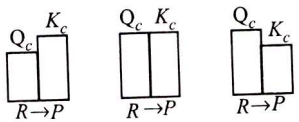
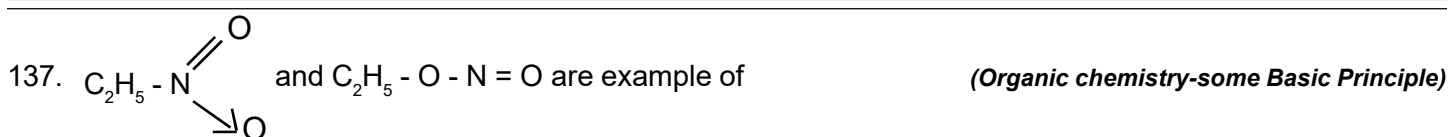


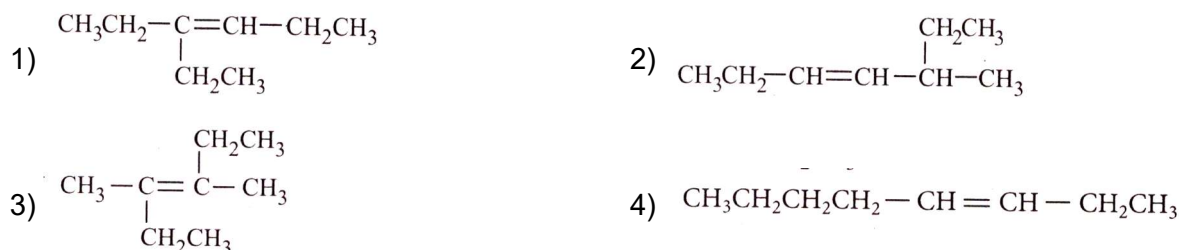
MODEL PAPER -7

CHEMISTRY

121. A compound contains two elements 'X' and 'Y' in the ratio of 50% each. Atomic mass of 'X' is 20 and 'Y' is 40. What can be its simplest formula? (Some Basic concept of chemistry)
- 1) XY 2) X₂Y 3) XY₂ 4) X₂Y₃
122. If the radius of first Bohr's orbit is x pm, then the radius of the third orbit would be (Structure of Atom)
- 1) (3 x x) pm 2) (6 x x) pm 3) $\left(\frac{1}{2} \times x\right)$ pm 4) (9 x x) pm
123. If the ionisation energy of hydrogen atom is 13.6 eV, the energy required to excite it from ground state to the next higher state is approximately (Structure of Atom)
- 1) 3.4 eV 2) 10.2 eV 3) 17.2 eV 4) 13.6 eV
124. An element has the electronic configuration 1s² 2s² 2p⁶ 3s² 3p⁶ 3d⁸ 4s². what will be its position in the periodic table? (Classification of elements)
- 1) Period 4, Group 10 2) Period 2, group 2 3) period 4, Group 2 4) Period 2, Group 8
125. What is common between the following molecules : SO₃, CO₃²⁻, NO₃⁻? (Chemical Bonding & Molecular structure)
- 1) All have linear shape. 2) All have trigonal planar shape
3) All have tetrahedral shape 4) All have trigonal pyramidal shape.
126. Which of the following does not show octahedral geometry? (Chemical Bonding & Molecular structure)
- 1) SF₆ 2) IF₅ 3) SiF₆²⁻ 4) SF₄
127. Which of the following relationships between partial pressure, volume and temperature is correct? (States of Matter)
- i) $P = \frac{nRT}{V}$ ii) $P_{\text{total}} = P_1 + P_2 + P_3$ iii) $P_{\text{total}} = (n_1 + n_2 + n_3) \frac{RT}{V}$
- 1) i and ii 2) i and iii 3) ii and iii 4) i, ii and iii
128. Density of a gas is found to be 5.46 g/dm³ at 27 °C and 2 bar pressure. What will be its density at STP? (States of Matter)
- 1) 3.0 g dm⁻³ 2) 5.0 g dm⁻³ 3) 6.0 g dm⁻³ 4) 10.82 g dm⁻³
129. Which of the following expressions is correct to calculate enthalpy of a reaction? (Thermodynamics)
- 1) $\Delta H_{\text{reaction}} = \sum \Delta_f H_{\text{reactants}} - \sum \Delta_f H_{\text{products}}$ 2) $\Delta H_{\text{reaction}} = \sum BE_{\text{products}} - \sum BE_{\text{reactants}}$
3) $\Delta H_{\text{reaction}} = \sum BE_{\text{reactants}} - \sum BE_{\text{products}}$ 4) $\Delta H_{\text{reaction}} = \Delta H_1 \times \Delta H_2 \times \Delta H_3$
130. Predict the direction of the reaction from the comparison of Q_c and K_c. Mark the incorrect statement. (Equilibrium)
- 
- 1) If Q_c < K_c reaction goes from left to right 2) If Q_c = K_c reaction goes from right to left
3) If Q_c > K_c net reaction goes from right to left 4) If Q_c = K_c reactants and products are at equilibrium
131. In which of the following compounds oxidation state of chlorine has two different values? (Redox Reactions)
- 1) CaCl₂ 2) NaCl 3) CaOCl₂ 4) CCl₄
132. The values of coefficients to balance the following reaction are (Redox Reactions)
- $$\text{Cr(OH)}_3 + \text{ClO}^- + \text{OH}^- \rightarrow \text{CrO}_4^{2-} + \text{Cl}^- + \text{H}_2\text{O}$$
- 1) 2 3 3 3
2) 2 4 3 2
3) 2 4 4 2
4) 2 3 2 3
133. Which of the following hydrides is electron deficient? (Hydrogen)
- 1) NaH 2) CaH₂ 3) CH₄ 4) B₂H₆
134. A white solid X reacts with dil. HCl to give colourless gas which is used in fire extinguishers. The solid X is (S-Block elements)
- 1) NaCl 2) CH₃COONa 3) Na₂CO₃ 4) NaHCO₃
135. Identify X and Y in the following reaction (P-Block elements)
- $$\text{BCl}_3 + \text{NH}_4\text{Cl} \xrightarrow[\text{C}_6\text{H}_5\text{Cl}]{140^\circ\text{C}} \text{X} \xrightarrow{\text{NaBH}_4} \text{Y}$$
- 1) X = NaBO₂, Y = B₂O₃ 2) X = Na₂B₄O₇, Y = H₃BO₃
3) X = BN, Y = [NH₄]⁺[BCl₄]⁻ 4) X = B₃N₃H₃Cl₃, Y = B₃N₃H₆
136. The type of hybridization of boron in diborane is (P-Block elements)
- 1) sp-hybridization 2) sp²-hybridization 3) sp³-hybridization 4) sp³d²-hybridization



- 1) Functional isomers 2) Tautomers 3) Position isomers 4) metamers
 138. Propanal -1 and pentan -3- - one are the ozonolysis products of an alkene. What is the structural formula of alkene ? (Hydro Carbons)



139. What are the products of dehydrohalogenation of 2-iodopentane ? (Hydro Carbons)

- 1) 2 - Pentene (major) - 1-Pentene(minor) 2) 1-pentene (major), 2 - pentene (minor)
 3) 2 - pentene (50%), 1-pentene (50%) 4) None of these.

140. Carbon monoxide is harmful to human beings as it (Environmental Chemistry)

- 1) Is carcinogenic
 2) Is antagonistic to CO_2
 3) Has higher affinity for haemoglobin as compared to oxygen
 4) Is destructive to CO_2

141. A metal crystallise into a lattice containing a sequence of layers as AB AB ABWhat percentage of voids are left in the lattice ? (Solid State)

- 1) 72% 2) 48% 3) 26% 4) 32%

142. Which of the following solutions shows positive deviation from Raoult's law ? (Solutions)

- 1) Acetone + Aniline 2) Acetone + Ethanol 3) Water + Nitric acid 4) Chloroform + Benzene

143. Limiting molar conductivity of NaBr is (Electro Chemistry)

- 1) $\Lambda_m^\circ \text{NaBr} = \Lambda_m^\circ \text{NaCl} + \Lambda_m^\circ \text{KBr}$ 2) $\Lambda_m^\circ \text{NaBr} = \Lambda_m^\circ \text{NaCl} + \Lambda_m^\circ \text{KBr} - \Lambda_m^\circ \text{KCl}$
 3) $\Lambda_m^\circ \text{NaBr} = \Lambda_m^\circ \text{NaOH} + \Lambda_m^\circ \text{NaBr} - \Lambda_m^\circ \text{NaCl}$ 4) $\Lambda_m^\circ \text{NaBr} = \Lambda_m^\circ \text{NaCl} - \Lambda_m^\circ \text{NaBr}$

144. The equivalent conductance of Ba^{2+} and Cl^- are respectively 127 and 76 $\text{ohm}^{-1} \text{cm}^2 \text{eq}^{-1}$ at infinite dilution. What will be the equivalent conductance of BaCl_2 at infinite dilution ? (Electro Chemistry)

- 1) 139.5 $\text{ohm}^{-1} \text{cm}^2 \text{eq}^{-1}$ 2) 203 $\text{ohm}^{-1} \text{cm}^2 \text{eq}^{-1}$
 3) 279 $\text{ohm}^{-1} \text{cm}^2 \text{eq}^{-1}$ 4) 101.5 $\text{ohm}^{-1} \text{cm}^2 \text{eq}^{-1}$

145. Half - Life period of a first order reaction is 10 min. What percentage of the reaction will be completed in 100 min ? (Chemical Kinetics)

- 1) 25% 2) 50% 3) 99.9% 4) 75%

146. What will be the half - life of the first order reaction for which the value of rate constant is 200 s^{-1} ? (Chemical Kinetics)

- 1) $3.46 \times 10^{-2} \text{ s}$ 2) $3.46 \times 10^{-3} \text{ s}$ 3) $4.26 \times 10^{-2} \text{ s}$ 4) $4.26 \times 10^{-3} \text{ s}$

147. Which of the following graphs would yield a straight line ? (Surface Chemistry)

- 1) x/m vs p 2) $\log x/m$ vs p 3) x/m vs $\log p$ 4) $\log x/m$ vs $\log p$

148. Which of the following reactions show the process of smelting ?

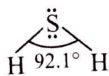
(General Principles and Process of Isolation of elements)

- 1) $2\text{PbO} + \text{PbS} \rightarrow 3\text{Pb} + \text{SO}_2$ 2) $2\text{Na}[\text{Au}(\text{CN})_2] + \text{Zn} \rightarrow \text{Na}_2[\text{Zn}(\text{CN})_4] + 2\text{Au}$
 3) $\text{PbO} + \text{C} \rightarrow \text{Pb} + \text{CO}$ 4) $2\text{HgS} + 3\text{O}_2 \rightarrow 2\text{HgO} + 2\text{SO}_2$

149. Arrange the following hydrides of group 16 elements in order of increasing stability. (P-Block Elements)

- 1) $\text{H}_2\text{S} < \text{H}_2\text{O} < \text{H}_2\text{Te} > \text{H}_2\text{Se}$ 2) $\text{H}_2\text{O} < \text{H}_2\text{Te} < \text{H}_2\text{Se} < \text{H}_2\text{S}$
 3) $\text{H}_2\text{O} < \text{H}_2\text{S} < \text{H}_2\text{Se} < \text{H}_2\text{Te}$ 4) $\text{H}_2\text{Te} < \text{H}_2\text{Se} < \text{H}_2\text{S} < \text{H}_2\text{O}$

150. Bond angle in H_2O (104.5°) is higher than the bond angle of H_2S (92.1°). The difference is due to (P-Block Elements)



- 1) Difference in size of S and O 2) Difference in electronegativity of S and O
 3) Difference in Oxidation states of S and O 4) Difference in shapes of hybrid orbitals of S and O

151. Which of the following pairs of ions have the same electronics configuration ? (d- and -f-block elements)

- 1) Cu^{2+} , Cr^{2+} 2) Fe^{3+} , Mn^{2+} 3) CO^{+3} , Ni^{3+} 4) Sc^{3+} , Cr^{3+}

152. Which of the following is not a neutral Ligand ? (Co-ordination Compounds)

- 1) H_2O 2) NH_3 3) ONO 4) CO

153. Alkyl halides are immiscible in water though they are polar because (HaloAlkanes & Halo Arenes)
1) They react with water to give alcohols
2) They cannot form hydrogen bonds with water
3) C -X bond cannot be broken easily
4) They are stable compounds and are not reactive.
154. Picric acid is a yellow coloured compound. Its chemical name is (Alcohols, Phenols and ethers)
1) m - nitrobenzoic acid
2) 2, 4, 6 - trinitrophenol
3) 2, 4, 6 - tribromophenol
4) P - nitrophenol.
155. In the following sequence of reaction, the final product (z) is $\text{CH} \equiv \text{CH} \xrightarrow[\text{H}_2\text{SO}_4]{\text{Hg}^{2+}} \text{X} \xrightarrow[\text{H}_2\text{O}]{\text{CH}_3\text{MgX}} \text{Y} \xrightarrow{[\text{O}]} \text{Z}$ (Aldehydes, Ketones & Carboxylic acids)
1) Ethanal
2) Propan - 2- ol
3) Propanone
4) propan - 1 - ol
156. The order of reactivity of CH_3CHO , $\text{CH}_3\text{COC}_2\text{H}_5$ and CH_3COCH_3 is (Aldehydes, Ketones & Caboxylic acids)
1) $\text{CH}_3\text{CHO} > \text{CH}_3\text{COCH}_3 > \text{CH}_3\text{COC}_2\text{H}_5$
2) $\text{C}_2\text{H}_5\text{COCH}_3 > \text{CH}_3\text{COCH}_3 > \text{CH}_3\text{CHO}$
3) $\text{CH}_3\text{COCH}_3 > \text{CH}_3\text{CHO} > \text{C}_2\text{H}_5\text{COCH}_3$
4) $\text{CH}_3\text{COCH}_3 > \text{C}_2\text{H}_5\text{COCH}_3 > \text{CH}_3\text{CHO}$
157. Which of the following can exist as zwitter ion ? (Amines)
1) P - Aminoacetophenone
2) Sulphanilic acid
3) P - Nitroaminobenzene
4) P- Methoxyphenol
158. Vitamin B₂, a water soluble vitamin is also known as Ascorbic (Bio Molecules)
1) Ascorbia acid
2) Riboflavin
3) Thiamine
4) Pyridoxine
159. Which of the following is a homopolymer ? (Polymers)
1) Bakelite
2) Nylon 6,6
3) Neoprene
4) Buna - S
160. The main constituents of dettol are (Chemistry in everyday life)
1) Chloramphenicol + glycerol
2) 2 - 3% solution of iodine in alcohol
3) 0. 2% solution of phenol
4) Chloroxylenol and terpineol.