MODEL PAPER - 2

CHEMISTRY

121. In a reaction conatiner, 100 g of hydrogen and 100 g of Cl_2 are mixed for the formation of HCl gas, what is the limiting reagent and how much HCl is formed in the reaction ? ***(Some Basic concept of chemistry)***
1) H_2 is limiting reagent and 36.5 g of HCl are formed.
2) Cl_2 is limiting reagent and 102.8 g of HCl are formed.
3) H_2 is limiting reagent and 142 g of HCl are formed
4) Cl_2 is limiting reagent and 73 g of HCl are formed.

122. Few electrons have following quantum numbers,
(i) n = 4, l = 1 (ii) n = 4, l = 0 (iii) n = 3, l = 2 (iv) n = 3, l = 1
Arrange them in the order of increasing energy from lowest to highest. ***(Structure of Atom)***
1) (iv) < (ii) < (iii) < (i) 2) (ii) < (iv) < (i) < (iii) 3) (i) < (iii) < (ii) < (iv) 4) (iii) < (i) < (iv) < (ii)

123. The number of radial nodes and angular nodes for d - orbital can be represented as ***(Structure of Atom)***
1) (n - 2) radial nodes +1 angular node = (n-1) total nodes
2) (n - 1) radial nodes +1 angular node = (n - 1) total nodes
3) (n - 3) radial nodes +2 angular nodes = (n - ℓ -1) total nodes
4) (n - 3) radial nodes +2 angular nodes = (n-1) total nodes

124. Which of the following groups conatins metals, non - metals and metalloids ? ***(Classification of elements)***
1) Group 17 2) Group 14 3) Group 13 4)Group 12

125. Which of the following has strongest bond ? ***(Chemical Bonding & Molecular structure)***
1) HF 2) HCl 3) HBr 4) HI

126. Hydrogen bond between two atoms is formed due to ***(Chemical Bonding & Molecular structure)***
1) Displacement of electrons towards more electronegative atom resulting in fractional positive charge on hydrogen
2) Displacement of electrons towards hydrogen atom resulting in a polar molecule
3) Formation of a bond between hydrogen atoms of one molecule and the other
4) Existence of an attractive force which binds hydrogen atoms together

127. It is observed that H_2 and He gases always show positive deviation from ideal behaviour i.e., Z > 1. This is because ***(States of Matter)***
1) The value of a is very large due to high attractive forces
2) The weak intermolecular forces of attraction due to which a is very small and a/V^2 is negligible
3) The value of b is very large due to large size of the molecules
4) Both a and b are very small and negligible

128. Surface tension does not vary with ***(States of Matter)***
1) temperature 2) concentration 3) size of the surface 4) vapour pressure.

129. Which of the following relationships is not correct ? ***(Thermodynamics)***
1) $\Delta H = \Delta E + \Delta n_g RT$ 2) $\Delta H_{sub} = \Delta H_{fusion} + \Delta H_{vap}$
3) $\Delta H^0_r = \sum H^0_{f(reactants)} - \sum H^0_{f(products)}$ 4) $\Delta H^0_r = \sum$ B.E of reactants - $\sum$ B.E of products

130. Solubility product expression of salt MX_4 which is sparingly soluble with a solubility s can be given as ***(Equilibrium)***
1) 256 s^5 2) 16 s^3 3) 5s 4) 25 s^4

131. Which of the following halides is most easily oxidised ? ***(Redox Reactions)***
1) F^- 2) Br^- 3) I^- 4) Cl^-

132. Given $E^0_{Ag^+/Ag}$ = +0.80 V ; $E^0_{Cu^{2+}/Cu}$ = +0.34 V ; $E^0_{Fe^{+3}/Fe^{+2}}$ = +0.76 V ; $E^0_{Ce^{+4}/Ce^{+3}}$ = +1.60V which of the following statements is not correct ? ***(Redox Reactions)***
1) Fe^{3+} does not oxidise Ce^{3+} 2) Cu reduces Ag+ to Ag
3) Ag will reduce Cu^{2+} to Cu 4) Fe^{3+} reduces Cu^{2+} to Cu

133. Strength of 10 volume hydrogen peroxide solution means ***(Hydrogen)***
1) 30.35 g L^{-1} 2) 17 g L^{-1} 3) 34 g L^{-1} 4) 68 g L^{-1}

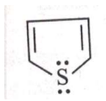
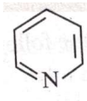
134. Slaked lime reacts with chlorine to give ***(S-Block elements)***
1) $CaCl_2$ 2) CaO 3) $Ca(OCl)_2$ 4) $CaCO_3$

135. Glass and cement are two important examples of ***(P-Block elements)***
1) Man - made silcates 2) Silicates 3) Zeolites 4) organic polymers

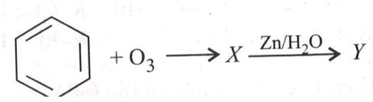
136. Which of the following acids cannot be stored in glass ? ***(P-Block elements)***
1) HF 2) HCl 3) H_2SO_4 4) HI

137. 2.18g of an organic compound containing sulphur produces 1.02g of $BaSO_4$. THe percentage of sulphur in the compound is
1) 7.26% 2) 8.98% 3) 10% 4) 6.42%

138. Which of the following species does not show aromaticity? ***(Hydro Carbons)***

1)  2)  3)  4) 

139. Similar to alkenes and alkynes benzene also undergoes ozonolysis. In the sequence of the given reaction identify X and Y. ***(Hydro Carbons)***



1) X = Triozonide, Y = Glyoxal 2) X = Diozonide, Y = Succinic acid
3) X = Monoozonide, Y = Benzoic acid 4) X = Triozonide, Y = Benzaldehyde

140. As DDT passes into food chain, its concentration ***(Environmental Chemistry)***
1) Remains same 2) Decreases 3) Becomes zero 4) Increases

141. Which of the following crystals does not exhibit Frenkel defect? ***(Solid State)***
1) AgBr 2) AgCl 3) KBr 4) ZnS

142. What amount of $CaCl_2$ (i = 2.47) is dissolved in 2 litres of water so that its osmotic pressure is 0.5 atm at 27^0C ? ***(Solutions)***
1) 3.42 g 2) 9.24 g 3) 2.834 g 4) 1.820 g

143. In electrolysis of dilute H_2SO_4, what is liberated at anode? ***(Electro Chemistry)***
1) H_2 2) SO_4^{2-} 3) SO_2 4) O_2

144. When a lead storage battery is discharged ***(Electro Chemistry)***
1) Lead sulphate is consumed 2) Oxygen gas is evolved
3) Lead sulphate is formed 4) Lead sulphide is formed

145. Which of the following factors are resonsible for the increase in the rate of a surface catalysed reaction? ***(Chemical Kinetics)***

i) A catalyst provides proper orientation for the reactant molecules to react
ii) Heat of adsorption of reactants on a catalyst helps reactant molecules to overcome activation energy.
iii) The catalyst increases the activation energy of the reaction
1) i & iii 2) i & ii 3) ii & iii 4) i, ii & iii

146. Threshold energy is equal to ***(Chemical Kinetics)***
1) Activation energy 2) Activation energy - Energy of molecules
3) Activation energy + Energy of molecules 4) None of these

147. What is the role of adsorption in froth floatation process used especially for concerntration of sulphide ores? ***(Surface Chemistry)***
1) Shape selective catalysis 2) Adsorption of pine oil on sulphide ore particles
3) Adsorption of pine oil on impurities 4) Production of heat in the process of exothermic reaction

148. Most electropositive metals are obtained from their ores by ***(Genral Principles and Process of Isolation of elements)***
1) Autoreduction 2) Smelting with carbon 3) Electrolysis of fused salts 4) Thermal decomposition

149. In XeF_2, XeF_4 and XeF_6 the number of lone pairs on Xe is respectively ***(P-Block Elements)***
1) 2, 3, 1 2) 1, 2, 3 3) 4, 1, 2 4) 3, 2, 1

150. Compound with the geometry square pyramidal and sp^3d^2 hybridisation is ***(P-Block Elements)***
1) $XeOF_2$ 2) $XeOF_4$ 3) XeO_4 4) XeO_2F_2

151. What is the total number of inner transition elements in the periodic table? ***(d- and -f-block elements)***
1) 10 2) 14 3) 30 4) 28

152. Mark the incorrect match ***(Co-ordination Compounds)***
1) Insulin - Zinc 2) Haemoglobin - Iron 3) Vitamin B_{12} - Cobalt 4) Chlorophyll - Chromium

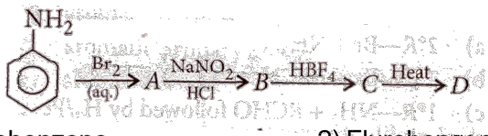
153. Chloroform is kept in dark coloured bottles because ***(HaloAlkanes & Halo Arenes)***
1) It reacts with clear glass 2) It undergoes chlorination in transparent glass bottles
3) It is oxidised to poisonous gas, phosgene in sunlight 4) It starts burning when exposed to sunlight

154. Cumene on reaction with oxygen followed by hydrolysis gives ***(Alcohols, Phenols and ethers)***
1) CH_3OH and $C_6H_5COCH_3$ 2) C_6H_5OH and $(CH_3)_2O$
3) $C_6H_5OCH_3$ and CH_3OH 4) C_6H_5OH and CH_3COCH_5

155. Which of the following will not undergo HVZ reaction? ***(Aldehydes, Ketones & Carboxylic acids)***
1) Propanoic acid 2) Ethanoic acid
3) 2-Methylpropanoic acid 4) 2,2-Dimethylpropanoic acid

156. Which of the following orders is not correct for the decreasing order of acidic characer? ***(Aldehydes, Ketones & Carboxylic acids)***
1) $CH_3CH_2CH(Cl)COOH > CH_3CH(Cl)CH_2COOH > CH_2(Cl)CH_2\ CH_2\ COOH > CH_3CH_2CH_2COOH$
2) $ICH_2COOH > BrCH_2COOH > ClCH_2COOH > FCH_2COOH$
3) $CCl_3COOH > CHCl_2COOH > CH_2ClCOOH > CH_3COOH$
4) $HCOOH > CH_3COOH > C_2H_5COOH > (CH_3)_2CHCOOH$

157. The product 'D' in the following sequence of reactions is *(Amines)*



1) 2,4,6-tribromofluorobenzene 2) Flurobenzene
3) p-bromofluorobenzene 4) tribromobenzene

158. Which of the following is not produced by human body? *(Bio Molecules)*
1) Enzymes 2) Vitamins 3) Proteins 4) Nucleic acid

159. Synthetic biopolymer, PHBV is made up of the following monomers *(Polymers)*
1) 3-hydroxybutanoic acid + 3-hydroxypentanoic acid 2) 2-hydroxybutanoic acid + 2-hydroxypropanoic
3) 3-chlorobutanoic acid +3-chloropentanoic acid 4) 2-chlorobutanoic acid+3-methylpentanoic acid

160. Which is not true for a detergent molecule? *(Chemistry in everyday life)*
1) It has a non-polar organic part and a polar group
2) It is not easily biodegraded
3) It is a sodium salt of fatty acid
4) It is a surface active reagent