**B.TECH SEM - IV (2007 COURSE) (CHEMICAL ENGG.) :**
**SUMMER - 2018**

**SUBJECT: APPLIED CHEMISTRY-II**

Day: **Tuesday** Time: **10.00 AM TO 01.00 PM**
Date: **05/06/2018** **S-2018-2601** Max Marks: 80

**N.B:**

1) **Q. No 1** and **Q. No. 5** are **COMPULSORY**. Out of remaining questions Attempt A**NY TWO** questions from each section.
2) Answer to both the sections should be written in the **SEPARATE** answer book.
3) Draw neat and labeled diagram **WHEREVER** necessary.
4) Figures to the right indicate **FULL** marks.
5) Assume suitable data if necessary.

## SECTION-I

**Q.1** **a)** What are ά-amino acids? Discuss classification of ά- amino giving two examples of each class. **(06)**

**b)** "Compounds of S & P block elements are generally colourless but those of transition metals are coloured". Explain. **(04)**

**c)** What are the requirements of primary standard solution? **(04)**

**Q.2** **a)** Discuss ά. Helical & β- pleated sheet structure of proteins. **(06)**

**b)** What are proteins? Comment on primary structure of proteins. **(04)**

**c)** Explain the structure of **(03)**
**i)** Fructose
**ii)** Maltose

**Q.3** **a)** Define and explain the following terms with examples: **(06)**
**i)** Effective atomic number
**ii)** Co- ordination complex

**b)** Give limitations of V.B.T to form complexes. **(04)**

**c)** Give reason- Most of transition metals are paramagnetic. **(03)**

**Q.4** **a)** Explain strong acid- strong base titration with titration curve. **(06)**

**b)** Explain mohr's method for determination of chloride ions. **(04)**

**c)** Calculate hydrogen ion concentration of a solution whose pH was 6.58 at $25^0$c. **(03)**

## SECTION-II

**Q.5** **a)** Describe the Barkeley's method for the determination of osmotic pressure of a solution. **(06)**

**b)** Write a note on surface films. **(04)**

**c)** Give the raw materials and types of soaps. **(04)**

**Q.6** **a)** Discuss the dependence of elevation of boiling point and depression of freezing point on the concentration. **(06)**

**b)** Calculate the freezing point of a solution containing 10 gm of alcohol ( $(c_2H_5OH)$ dissolved in 1000 gm of water (Kf for 100 gm of water is 18.6) **(04)**

**c)** What are colligative properties? **(03)**

**Q.7** **a)** What is BET Theory? How the surface area can be determined by using BET theory? **(06)**

**b)** Explain the mechanism of catalysis by using the unstable intermediate compound formation theory. **(04)**

**c)** What is freundlich adsorption isotherm? **(03)**

**Q.8** **a)** Discuss the extraction of oils by methods like pressing, gendering and solvent extraction. **(06)**

**b)** Write a note on biodegradable detergents. **(04)**

**c)** Give the raw materials used in the manufacture of detergents. **(03)**

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