

**MODEL PAPER - 8****CHEMISTRY**

121. An organic compound on analysis gave C = 54.2%, H = 9.2% by mass, its empirical formula is  
(Some Basic concept of chemistry)
- 1) CHO<sub>2</sub>                      2) CH<sub>2</sub>O                      3) C<sub>2</sub>H<sub>8</sub>O                      4) C<sub>2</sub>H<sub>4</sub>O
122. The radius of hydrogen atom in ground state is 0.53 Å. What will be the radius of Li<sup>2+</sup> in the ground state ?  
(Structure of Atom)
- 1) 1.06 Å<sup>0</sup>                      2) 0.265 Å<sup>0</sup>                      3) 0.17 Å<sup>0</sup>                      4) 0.53 Å<sup>0</sup>
123. An electron in excited hydrogen atom falls from fifth energy level to second energy level. In which of the following regions, the spectrum line will be observed and is part of which series of the atomic spectrum ?  
(Structure of Atom)
- 1) Visible, Balmer              2) Ultraviolet, Lyman              3) Infrared, Paschen              4) Infrared, Brackett
124. Few general names are given along with their valence shell configurations. mark the incorrect name,  
(Classification of elements)
- 1) ns<sup>2</sup> np<sup>6</sup> - Noble gases                      2) ns<sup>2</sup> np<sup>5</sup> - Halogens  
3) ns<sup>1</sup> - Alkali metals                      4) ns<sup>2</sup> - np<sup>2</sup> - Chalcogens
125. How many sigma and pi bonds are present in toluene ?  
(Chemical Bonding & Molecular structure)
- 1) 10σ and 3π bonds              2) 12σ and 3π bonds              3) 15 σ and 3π bonds              4) 6σ and 3π bonds
126. Which of the following orbitals will not form sigma bond after overlapping ?  
(Chemical Bonding & Molecular structure)
- 1) s - orbital and s - orbital                      2) s - orbital and p<sub>z</sub> - orbital  
3) p<sub>z</sub> - orbital and p<sub>z</sub> - orbital                      4) p<sub>x</sub> - orbital and p<sub>x</sub> - orbital
127. The correct value of the gas constant 'R' is close to  
(States of Matter)
- 1) 0.082 litre - atmosphere K                      2) 0.082 litre - atmosphere K<sup>-1</sup> mol<sup>-1</sup>  
3) 0.082 litre - atmosphere<sup>-1</sup> K mol<sup>-1</sup>                      4) 0.082 litre<sup>-1</sup> atmosphere<sup>-1</sup> K mol.
128. Value of gas constant R in the ideal gas equation PV = nRT depends upon  
(States of Matter)
- 1) Temperature of the gas                      2) Pressure of the gas  
3) Units in which P, V and T are measured                      4) nature of the gas
129. What will be ΔH for the reaction, CH<sub>2</sub>Cl<sub>2</sub> → C + 2H + 2Cl (B.E of C - H and C - Cl bonds are 416 KJ mol<sup>-1</sup> and 325 KJ mol<sup>-1</sup> respectively)  
(Thermodynamics)
- 1) 832 KJ                      2) 1482 KJ                      3) 650 KJ                      4) 1855 KJ
130. Which of the following species can act both as an acid/as well as a base ?  
(Equilibrium)
- 1) SO<sub>4</sub><sup>2-</sup>                      2) HSO<sub>4</sub><sup>-</sup>                      3) PO<sub>4</sub><sup>3-</sup>                      4) OH<sup>-</sup>
131. The oxidation state of Fe in K<sub>4</sub>[Fe(CN)<sub>6</sub>] is  
(Redox Reactions)
- 1) +2                      2) +3                      3) +4                      4) +6
132. The stoichiometric constants for the reaction pCu + qHNO<sub>3</sub> → rCu(NO<sub>3</sub>)<sub>2</sub> + sNO + tH<sub>2</sub>O  
(Redox Reactions)
- 1) 3,3,3,2,3                      2) 3,2,3,2,4                      3) 3,8,3,2,4                      4) 2,3,3,3,2
133. The temporary hardness of water due to calcium bicarbonate can be removed by adding  
(Hydrogen)
- 1) CaCO<sub>3</sub>                      2) CaCl<sub>2</sub>                      3) HCl                      4) Ca(OH)<sub>2</sub>
134. Which of the following is arranged according to increasing basic strength ?  
(S-Block elements)
- 1) CaO < MgO < SrO < BaO < BeO                      2) BaO < SrO < CaO < MgO < BeO  
3) BeO < MgO < CaO < BaO < SrO                      4) BeO < MgO < CaO < SrO < BaO
135. Chemically borax is  
(P-Block elements)
- 1) Sodium metaborate                      2) Sodium orthoborate  
3) Sodium tetraborate decahydrate                      4) Sodium hexaborate
136. Borax is not used  
(P-Block elements)
- 1) As a styptic to stop bleeding                      2) In making enamel and pottery glazes  
3) As a flux in soldering                      4) In making optical glasses.
137. Which of the following is an electrophilic reagent ?  
(Organic chemistry-some Basic Principle)
- 1) H<sub>2</sub>O                      2) NH<sub>3</sub>                      3) OH<sup>-</sup>                      4) NO<sub>2</sub><sup>+</sup>
138. CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>OH  $\xrightarrow[170^\circ\text{C}]{\text{conc. H}_2\text{SO}_4}$  A  $\xrightarrow[500^\circ\text{C}]{\text{Cl}_2}$  B A and B are  
(Hydro Carbons)
- 1) A = CH<sub>3</sub>CH<sub>2</sub>CH<sub>3</sub>, B = CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>Cl                      2) A = CH<sub>3</sub>CH = CH<sub>2</sub>, B = CH<sub>2</sub>ClCH = CH<sub>2</sub>  
3) A = CH<sub>2</sub> = CH<sub>2</sub>, B = CH<sub>3</sub>CH<sub>2</sub>Cl                      4) A = CH<sub>3</sub>CH<sub>2</sub>CH<sub>3</sub>, B = CH<sub>3</sub>CH = CH<sub>2</sub>
139. The most acidic hydrogen atoms are present in  
(Hydro Carbons)
- 1) ethane                      2) ethene                      3) ethyne                      4) benzene,
140. Mark the example which is not correctly matched ?  
(Environmental Chemistry)
- 1) Air pollutants - Oxides of sulphur, nitrogen and carbon  
2) Particulate pollutants - Dust, mist, fumes  
3) Global warming - methane, Ozone, CFC's  
4) Water soluble chemical pollutants - Oxides of nitrogen, carbon and sodium

141. A solid AB has a rock salt structure. If radius of cation  $A^+$  is 120 pm, what is the minimum value of radius of  $B^-$  anion ? (Solid State)  
 1) 120 pm                      2) 240 pm                      3) 290 pm                      4) 360 pm
142. 10% solution of urea is isotonic with 6% solution of a non - volatile solute X, what is the molecular mass of solute X ? (Solutions)  
 1) 6 g mol<sup>-1</sup>                      2) 60 g mol<sup>-1</sup>                      3) 36 g mol<sup>-1</sup>                      4) 32 g mol<sup>-1</sup>
143. Specific conductance of 0.1 M NaCl solution is  $1.01 \times 10^{-2} \text{ ohm}^{-1} \text{ cm}^{-1}$ . Its molar conductance in  $\text{ohm}^{-1} \text{ cm}^2 \text{ mol}^{-1}$  is (Electro Chemistry)  
 1)  $1.01 \times 10^2$                       2)  $1.01 \times 10^3$                       3)  $1.01 \times 10^4$                       4) 1.01
144. How much electricity in terms of faraday is required to produce 100 g of Ca from molten  $\text{CaCl}_2$ ? (Electro Chemistry)  
 1) 1 F                      2) 2 F                      3) 3 F                      4) 5 F
145. A first order reaction is 20% complete in 10 minutes. what is the specific rate constant for the reaction (Chemical Kinetics)  
 1)  $0.0970 \text{ min}^{-1}$                       2)  $0.009 \text{ min}^{-1}$                       3)  $0.0223 \text{ min}^{-1}$                       4)  $2.223 \text{ min}^{-1}$
146. In a first order reaction, the concentration of reactant is reduced to 1/8 of the initial concentration in 75 minutes at 298 K. what is the half - life period of the reaction in minutes ? (Chemical Kinetics)  
 1) 50 min                      2) 15 min                      3) 30 min                      4) 25 min
147. Which of the following gases present in a polluted area will be adsorbed most easily on the charcoal gas mask ? (Surface Chemistry)  
 1)  $\text{H}_2$                       2)  $\text{O}_3$                       3)  $\text{N}_2$                       4)  $\text{SO}_2$
148. Which of the following metals cannot be obtained by reduction of its metal oxide by aluminium ? (General Principles and Process of Isolation of elements)  
 1) Cr                      2) Mn                      3) Fe                      4) Mg
149. Dry  $\text{SO}_2$  does not bleach dry flowers because (P-Block Elements)  
 1) nascent hydrogen responsible for bleaching is produced only in presence of moisture  
 2) Water is the actual reducing agent responsible for bleaching  
 3) Water is stronger acid than  $\text{SO}_2$   
 4) The  $\text{OH}^-$  ions produced by water cause bleaching
150. Match the column I with column II and mark the appropriate choice. (P-Block Elements)
- |                       |  |
|-----------------------|--|
| Column - I            | Column - II                            |
| A. Thiosulphuric acid | (i) $\text{H}_2\text{SO}_5$            |
| B. Caro's acid        | (ii) $\text{H}_2\text{S}_2\text{O}_6$  |
| C. Marshall's acid    | (iii) $\text{H}_2\text{S}_2\text{O}_3$ |
| D. Dithionic acid     | (iv) $\text{H}_2\text{S}_2\text{O}_8$  |
- 1) A → (i); B → (ii); C → (iii) D → (iv)                      2) A → (iv); B → (iii); C → (ii) D → (i)  
 3) A → (iii); B → (i); C → (iv) D → (ii)                      4) A → (ii); B → (iii); C → (i) D → (iv)
151. The equation  $3\text{MnO}_4^{2-} + 4\text{H}^+ \rightarrow 2\text{MnO}_4^- + 2\text{H}_2\text{O}$  represents  $2\text{MnO}_4^- + \text{MnO}_2 + 2\text{H}_2\text{O}$  (d- and f-block elements)  
 1) reduction    2) disproportionation    3) Oxidation in acidic medium    4) Reduction in acidic medium
152. The correct IUPAC name of the coordination compound  $\text{K}_3[\text{Fe}(\text{CN})_5\text{NO}]$  is (Co-ordination Compounds)  
 1) Potassium pentacyanonitrosylferrate (II)                      2) Potassium pentacyanonitroferrate (III)  
 3) Potassium nitritopentacyanoferrate (IV)                      4) Potassium nitritepentacyanoiron (II)
153.  $\text{CH}_3\text{OH} \xrightarrow{\text{Pb}} \text{X} \xrightarrow{\text{KCN}} \text{Y} \xrightarrow{\text{Hydrolysis}} \text{Z}$ . The final product in the reaction is (HaloAlkanes & Halo Arenes)  
 1)  $\text{CH}_3\text{OH}$                       2)  $\text{HCOOH}$                       3)  $\text{CH}_3\text{CHO}$                       4)  $\text{CH}_3\text{COOH}$
154. The most suitable reagent for the conversion of  $\text{RCH}_2\text{OH} \rightarrow \text{RCHO}$  (Alcohols, Phenols and ethers)  
 1)  $\text{K}_2\text{Cr}_2\text{O}_7$                       2)  $\text{CrO}_3$                       3)  $\text{KMnO}_4$                       4) PCC
155. Identify (X), (Y) and (Z) reagents in the given sequence of reaction. (Aldehydes, Ketones & Carboxylic acids)  
 $\text{CH} \equiv \text{CH} \xrightarrow{\text{X}} \text{CH}_3\text{CHO} \xrightarrow{\text{Y}} \text{CH}_3\text{CH}(\text{OH})\text{CH}_3 \xrightarrow{\text{Z}} \text{CH}_3\text{COCH}_3$   
 1) X =  $\text{H}_2\text{SO}_4$ , Y =  $\text{H}_2\text{O}/\text{OH}^-$ , Z =  $\text{PCl}_5$ , heat  
 2) X =  $\text{HNO}_3$ , Y =  $\text{Na}_2\text{CO}_3$ , Z =  $\text{H}_2\text{SO}_4$ , heat  
 3) X =  $\text{H}_2\text{SO}_4/\text{Hg}^{2+}$ , Y =  $\text{PCl}_5/\text{H}_2\text{O}$ , Z =  $\text{K}_2\text{Cr}_2\text{O}_7/\text{OH}^-$   
 4) X =  $\text{H}_2\text{SO}_4/\text{Hg}^{2+}$ , Y =  $\text{CH}_3\text{MgBr}/\text{H}_2\text{O}$ , Z =  $\text{K}_2\text{Cr}_2\text{O}_7/\text{H}^+$
156. Which of the following does not answer iodoform test ? (Aldehydes, Ketones & Carboxylic acids)  
 1) n - Butyl alcohol                      2) sec-Butyl alcohol                      3) Acetophenone                      4) Acetaldehyde
157. Which of the following has highest  $\text{pK}_b$  value (Amines)  
 1)  $(\text{CH}_3)_3\text{CNH}_2$                       2)  $\text{NH}_3$                       3)  $(\text{CH}_3)_2\text{NH}$                       4)  $\text{CH}_3\text{NH}_2$
158. Deficiency of vitamin E causes (Bio Molecules)  
 1) rickets                      2) scurvy                      3) muscular weakness                      4) beri beri.
159. Synthetic polymer prepared by using caprolactam is known as (Polymers)  
 1) Terylene                      2) teflon                      3) nylon 6                      4) neoprene
160. An ester which is effective in curing malaria is (Chemistry in everyday life)  
 1) ethyl acetate                      2) methyl acetate                      3) methyl salicylate                      4) ethyl benzoate