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<u>M.Sc.I</u> FCYE408

4th Semester Regular Examination- 2017-18 CHEMISTRY-IV BRANCH: M.Sc.I(AP) Time: 3 Hours Max marks: 70 Q code:C910

Question No.1 which is compulsory and any five from the rest The figures in the right hand margin indicate marks. Answer all parts of a question at a place.

Q1 Answer the following questions.

(2 x 10)

- a) Draw the Haworth projection structure of α -D-glucopyranose.
- **b)** How carbohydrates are classified on the basis of their degree of polymerization?
- c) What is the difference between erythro and threo? Explain with examples.
- Write the IUPAC name of the following compounds Fe(CO)₅, K₃[Fe(CN)₆]
- e) Which of the following has more conductivity and why? CoCl₃.6NH₃, CoCl₃.4NH₃.
- f) If $E_{Zn2+/Zn}$ =-0.76v, what will be the value $E_{2Zn2+/2Zn}$?
- g) For feasibility of a cell, what will be the value of emf of the cell?
- h) The electrode potential value of two metals X and Y are +0.35V and -0.52V respectively. Which is a good oxidizing agent and why?
- i) 1molal aqueous solutions of each are given below:
 K₃[Fe(CN)₆], glucose, urea, CaCl₂.
 Arrange the above solutions in the increasing order of their boiling point.
- j) What are the characteristics of ideal solution?

Q2	a)	Do glucose and fructose give the same osazone? Justify your answer	(4)
	b)	Discuss various types of structural isomerism shown by co-ordination compounds.	(6)

- Q3 a) Define mutarotation ? Discuss its mechanism. (5)
 b) How will you convert glucose to mannose and vice versa ? (5)
- Q4 a) What is Raoult's Law? State the factors responsible for deviations from (6) this law. Illustrate the deviation with suitable examples.
 - b) 1% solution of KCI is dissociated to the extent of 80%. What will be the (4) osmotic pressure at 300K?
- **Q5 a)** Describe 'Ostwald and Walker's' method' for measurement of vapour (6) pressure.

	b)	Calculate the molecular mass of a substance, 1.0gm of which on being dissolved in 100gm of solvent gave an elevation of 0.307° C in the boiling point. Molal elevation constant of solvent K _b =1.84K mol ⁻¹ .	(4)
Q6	a)	Describe the construction of quinhydrone electrode. How can you measure the pH of an unknown solution by using it?	(6)
	b)	Discuss how an acidic buffer resists the pH change?	(4)
Q7	a) b)	How can you measure the emf of a cell by potentiometric method? Calculate the emf of the following cell: $Zn(s)/Zn^{2+}(aq) (0.01M// Ag^{+}(aq) (0.1M /Ag(s))$. The standard electrode potential of Zn and Ag are -0.76V and +0.8V respectively.	(6) (4)
Q8	a)	Explain the following terms: Ligand, Effective Atomic Number	(4)
	b)	Explain the bonding of $[Ni(Et_3P)_2Br_3]$ by applying VBT.	(6)