p^2$

14^{th} gp. (carbon family)

139. The heating of phenyl–methyl ethers with HI produces

(1) iodobenzene (2) phenol

(3) benzene (4) ethyl chlorides

Ans. (2)

Sol. $Ph\text{–}\ddot{O}\text{–}CH_3 \xrightarrow{H^{\oplus}} Ph\text{–}\underset{H}{\overset{\oplus}{O}}\text{–}CH_3 \xrightarrow[SN^2]{I^{\ominus}} Ph\text{–}OH + I\text{–}CH_3$

140. Which one is the correct order of acidity ?

(1) $CH \equiv CH > CH_3 - C \equiv CH > CH_2 = CH_2 > CH_3 - CH_3$

(2) $CH \equiv CH > CH_2 = CH_2 > CH_3 - C \equiv CH > CH_3 - CH_3$

(3) $CH_3 - CH_3 > CH_2 = CH_2 > CH_3 - C \equiv CH > CH \equiv CH$

(4) $CH_2 = CH_2 > CH_3 - CH = CH_2 > CH_3 - C \equiv CH > CH \equiv CH$

Ans. (1)

Sol. Correct order of acidic strength ⇒

$CH \equiv CH > CH_3 - C \equiv CH > CH_2 = CH_2 > CH_3 - CH_3$

acc. to EN and Inductive effect.

141. Predict the correct intermediate and product in the following reaction :

$H_3C\text{–}C{\equiv}CH \xrightarrow[HgSO_4]{H_2O,\ H_2SO_4} \underset{(A)}{\text{Intermediate}} \longrightarrow \underset{(B)}{\text{product}}$

(1) A : $H_3C\text{–}\underset{OH}{C}{=}CH_2$ B : $H_3C\text{–}\underset{SO_4}{C}{=}CH_2$

(2) A : $H_3C\text{–}\underset{O}{\overset{}{\underset{\|}{C}}}\text{–}CH_3$ B : $H_3C\text{–}C{\equiv}CH$

(3) A : $H_3C\text{–}\underset{OH}{C}{=}CH_2$ B : $H_3C\text{–}\underset{O}{\underset{\|}{C}}\text{–}CH_3$

(4) A : $H_3C\text{–}\underset{SO_4}{C}{=}CH_2$ B : $H_3C\text{–}\underset{O}{\underset{\|}{C}}\text{–}CH_3$

Ans. (3)

Sol. $CH_3 - C \equiv CH \xrightarrow[HgSO_4]{H_2O,\ H_2SO_4} CH_3 - \underset{OH}{C} = CH_2$

$\big\downarrow$ Tautomerism

$CH_3 - \underset{O}{\underset{\|}{C}} - CH_3$

142. The equilibrium constant of the following are :

$N_2 + 3H_2 \rightleftharpoons 2NH_3$ $\quad K_1$

$N_2 + O_2 \rightleftharpoons 2NO$ $\quad K_2$

$H_2 + \frac{1}{2}O_2 \rightarrow H_2O$ $\quad K_3$

The equilibrium constant (K) of the reaction :

$2NH_3 + \frac{5}{2}O_2 \xrightleftharpoons{K} 2NO + 3H_2O$, will be :

(1) $K_2K_3^3/K_1$ (2) K_2K_3/K_1

(3) $K_2^3K_3/K_1$ (4) $K_1K_3^3/K_2$

Ans. (1)

Sol. $N_2 + 3H_2 \rightleftharpoons 2NH_3$ $\quad K_1 \rightarrow (1)$

$N_2 + O_2 \rightleftharpoons 2NO$ $\quad K_2 \rightarrow (2)$

$H_2 + \frac{1}{2}O_2 \longrightarrow H_2O$ $\quad K_3 \rightarrow (3)$

For reaction $2NH_3 + \frac{5}{2}O_2 \xrightleftharpoons{K} 2NO + 3H_2O \rightarrow$

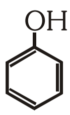
(4)

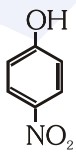
equation (4)

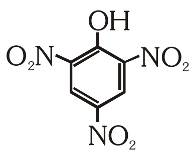
= equation(2) + 3 × equation(3) − equation(1)

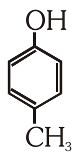
$\Rightarrow K = \frac{K_2.K_3^3}{K_1}$, Option(1)

143. Which one is the most acidic compound ?

(1) 

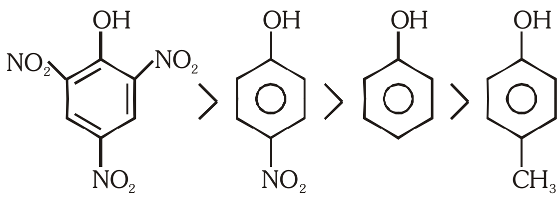
(2) 

(3) 

(4) 

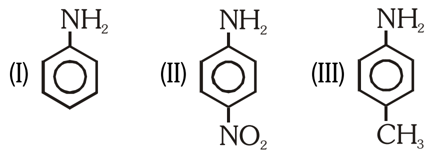
Ans. (3)

Sol.



More − I, − M, more acidic

144. The **correct** increasing order of basic strength for the following compounds is :

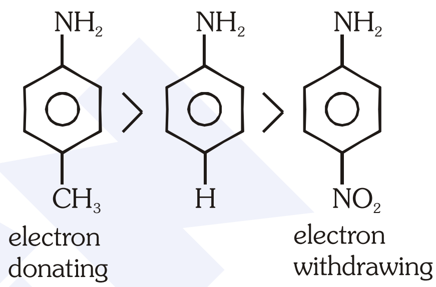


(1) III < I < II (2) III < II < I

(3) II < I < III (4) II < III < I

Ans. (3)

Sol. Order of Basic Strength :-



145. Ionic mobility of which of the following alkali metal ions is lowest when aqueous solution of their salts are put under an electric field ?

(1) K (2) Rb

(3) Li (4) Na

Ans. (3)

Sol. Ionic mobility $\propto \frac{1}{\text{size of hydrated ion}}$

Smaller size hydrated ion in aq. sol^n - $Rb^+(aq)$

Larger size hydrated ion in aq. sol^n - $Li^+(aq)$

Lowest ionic mobility in aq. $sol^n \rightarrow Li^+(aq)$ due to high hydration

146. The most suitable method of separation of 1 : 1 mixture of ortho and para-nitrophenols is :

(1) Chromatography (2) Crystallisation

(3) Steam distillation (4) Sublimation

Ans. (3)

Sol. The ortho and para isomers can be separated by steam distillation o-Nitrophenol is steam volatile due to intramolecular hydrogen bonding while p-nitro phenol is less volatile due to intermolecular hydrogen bonding which cause association of molecule.

147. $HgCl_2$ and I_2 both when dissolved in water containing I^- ions the pair of species formed is :

(1) HgI_2, I^- (2) HgI_4^{2-}, I_3^-

(3) Hg_2I_2, I^- (4) HgI_2, I_3^-

Ans. (2)

Sol. $HgCl_2 + 2I^- \longrightarrow HgI_2 + 2Cl^-$

$\downarrow + 2I^-$

$[HgI_4]^{-2}$

Soluble complex

$I_2 + I^- \longrightarrow I_3^-$

water soluble

148. Mixture of chloroxylenol and terpineol acts as :

(1) antiseptic (2) antipyretic

(3) antibiotic (4) analgesic

Ans. (1)

Sol. Antiseptic (dettol)

149. An example of a sigma bonded organometallic compound is :

(1) Grignard's reagent (2) Ferrocene

(3) Cobaltocene (4) Ruthenocene

Ans. (1)

150. A first order reaction has a specific reaction rate of 10^{-2} sec^{-1}. How much time will it take for 20g of the reactant to reduce to 5 g ?

(1) 138.6 sec (2) 346.5 sec

(3) 693.0 sec (4) 238.6 sec

Ans. (1)

Sol. Half life of first order reaction $t_{1/2} = \frac{0.693}{K}$

$$= \frac{0.693}{10^{-2}} = 69.3 \text{sec}$$

Method-1

$$20g \xrightarrow{t_{1/2}} 10g \xrightarrow{t_{1/2}} 5g$$

Total time $= 2t_{1/2} = 2 \times 69.3 = 138.6$ sec

Method-2

$$t = \frac{2.303}{K}\log\frac{[A]_o}{[A]_t}$$

$$t = \frac{2.303}{10^{-2}}\log\frac{20}{5} \Rightarrow t = 138.6 \text{ sec (Option 2)}$$

151. Match the interhalogen compounds of column-I with the geometry in column II and assign the correct. code.

Column-I		Column-II	
(a)	XX'	(i)	T-shape
(b)	XX'_3	(ii)	Pentagonal bipyramidal
(c)	XX'_5	(iii)	Linear
(d)	XX'_7	(iv)	Square-pyramidal
		(v)	Tetrahedral

Code :

	(a)	(b)	(c)	(d)
(1)	(iii)	(i)	(iv)	(ii)
(2)	(v)	(iv)	(iii)	(ii)
(3)	(iv)	(iii)	(ii)	(i)
(4)	(iii)	(iv)	(i)	(ii)

Ans. (1)

Sol. $XX' \Rightarrow$ Linear

$XX_3' \Rightarrow$ T-shape sp^3d

$XX_5' \Rightarrow$ Square pyramidal sp^3d^2

$XX_7' \Rightarrow$ Pentagonal bipyramidal (sp^3d^3)

152. Concentration of the Ag^+ ions in a saturated solution of $Ag_2C_2O_4$ is 2.2×10^{-4} mol L^{-1} Solubility product of $Ag_2C_2O_4$ is :-

(1) 2.66×10^{-12} (2) 4.5×10^{-11}

(3) 5.3×10^{-12} (4) 2.42×10^{-8}

Ans. (3)

Sol. $Ag_2C_2O_4 \rightleftharpoons 2Ag^+ + C_2O_4^{2-}$

$2.2 \times 10^{-4}M \quad 1.1 \times 10^{-4}M$

$K_{sp} = [Ag^+]^2[C_2O_4^{2-}]$

$= [2.2 \times 10^{-4}]^2.[1.1 \times 10^{-4}]$

$K_{sp} = 5.3 \times 10^{-12}$

153. In the electrochemical cell :-
Zn | $ZnSO_4$(0.01M) | | $CuSO_4$(1.0 M) | Cu, the emf of this Daniel cell is E_1. When the concentration of $ZnSO_4$ is changed to 1.0M and that of $CuSO_4$ changed to 0.01M, the emf changes to E_2. From the followings, which one is the relationship between E_1 and E_2? (Given, $\frac{RT}{F} = 0.059$)

(1) $E_1 < E_2$ (2) $E_1 > E_2$
(3) $E_2 = 0 \neq E_1$ (4) $E_1 = E_2$

Ans. (2)

Sol. For cell
Zn | $ZnSO_4$(0.01M) | | $CuSO_4$(1M) | Cu
Cell reaction $\rightarrow$ Zn + $Cu^{+2} \longrightarrow Zn^{+2}$ + Cu

$$E_1 = E^o - \frac{0.059}{2}\log\frac{Zn^{+2}}{Cu^{+2}}$$

$$E_1 = E^o - \frac{0.059}{2}\log\frac{0.01}{1}$$

$$= E^o - \frac{0.059}{2}\log\frac{1}{100} \quad ....(1)$$

For cell
Zn | $ZnSO_4$(1M) | | $CuSO_4$(0.01M) | Cu

$$E_2 = E^o - \frac{0.059}{2}\log\frac{1}{0.01}$$

$$= E^o - \frac{0.059}{2}\log 100 \quad ...(2) \qquad \boxed{E_1 > E_2}$$

Option (2)

154. Which of the following pairs of compounds is isoelectronic and isostructural ?

(1) TeI_2, XeF_2
(2) IBr_2^-, XeF_2
(3) IF_3, XeF_2
(4) $BeCl_2, XeF_2$

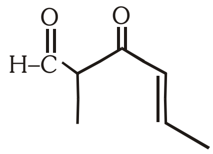
Ans. (2)

Sol. IBr_2^{-1} & Xef_2 are iso-structural

(Linear shape)

and Both C.A. consist of same no. of valence e^-s

155. The IUPAC name of the compound

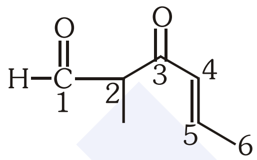


is :-

(1) 5-formylhex-2-en-3-one
(2) 5-methyl-4-oxohex-2-en-5-al
(3) 3-keto-2-methylhex-5-enal
(4) 3-keto-2-methylhex-4-enal

Ans. (4)

Sol.



3–keto–2–methylhex–4–en–1–al

156. Which one is the wrong statement ?

(1) The uncertainty principle is $\Delta E \times \Delta t \geq h/4\pi$
(2) Half filled and fully filled orbitals have greater stability due to greater exchange energy, greater symmetry and more balanced arrangement.
(3) The energy of 2s orbital is less than the energy of 2p orbital in case of Hydrogen like atoms
(4) de-Broglies's wavelength is given by $\lambda = \frac{h}{mv}$, where m = mass of the particle, ν = group velocity of the particle

Ans. (3)

Sol. In H-like atom energy of 2s = 2p. orbital
Incorrect statement is (3)

157. Which is the **incorrect** statement ?

(1) Density decreases in case of crystals with Schottky's defect
(2) NaCl(s) is insulator, silicon is semiconductor, silver is conductor, quartz is piezo electric crystal
(3) Frenkel defect is favoured in those ionic compounds in which sizes of cation and anions are almost equal
(4) $FeO_{0.98}$ has non stoichiometric metal deficiency defect

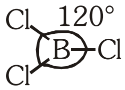
Ans. (3)

Sol. In frenkel defect the radius of cation must be very less than anion.
Incorrect statement is (3)

158. The species, having bond angles of 120° is :-

(1) ClF_3 (2) NCl_3 (3) BCl_3 (4) PH_3

Ans. **(3)**

Sol. $BCl_3 \Rightarrow$ 

Regular geometry
Hybridysation $\Rightarrow sp^2$

159. For a given reaction, ΔH = 35.5 kJ mol^{-1} and $\Delta S = 83.6\ JK^{-1}mol^{-1}$. The reaction is spontaneous at : (Assume that ΔH and ΔS do not vary with tempearature)

(1) T > 425 K (2) All temperatures

(3) T > 298 K (4) T < 425 K

Ans. **(1)**

Sol. $\Delta G = \Delta H - T\Delta S$

for equilibrium $\Delta G = 0$

$\Delta H = T\Delta S$

$$T_{eq.} = \frac{\Delta H}{\Delta S} = \frac{35.5 \times 1000}{83.6} = 425K$$

Since the reaction is endothemic it will be spontaneous at T > 425K. Option (1)

160. Which of the following is a sink for CO ?

(1) Micro organism present in the soil

(2) Oceans

(3) Plants

(4) Haemoglobin

Ans. **(1)**

Sol. Microorganism present in the soil.

161. If molality of the dilute solutions is doubled, the value of molal depression constant (K_f) will be :-

(1) halved (2) tripled

(3) unchanged (4) doubled

Ans. **(3)**

Sol. K_f does not depend on concentration of solution. It only depends on nature of solvent so it will be unchanged. option (3)

162. Which of the following is dependent on temperature?

(1) Molarity (2) Mole fraction

(3) Weight percentage (4) Molality

Ans. **(1)**

Sol. Temperature dependent unit is molarity.

163. Which one of the following statements is not correct?

(1) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium

(2) Enzymes catalyse mainly bio-chemical reactions

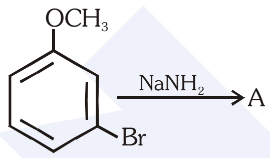
(3) Coenzymes increase the catalytic activity of enzyme

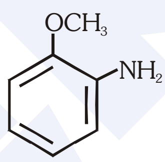
(4) Catalyst does not initiate any reaction

Ans. **(1)**

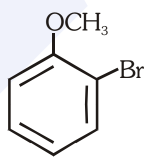
Sol. Equilibrium constant is not affected by presence of catalyst hence statement (1) is incorrect.

164. Identify A and predict the type of reaction

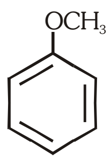


(1) 

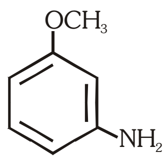
and elimination addition reaction

(2) 

and cine substitution reaction

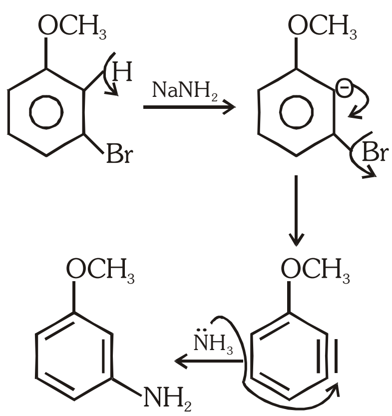
(3) 

and cine substituion reaction

(4) 

and substitution reaction

Ans. **(4)**

Sol. 

Example of substitution reaction.

165. The correct order of the stoichiometries of AgCl formed when $AgNO_3$ in excess is treated with the complexes : $CoCl_3.6NH_3$, $CoCl_3.5NH_3$, $CoCl_3.4NH_3$ respectively is :-

(1) 3 AgCl, 1 AgCl, 2 AgCl

(2) 3 AgCl, 2 AgCl, 1 AgCl

(3) 2 AgCl, 3 AgCl, 1 AgCl

(4) 1 AgCl, 3 AgCl, 2 AgCl

Ans. (2)

Sol. $[CO(NH_3)_6]Cl_3 \xrightarrow{AgNO_3} 3$ mol AgCl

$[CO(NH_3)_5\,Cl]Cl_2 \xrightarrow{AgNO_3} 2$ mol AgCl

$[CO(NH_3)_4\,Cl_2]Cl \xrightarrow{AgNO_3} 1$ mol AgCl

166. The **correct** statement regarding electrophile is :-

(1) Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from another electrophile

(2) Electrophiles are generally neutral species and can form a bond by accepting a pair of electrons from a nucleophile

(3) Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electrons from a nucleophile

(4) Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from a nucleophile

Ans. (3)

Sol. Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electron from a nucleophile.

167. A gas is allowed to expand in a well insulated container against a constant external pressure of 2.5atm from an initial volume of 2.50 L to a final volume of 4.50L. The change in internal energy ΔU of the gas in joules will be:-

(1) –500J (2) –505J

(3) +505J (4) 1136.25J

Ans. (2)

Sol. Work done in irreversible process

$W = -P_{ext}\Delta V$

$= -\ 2.5\ [4.5 - 2.5] = -\ 5$ L atm

$= -\ 5 \times 101.3J = -\ 505J$

Since system is well insulated q = 0

By FLOT $\Delta E = q + W$

$\Delta E = W = -\ 505$ J Option(2)

168. Which of the following reactions is appropriate for converting acetamide to methanamine ?

(1) Hoffmarnn hypobromamide reaction

(2) Stephens reaction

(3) Gabriels phthalimide synthesis

(4) Carbylamine reaction

Ans. (1)

Sol. $CH_3-\underset{\underset{O}{\|}}{C}-NH_2 \xrightarrow{Br_2/4KOH} CH_3-NH_2 + 2KBr + K_2CO_3$

This reaction is known as hoffmann hypobromamide reaction.

169. With respect to the conformers of ethane, which of the following statements is **true** ?

(1) Bond angle changes but bond length remains same

(2) Both bond angle and bond length change

(3) Both bond angles and bond length remains same

(4) Bond angle remains same but bond length changes

Ans. (3)

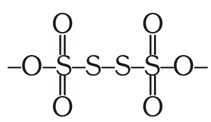
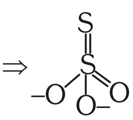
Sol. In conformation bond angle and bond length remain same.

170. In which pair of ions both the species contain S–S bond?

(1) $S_4O_6^{2-}$, $S_2O_3^{2-}$ (2) $S_2O_7^{2-}$, $S_2O_8^{2-}$

(3) $S_4O_6^{2-}$, $S_2O_7^{2-}$ (4) $S_2O_7^{2-}$, $S_2O_3^{2-}$

Ans. (1)

Sol. $S_4O_6^{2-} \Rightarrow$  | $S_2O_3^{2-} \Rightarrow$ 

171. It is because of inability of ns^2 electrons of the valence shell to participate in bonding that:-

(1) Sn^{2+} is oxidising while Pb^{4+} is reducing

(2) Sn^{2+} and Pb^{2+} are both oxidising and reducing

(3) Sn^{4+} is reducing while Pb^{4+} is oxidising

(4) Sn^{2+} is reducing while Pb^{4+} is oxidising

Ans. (In English-4, In Hindi-1)

Sol. $Sn^{+2} \longrightarrow Sn^{+4}$

(R.A) $Sn^{+2} < Sn^{+4}$ Stability order

$Pb^{+4} \longrightarrow Pb^{+2}$

(O.A) $Pb^{+2} > Pb^{+4}$ Stability order

(Inert pair effect)

172. Correct increasing order for the wavelengths of absorption in the visible region the complexes of Co^{3+} is :-

(1) $[Co(H_2O)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$

(2) $[Co(H_2O)_6]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$

(3) $[Co(NH_3)_6]^{3+}$, $[Co(en)_3]^{3+}$, $[Co(H_2O)_6]^{3+}$

(4) $[Co(en)_3]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(H_2O)_6]^{3+}$

Ans. (4)

Sol. $\left[\varepsilon_a \propto \frac{1}{\lambda_a}\right]$

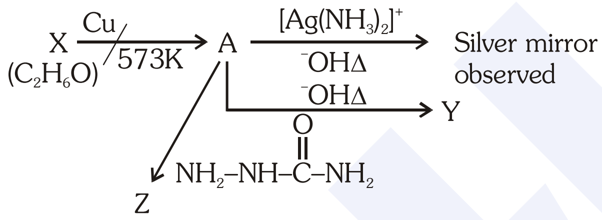
where $\varepsilon_a \Rightarrow$ absorbed energy (splitting energy)

$\lambda_a \Rightarrow$ absorbed wavelength

Presence of SFL $\Rightarrow \varepsilon_a(\uparrow)\ \lambda_a(\downarrow)$

$H_2O < NH_3 <$ en ligand strength $\uparrow$ splitting energy $\uparrow$ so absorbed $\lambda\downarrow$

173. Consider the reactions :-



Identify A, X, Y and Z

(1) A-Methoxymethane, X-Ethanol, Y-Ethanoic acid, Z-Semicarbazide.

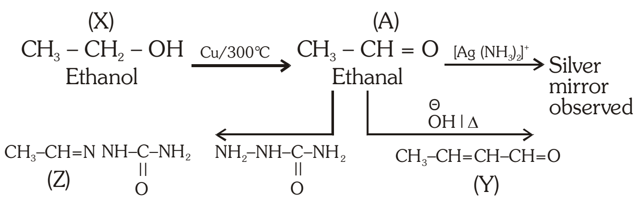
(2) A-Ethanal, X-Ethanol, Y-But-2-enal, Z-Semicarbazone

(3) A-Ethanol, X-Acetaldehyde, Y-Butanone, Z-Hydrazone

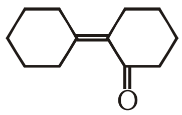
(4) A-Methoxymethane, X-Ethanoic acid, Y-Acetate ion, Z-hydrazine

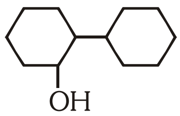
Ans. (2)

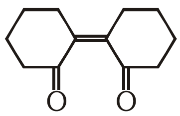
Sol.

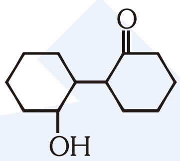


174. Of the following, which is the product formed when cyclohexanone undergoes aldol condensation followed by heating ?:-

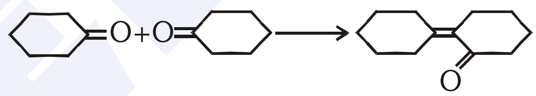
(1) 

(2) 

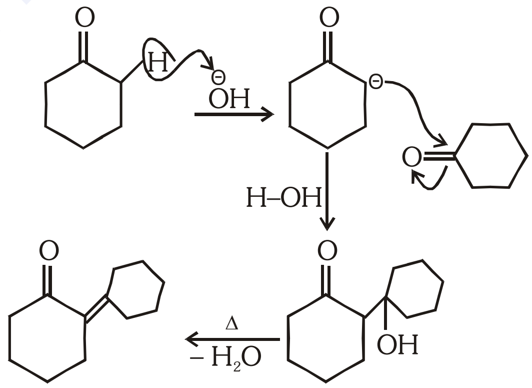
(3) 

(4) 

Ans. (1)

Sol. 

Mechanism



175. Which of the following pairs of species have the same bond order ?

(1) O_2, NO^+

(2) CN^-, CO

(3) N_2, O_2^-

(4) CO, NO

Ans. (2)

Sol. Total no. of electrons in CN^- is 14

Total no. of electrons in CO is also 14

hence B.O. of both CN^- & CO is 3

176. Extraction of gold and silver involes leaching with CN^-ion. Silver is later recovered by :-

(1) distillation

(2) zone refining

(3) displacement with Zn

(4) liquation

Ans. (3)

Sol. Mac arther forest process/cyanide process

$$Ag_2S + 4NaCN \xrightarrow{O_2} 2Na[Ag(CN)_2] + Na_2SO_4$$

$$2Na[Ag(CN)_2] \xrightarrow{Zn} \underset{\text{Soluble complex}}{Na_2[Zn(CN)_4]} + Ag(\downarrow)$$

Ag extracts by displacement with Zn

177. A 20 litre container at 400 K contains $CO_2(g)$ at pressure 0.4 atm and an excess of SrO (neglect the volume of solid SrO). The volume of the container is now decreased by moving the movable piston fitted in the container. The maximum volume of the container, when pressure of CO_2 attains its maximum value, will be :-

(Given that : $SrCO_3(s) \rightleftharpoons SrO(s) + CO_2(g)$, Kp = 1.6atm)

(1) 10 litre (2) 4 litre

(3) 2 litre (4) 5 litre

Ans. (4)

Sol. $SrCO_3(s) \rightleftharpoons SrO(s) + CO_2(g)$

$$K_p = P_{CO_2}$$

maximum pressure of CO_2 = 1.6 atm

$$P_1V_1 = P_2V_2$$

$0.4 \times 20 = 1.6\ V_2$

V2 = 5L option (4)

178. Pick out the correct statement with respect to $[Mn(CN)_6]^{3-}$:-

(1) It is sp^3d^2 hybridised and tetrahedral

(2) It is d^2sp^3 hybridised and octahedral

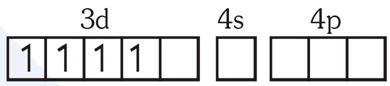
(3) It is dsp^2 hybridised and square planar

(4) It is sp^3d^2 hybridised and octahedral

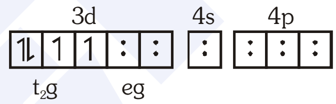
Ans. (2)

Sol. $[Mn(CN)_6]^{3-} \rightarrow$ O.S. of Mn is (+3)

$\boxed{C.N. = 6}$

$Mn^{+3} \rightarrow 3d^4 \rightarrow$ 

Presence of SFL (Pairing is possible)


[d^2sp^3, octahedral]

179. The reason for greater range of oxidation states in actinoids is attributed to :-

(1) actinoid contraction

(2) 5f, 6d and 7s levels having comparable energies

(3) 4f and 5d levels being close in energies

(4) the redioactive nature of actinoids

Ans. (2)

Sol. Minimum energy gap between

5f, 6d & 7s subshell. Thats why e^- exitation will be easeir.

180. Which of the following statements is not correct :-

(1) Ovalbumin is a simple food reserve in egg-white

(2) Blood proteins thrombin and fibrinogen are involved in blood clotting

(3) Denaturation makes the proteins more active

(4) Insulin maintanis sugar level in the blodd of a human body

Ans. (3)

Sol. Denaturation makes the protein more active.

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