MODEL PAPER - 5

CHEMISTRY

121. How many moles of oxygen gas can be produced during electrolytic decomposition of 180 g of water ? *(Some Basic concept of chemistry)*

1) 2.5 moles 2) 5 moles 3) 10 moles 4) 7 moles

122. What is the maximum number of emission lines when the excited electron of a hydrogen atom in n = 6 drops to ground state ? *(Structure of Atom)*

1) 6 2) 15 3) 30 4) 10

123. The frequency of radiation absorbed or emitted when transition occurs between two stationary states with energies E_1(lower) and E_2(higher) is given by *(Structure of Atom)*

1) $\upsilon = \frac{E_1 + E_2}{h}$ 2) $\upsilon = \frac{E_1 - E_2}{h}$ 3) $\upsilon = \frac{E_1 \times E_2}{h}$ 4) $\upsilon = \frac{E_2 - E_1}{h}$

124. Which of the following elements shown as pairs with their atomic numbers belong to the same period ? *(Classification of elements)*

1) Z = 19 and Z = 38 2) Z=12 and Z=17 3) Z = 11 and Z = 21 4) Z = 16 and Z = 35

125. In which of the following species the bond is non-directional ? *(Chemical Bonding & Molecular structure)*

1) NCl_3 2) RbCl 3) $BeCl_2$ 4) BCl_3

126. The correct oder of decreasing bond lengths of CO, CO_2 and CO^{2-}_3 *is* *(Chemical Bonding & Molecular structure)*

1) $CO > CO_2 > CO^{2-}_3$ 2) $CO^{2-}_3 > CO_2 > CO$ 3) $CO_2 > CO > CO^{2-}_3$ 4) $CO_2 > CO^{2-}_3 > CO$

127. What volume in litres will be occupied by 4.4 g of CO_2 at STP ? *(States of Matter)*

1) 22.4 L 2) 44.8 L 3) 12.2 L 4) 2.24 L

128. At what temperature 28 g of N2 will occupy a volume of 20 litres at 2 atm ? *(States of Matter)*

1) 300.0 K 2) 487.2 K 3) 289 .6 K 4) 283.8 K

129. What will be the change in internal energy when 12 KJ of work is done on the system and 2 Kj of heat is given by the system ? *(Thermodynamics)*

1) +10 kJ 2) -10 kJ 3) +5 kJ 4) - 5 kJ

130. For the reaction $2NO_{2(g)} \rightleftharpoons N_2O_{4(g)}$, K_p / K_c is equal to *(Equilibrium)*

1) $\frac{1}{RT}$ 2) $\sqrt{RT}$ 3) RT 4) $(RT)^2$

131. Permanganate (VII) ion, MnO^{-4} oxidises I- ion to I_2 and gives manganese (IV) oxide MnO_2 in basic medium The skeletal ionic equation is given as $pMnO^-_{4(aq)} + qI^-_{(aq)} + xH_2O_{(\ell)} \rightarrow rMnO_{2(s)} + sI_{2(s)} + yOH^-_{(aq)}$ the values of p, q, r and s are *(Redox Reactions)*

1) p-1,q - 2, r- 8, s - 4 2) p-2,q - 6, r- 2, s -3 3) p-2,q -4, r- 2, s -8 4) p-1,q - 4, r- 8, s -2

132. A compound contains atoms X, Y and Z. The oxidation number of X is +2, Y is +5 and Z is -2, The possible formula of the compound is *(Redox Reactions)*

1) XYZ_2 2) $Y_2(XZ_3)_2$ 3) $X_3(YZ_4)_2$ 4) $X_3(Y_4Z)_2$

133. Syngas is a mixture of *(Hydrogen)*

1) $CO_2 + H_2$ 2) $CO + H_2$ 3) $CO+CO_2$ 4) $CO+O_2$

134. Which of the following has lowest thermal stability ? *(S-Block elements)*

1) Li_2CO_3 2) Na_2CO_3 3) K_2CO_3 4) Rb_2CO_3

135. Which of the following hydroxides is acidic? *(P-Block elements)*

1) $Al(OH)_3$ 2) $Ga(OH)_3$ 3) $Tl(OH)_3$ 4) $B(OH)_3$

136. Which of the following is not an ore of alluminium? *(P-Block elements)*

1) Aluminium powder 2) Zinc powder 3) Iron turnings 4) copper turnings.

137. The correct name of $CH_3CH_2 - \underset{\underset{O}{\|}}{C} - \underset{\underset{CN}{|}}{CH}-CHO$ is *(Organic chemistry-some Basic Principle)*

1) 2 - Cyano - 3 -oxopentanal 2) 2 - formyl -3- oxopentanenitrile
3) 2 -cyano-1,3 - pentadiene 4) 1,3-dioxo-2-cyanopentane.

138. A mixure of 1-iodoethane and 1-iodopropane is treated with sodium metal and dry ether to carry out Wurtz reaction. Which of the following hydrocarbons will be formed? *(Hydro Carbons)*

1)Propane + Hexane 2) Ethane + propane 3) Butane + Propane 4) Butane + pentane + Hexane

139. Which of the following is the most stable free radical? *(Hydro Carbons)*

1) $CH_3\overset{0}{C}H_2$ 2) $CH_3\overset{0}{C}HCH_3$ 3) $CH_3\overset{0}{C}HC_6H_5$ 4) $C_6H_5CH_2\overset{0}{C}H_2$

140. In Antarctica,ozone depletion is due to the formation of which of the following compounds? *(Environmental Chemistry)*
1) Acrolein 2) PAN 3) PCBs 4) Chlorine nitrate

141. A cubic solid is made up of two elements P and Q Atoms of P are present at the corners of the cube and atoms of Q are present at body centre. What is the formula of the compound and what are coordination numbers of P and Q ? *(Solid State)*
1) PQ_2, 6 : 6 2) PQ, 6 : 6 3) P_2Q, 6 : 8 4) PQ, 8 : 8

142. When 1.04 g of $BaCl_2$ is present in 10^5 g of solution the concentration of soultion is *(Solutions)*
1) 0.104 ppm 2) 10.4 ppm 3) 0.0104 ppm 4) 104 ppm

143. What will be the emf of the following concentration cell at 25 ^{0}C ?
$$Ag_{(s)}\left|AgNO_3\,(0.01M)\right|\left|AgNO_3\,(0.05M)\right|Ag_{(s)}$$ *(Electro Chemistry)*
1) 0.828 V 2) 0.0413 V 3) -0.0413 V 4) -0.828 V

144. What will be the reduction potential for the following half - cell reaction at 298 K? (Given : $[Ag^+]$=0.1 M and E^0_{cell} = +0.80 V) *(Electro Chemistry)*
1) 0.741 V 2) 0.80 V 3) -0.80 V 4) - 0.741 V

145. For the reaction, $2N_2O_5 \rightarrow 4NO_2 + O_2$ rate and rate constant are 1.02 x 10^{-4} mol L^{-1} s^{-1} and 3.4 x 10^{-5} s^{-1} respectively. The concentration of N_2O_5 in mol L^{-1} will be *(Chemical Kinetics)*
1) 3.4 x 10^{-4} 2) 3.0 3) 5.2 4) 3.2 x 10^{-5}

146. Consider the reaction : $2N_2O_4$ □ $4NO_2$ If $-\frac{d[N_2O_4]}{dt} = k$ and $\frac{d[NO_2]}{dt} = k'$ then *(Chemical Kinetics)*
1) 2k' = k 2) k' = 2k 3) k' = k 4) $k = \frac{1}{4}k'$

147. Which of the following gases is least adsorbed on charcoal ? *(Surface Chemistry)*
1) HCl 2) NH_3 3) O_2 4) CO_2

148. Froth floatation processs of concentration is based on the *(Genral Principles and Process of Isolation of elements)*
1) Preferential wetting properties with the frothing agent and water
2) Difference in the specific gravities of gangue and ore particles
3) Difference in solubility of gangue and ore particles in frothing agent and water
4) Difference in reactivity of gangue and ore particles with water and frothing agent.

149. PCl_3 on hydrolysis gives *(P-Block Elements)*
1) H_3PO_3 2) HPO_3 3) H_3PO_4 4) $POCl_3$

150. Arrange the following in decreasing Lewis acid strength - PF_3, PCl_3, PBr_3, PI_3. *(P-Block Elements)*
1) $PI_3 > PBr_3 > PCl_3 > PF_3$ 2) $PF_3 > PCl_3 > PBr_3 > PI_3$
3) $PCl_3 > PBr_3 > PI_3 > PF_3$ 4) $PBr_3 > PI_3 > PF_3 > PCl_3$

151. The correct order of number of unpaired electrons is *(d- and -f-block elements)*
1) $Cu^{2+} > Ni^{2+} > Cr^{3+} > Fe^{3+}$ 2) $Ni^{2+} > Cu^{2+} > Fe^{3+} > Cr^{3+}$
3) $Fe^{3+} > Cr^{3+} > Ni^{2+} > Cu^{2+}$ 4) $Cr^{2+} > Fe^{3+} > > Ni^{2+} > Cu^{2+}$

152. The charges x and y on the following ions are (i) $[Co(NH_3)_2\,Cl_4]^x$ (ii) $[Fe(CN)_6]^y$ (Oxidation state of Co is +3 and Fe is +2 in their respective complexes.) *(Co-ordination Compounds)*
1) x = +1, y= -1 2) x = -1, y = +3 3) x = -1, y = -4 4) x = -2, y = -3

153. The negative part of the addendum (The molecule to be added) adds on to the carbon atom of the double bond conatining the least number of hydrogen atoms. This rule is known as *(HaloAlkanes & Halo Arenes)*
1) Saytzeff's rule 2) Peroxide rule 3) markovnikov's rule 4) van't Hoff rule

154. What happens when tertiary butyl alcohol is passed over heated copper at 300 ^{0}C ? *(Alcohols, Phenols and ethers)*
1) Secondary butyl alcohol is formed 2) 2-Methylpropene is formed
3) 1 - Butene is formed 4) Butanal is formed.

155. The addition of HCN to carbonyl compounds is an example of *(Aldehydes, Ketones & Carboxylic acids)*
1) nucleophilic addition 2) electrophilic addition 3) Free radical addition 4) electromeric addition

156. Aldehydes other than formaldehyde react with Grignard's reagent to give addition products which on hydrolysis give *(Aldehydes, Ketones & Carboxylic acids)*
1) Tertiary alcohols 2) secondary alcohols 3) primary alcohols 4) Carboxylic acids

157. Arrange the following in increasing order of basicity : CH_3NH_2, $(CH_3)_2$ NH, NH_3, $C_6H_5NH_2$ *(Amines)*
1) $C_6H_5NH_2 < NH_3 < (CH_3)_2NH < CH_3NH_2$ 2) $CH_3NH_2 < (CH_3)_2NH < NH_3 < C_6H_5NH_2$
3) $C_6H_5NH_2 < NH_3 < CH_3NH_2 < (CH_3)_2NH$ 4) $(CH_3)_2$ NH $< CH_3NH_2 < NH_3 < C_6H_5NH_2$

158. What are the hydrolysis products of sucrose ? *(Bio Molecules)*
1) Fructose + Fructose 2) Glucose + Glucose 3) Glucose + Galaitose 4) Glucose + Fructose

159. Natural rubber is a polymer of *(Polymers)*
1) 1, 1 - dimethylbutadiene 2) 2 methyl -1, 3 - butadiene
3) 2 - chlorobuta -1, 3-diene 4) 2 - chlorobut - 2 - ene

160. The chemical substances used to bring down body temperature in high fever are known as *(Chemistry in everyday life)*
1) Analgesics 2) Antipyretics 3) Antihistamines 4) Tranquilizers

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