Code No: R5100104 **R5**

B.Tech I Year(R05) Supplementary Examinations, May 2010
APPLIED CHEMISTRY
(Civil Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Volumetric titration of 20 ml of $CaCl_2$ solution required 40 ml of 0.1M EDTA solution. Determine the hard ness of $CaCl_2$ solution.
   (b) Two liters of water obtained from a well near Vijayawada showed the following analysis per liter: $MgSO_4 = 24$ mg; Ca $(HCO_3)_2 = 32.4$ mg; Mg $(HCO_3)_2 = 29.2$ mg; $CaSO_4 = 27.2$ mg; Suspended matter = 36 mg calculate the total hardness of the solution in ppm units. [6+10]
2. (a) What are Zeolites ?
   (b) How is the softening of water carried out using Permutit Process? [4+12]
3. Justify the following statements with suitable examples.
   (a) the rate of corrosion is dependant on the nature of the corroding environment. [8]
   (b) A pipe half buried in water undergoes corrosion fastly. [8]
4. (a) Give a brief account of cathodic protection method of preventing corrosion. [8]
   (b) Write a brief account on anodic coatings. [8]
5. (a) Explain the difference between natural and synthetic high polymers with suitable examples. [8]
   (b) What is Polyethylene? How is it manufactured? Mention the different types of polyethylenes and their uses. [8]
6. (a) Explain the various properties of refractories. [8]
   (b) Write a note on electrical insulators. [8]
7. (a) Classify lubricants.
   (b) Describe the applications of lubricants.
   (c) Mention the important properties of lubricants. [3+6+7]
8. Give an account of the following:-
   (a) Chemical composition of cement [5]
   (b) Physical requirements of cement [6]
   (c) Chemical constitution of Portland cement. [5]

⋆ ⋆ ⋆ ⋆ ⋆