Roll No. | | | | | | | | | | | | **Total No. of Pages : 2**

Total No. of Questions : 09

B.Tech. (Sem.–1,2)

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

l. Write briefly :

(a) What is liquid junction potential?

(b) What is chromatography?

(c) Explain dry corrosion.

(d) Name the salts responsible for temporary and permanent hardness of water.

(e) What is quantum yield?

(f) What do you understand by dry ice?

(g) Explain Franck-Condon principle.

(h) What is phase rule?

(i) "*The absorption bands in UV-visible spectra are usually broad*". Explain.

(j) Which will occur at a higher frequency : the C-O stretch of phenol or the C-O stretch of cyclohexanol ? Explain.

SECTION-B

2. (a) What are the requirements of drinking water for human consumption?

   (b) Describe ion exchange method for softening of water.

3. (a) Describe the mechanism of electrochemical corrosion.

   (b) Discuss differential aeration corrosion.

4. (a) Discuss classification of chromatography.

   (b) Draw well labelled flow diagram of LC instrument. Discuss briefly.

5. (a) Explain the titration curve of strong acid with strong base by conductometry.

   (b) Discuss Nernst's equation for electrode potential and emf of cell.

SECTION-C

6. (a) Explain the kinetics of photochemical reaction by taking a suitable example.

   (b) Explain primary and secondary photochemical processes.

7. (a) Describe the principle of UV-Vis spectroscopy.

   (b) Discuss the applications of IR spectroscopy.

8. (a) Explain the principle of NMR.

   (b) What is double resonance? Explain.

9. Draw well labelled phase diagram of water and explain.