HIGHER SECONDARY EXAMINATION 2012

HSE II **MARKS:60**

TIME:2 Hrs

COOL OFF TIME:15 Mts

CHEMISTRY

1. a. A compound formed by P and Q crystallises in the cubic structure. The P atoms present at corners of a cube while Q atoms are at face centres. What is the formula of the compound (score-2)

   b. Give reason for the following

   i) Schottky defect lower the density of the solid

   ii) ZnO on heating become yellow (score-2)

2. A solution is formed between water and ethanol

   a. Predict the type of deviation. Justify your answer (score-2)

   b. Boiling point of water at 760mm of Hg is 373K. 18g of glucose dissolved in 180g of water. What is the boiling point of the solution? K_b of water is 0.53KKg/mol (score-2)

3. a. How much charge is required for the reduction of 1mole of Cu^{2+} to Cu (score-2)

   b. what is the basis of obtaining electrical energy in fuel cell (score-2)

4. Decomposition of H_2O_2 follows first order kinetics

   a. Write down the integrated rate expression for first order reaction (score-1)

   b. Half life period of a first order reaction is 20 seconds. Find the time required for 80% completion of the reaction (score-3)

5. a. What are micelles? Give an example (score-1)

   b. Identify the ions used for the coagulation of As_2S_3 sol

   K^+,Cl^-,SO_4^{2-},Mg^{2+} (score-1)

   c. Name the law behind this (score-1)

6. a. Match the following

A	B
Zone refining	ZnS
Froth floatation	Ti
Leaching	Ge
Vapour phase refining	Al

(score-2)

   b. What is the purpose of addition of CaO during the manufacture of Fe (score-2)

7. a. Sulphuric acid is known as the 'king of chemicals'

   i) Name the process of manufacture of H_2SO_4 (score-1/2)

   ii) Outline the different steps involved (score-1 1/2)

   iii) What will you observe when H_2SO_4 is added to hydrated $CuSO_4$ (score-1)

   b. Xenon forms fluorides and oxides

   i) How XeO_3 is prepared (score-1)

   ii) Explain the hybridisation of XeO_3 (score-1)

8. a. Account the reason for the following

   i) Zn,Cd and Hg are not considered as transition metals (score-1)

   ii) Ti^{4+} does not form coloured compounds (score-1)

   b. Why $K_2Cr_2O_7$ show different colour in acidic and basic medium (score-2)

9. a. Name the following co ordination compounds

   i) $K_4[Fe(CN)_6]$ ii) $[Co(NH_3)_3Cl_2(NO_2)]$ (score-2)

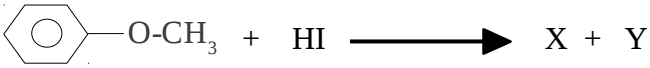
   b. show that $[Fe(CN)_6]^{3-}$ is paramagnetic and $[Fe(CN)_4]^{4-}$ is diamagnetic (score-2

10. a. (+) 2-chloro-2-methyl hexane is treated with aqueous KOH. Comment on the optical activity of the product formed (score-2)

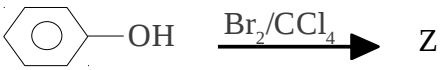
b. What will be the product obtained when the above compound is treated with alcoholic KOH (score-1)

c. Grignard reagent can be prepared only in aprotic medium why? (score-1)

11. a. Identify the products

i) 

(score-1)

ii) 

(score-1)

b. Compare the acidity of ortho nitrophenol and para nitrophenol (score-1)

12. a. Arrange the following compounds in the increasing order of reactivity towards nucleophilic addition

i) CH_3-CO-CH_2-CH_3 ii) H-CHO iii) CH_3-CHO (score-2)

Give reason for your answer

b. C_6H_5-CHO and CH_3-CHO where treated separately with aqueous alkali. Identify the reactions and products obtained in both cases (score-3)

13. a. Aniline fails to answer Friedel Craft's reaction. Give reason (score-1 1/2)

b. Convert benzamide into phenol (score-1 ½)

14. a. Hydrolysis of sugar is called 'Inversion of cane sugar' Why (score-1 ½)

b. Amino acids are found to have high melting point and solubility in water. Give reason (score-1 ½)

15. a. Name the monomer unit of polymer Dacron (score-1)

b. When phenol is treated with formaldehyde,an industrially important polymer is formed. Name the polymer and mention its uses (score-2)

16. a. Differentiate between antiseptic and disinfectant (score-2)

b. A detergent is a soap without soap. Justify (score-1)

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