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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Sem.-1st, 2nd)

**ENGINEERING CHEMISTRY**

Subject Code : CH-101 (2005-2010 Batch)

Paper ID : [A0110]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C. have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.
4. Select atleast TWO questions from SECTION - B & C.

**SECTION-A**

**1. Write briefly :**

- (a) What is wet corrosion?
- (b) What do you understand by partition chromatography?
- (c) What is standard hard water?
- (d) Distinguish between hard water and soft water.
- (e) What is fluorescence and how it is different from phosphorescence?
- (f) Define phase rule.
- (g) Define concentration cells.
- (h) What information can be obtained from spin-spin coupling?
- (i) What are the factors which affect corrosion?
- (j) What is UV and visible range of electromagnetic radiations used in UV-visible spectrophotometer? What is  $\lambda_{\max}$ ?

## SECTION-B

2. (a) How desalination of water can be achieved by electrodialysis?  
(b) Discuss Lime-soda process for water softening. (4,4)
3. (a) Explain the protective measures of controlling corrosion.  
(b) Discuss atmospheric corrosion. (4,4)
4. (a) Define chromatography. Draw flow diagram of LC instrument.  
(b) What are the types of liquid chromatography? (4,4)
5. (a) Discuss conductometric titration of a strong acid against strong base.  
(b) What do you understand by liquid junction potential? (4,4)

## SECTION-C

6. Write short notes on :  
(I) Lasers  
(II) Photosynthesis (4,4)
7. (a) What is the essential requirement for the compound to be IR active?  
Discuss the applications of IR spectroscopy.  
(b) Discuss Franck-Condon principle. (6,2)
8. (a) Discuss spin-spin relaxation.  
(b) What do you understand by chemical shift? (4,4)
9. Draw well labelled phase diagram of water. Describe in detail. (8)