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B.Tech. (2009-2010 Batches) (Sem.-1,2)

ENGINEERING CHEMISTRY

Subject Code: CH-101

Subject Code : CH-10
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 saline water?
- (b) Give the cause of corrosion.
- (c) Name the two phases of chromatography.
- (d) What are indicators? Give examples.
- (e) Give the full name of MASERS and LASERS.
- (f) What is ultraviolet and visible spectroscopy known as?
- (g) What is NMR and MRS?
- (h) What is a phase and a component?
- (i) Give no of signals in Benzene and Nitrobenzene.
- (j) Calculate the value of Einstein of energy in electron volts for radiation of frequency  $3\times10^{15}$ .

1 | M - 5 4 0 0 3 (S 1) - 3 7 1

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## **SECTION-B**

2 a) What is boiler feed water and boiler corrosion? **(4)** b) Explain any two methods of water softening. (4) 3 Give protective measurement of corrosion. (8) 4 Give flow diagram of LC instrument. (8) Can we use a copper vessel to store 1 M Ag NO<sub>3</sub> solution? ( $E_{Cu}^{\circ}^{+2}/_{Cu} = +0.34V$ ; 5  $E_{Ag}^{\circ}^{+1}/_{Ag} = +0.80V$ (8) **SECTION-C** 6 Give the difference between fluorescence and phosphorescence. (8) Give principle and application of IR. 7 (8) 8 Explain the no of signals and hyperfine structure with suitable examples. (8) Explain phase diagram of one component system- water and carbon dioxide. 9 (8)

**2** | M - 5 4 0 0 3 (S 1) - 3 7 1