Roll No. ..... Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Sem–1,2)

ENGINEERING CHEMISTRY

Subject Code : CH-101 (2004-2010 Batch)

Paper ID : [A0110]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY.**
2. **Attempt any FIVE questions SECTION-B & C.**
3. **Select at least TWO questions each from SECTION-B & C**

SECTION-A (2 × 10 = 20 Marks)

1. (a) What happens on absorption of IR radiation by the molecule?

   (b) At what wavelength the coloured compounds absorb.

   (c) Explain temporary and permanent hardness of water.

   (d) What is partition chromatography?

   (e) What is electrode potential?

   (f) What is galvanic corrosion?

   (g) What are primary and secondary photochemical processes?

   (h) What is chemical shift?

   (i) Explain Eutectic point.

   (j) Give two merits of phase rule.

SECTION-B (8 marks each)

2. (a) Describe reverse osmosis for desalination of water,.

   (b) Discuss hot lime soda process of water softening. (4,4)

3. (a) Discuss anodic and cathodic coating for corrosion control.

   (b) Explain the mechanism of wet corrosion. (4,4)

4. (a) What is chromatography? Discuss its classification.

   (b) What is the significance of R_f ? How it can be found experimentally? (4,4)

5. (a) What is overvoltage? Discuss the factors affecting overvoltage value,

   (b) Discuss the concentration cell. (4,4)

SECTION-C **(8 marks each)**

6. (a) Calculate the number of moles of HCl(g) produced by absorption of one joule of radiant energy of wavelength 480 nm in the following reaction, if the quantum yield of photochemical reaction is 1.0×10^6.

   $H_2(g) + Cl_2(g) \rightarrow 2HCl(g)$

   (b) Discuss the phenomenon of photosynthesis. (4,4)

7. (a) Explain the uses of UV-visible spectroscopy.

   (b) Discuss the factors responsible for intensity of spectral lines. (4,4)

8. (a) Draw and explain the splitting pattern observed in the ^{1}HNMR of $CHBr_2CH_2Br$?

   (b) Discuss spin-lattice relaxation. (4,4)

9. Draw and explain the phase diagram of carbon. (8)