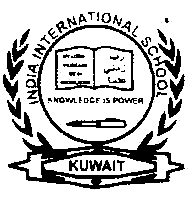
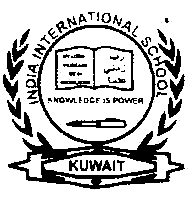
**INDIA INTERNATIONAL SCHOOL – MANGAF**



**CHEMISTRY** **HOLIDAY HOME WORK GRADE 12**

1) Give reasons for the following :–

(a) RBC swell up and finally burst when placed in 0.1% NaCl solution.

(b) When fruits and vegetables that have been dried are placed in water, they slowly swell and return to original form.

2) For a dilute solution containing 2.5 g of a non-volatile non-electrolyte solute in 100 g of water, the elevation in boiling point at 1 atm pressure is 2°C. Assuming concentration of solute is much lower than the concentration of solvent, determine the vapour pressure (mm of Hg) of the solution. [Given : Kb for water = 0.76 kg mol–1]

3) Calculate the mass percentage of benzene (C6H6) and carbon tetrachloride (CCl4), If 22g of benzene is dissolved in 122g of carbon tetrachloride

4) 2g of C6H5COOH dissolved in 25g of benzene shows depression in freezing point equal to 1.62K. Molar freezing point depression constant for benzene is 4.9 K kg mol–1. What is the percentage association of acid if it forms a dimer in solution

5) A 5% solution of sucrose (C12H22O11) is isotonic with 0.877% solution of urea. NH2CONH2) Calculate the molecular mass of urea

6) An organic compound A having molecular formula C6H6O gives a characteristic colour with aqueous FeCl3. When A is treated with NaOH and CO2 at 400 K under pressure, compound B is obtained. Compound B on acidification gives compound C which reacts with acetyl chloride to form D which is a popular pain killer. Deduce the structure of A, B, C and D. What is the common name of Drug D?

7) How are the following ethers prepared by williumson synthesis? (a) Ethoxybenzene (b) 2–methoxy–2–methylpropane

8) Arrange the following in the increasing order of property shown :

(i) methanol, ethanol, diethylether, ethyleneglycol. (Boiling points)

(ii) phenol, o-nitrophenol, m-nitrophenol, p-nitrophenol. (Acid strength)

(iii) dimethylether, ethanol, phenol. (Solubility in water)

(iv) n-butanol, 2-methylpropan-1-ol, 2-methylpropan-2-ol. (Acid strength)

9) What happens when :

(i) aluminium reacts with tert-butyl alcohol

(ii) phenol is oxidised with chromic acid

(iii) cumene is oxidised in the presence of air and the product formed is treated with dilute acid.

(iv) phenol is treated with conc. HNO3.

(v) phenol is treated with chloroform in presence of dilute NaOH.

10) Write the structures of the compounds whose names are given below :

(i) 3, 5-dimethoxyhexane-1, 3, 5-triol (ii) cyclohexylmethanol (iii) 2-ethoxy-3-methylpentane (iv) 3-chloromethylpentan-2-ol (v) p-nitroanisole

11) Write the difference between (i) enantiomers and diastereomers (ii) retention and inversion of configuration. (iii) electrophilic and nucleophilic substitution reactions

12) Give reasons for the following : (i) The bond length of C–Cl bond is larger in haloalkanes than that in haloarenes. (ii) Although alkyl halides are polar in nature but are not soluble in water.

13) All the chemical equations from the chapter p block elements.

14) Conversions from haloalkanes , alcohols , and aldehydes chapters in text questions.