Uni. Roll No:-.....

II Mid Term, Even Semester Examination, 2013-14

Course: - B.Tech. I Yr., II Semester

Engg. Chemistry (AHC-101)

Time:-90 Minutes **Total Marks:-20**

Note:-

1. Answer all questions from Section A, **Any three** from Section B and **Any three** from Section C.
2. All questions of the particular section should be answered collectively at one place.
3. Answer should be brief and to-the-point and be supplemented with neat sketches.
4. Any missing or wrong data may be assumed suitably giving proper justification.
5. Figures on the right-hand side margin indicate full marks.

Section-A

Note: Attempt All Questions. **1X5=5 marks**

1. ppm and mg/L are same, Justify.
2. What do you mean by biodegradable polymers?
3. Discuss buffer Capacity.
4. Calculate the pH of 10^{-9} M NaOH solution.
5. Define degree of freedom.

Section-B

Note: Attempt Any Three Questions. **2X3=6 marks**

1. Write preparation and properties (at least two) of Nylon 66 polymer.
2. What is hardness of water? Discuss in detail.
3. Discuss classification of lubricant with suitable examples.

4. A water sample contains 16.2 mg/L Ca $(HCO_3)_2$, 250 mg/L NaCl and 9.5 mg/L $MgCl_2$.Find out temporary and permanent hardness of the water sample.

Section-C

Note: Attempt Any Three Questions. **3X3=9 marks**

1. Discuss zeolite process for treatment of water.
2. Explain the phase diagram of water system with a neat diagram.
3. A zeolite softener was 90% exhausted by removing hardness completely when 100 Litres hard water passed through it .The exhausted bed required 200 Litres of 3% brine solution for complete regeneration Find out hardness of water solution.
4. Discuss step by step mechanism of polymerization of polystyrene in presence of potassium amide as a catalyst.