



SCHOOL OF ADVANCED SCIENCES
I B.Tech.
Continuous Assessment Test–I, Model Q.P.

Course Code	: CHY1701	Duration	: 90 min.
Course name	: Engineering Chemistry	Max. Marks	: 50
Semester		Slot	:

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Answer ALL the Questions

1. Illustrate the permutit method of water softening. Why Zeolite softeners are not recommended for obtaining feed water for boilers? (5 M)
2. The hard water on analysis found to contain the following hardness causing salts: $\text{Mg}(\text{HCO}_3)_2 = 150$ ppm, $\text{Ca}(\text{HCO}_3)_2 = 100$ ppm, $\text{MgCl}_2 = 95$ ppm, $\text{CaCl}_2 = 111$ ppm. Convert them into calcium carbonate equivalent hardness. (5M).
3. What are ion exchange resins? Discuss their application in water-softening with a neat diagram?
4. Mention the best method among the available filtration methods and justify the answer.
5. Explain scale as a boiler trouble and how is it overcome?
6. Explain caustic embrittlement as a boiler trouble and how is it overcome?
7. Explain cold lime soda process with a neat diagram. (5 M)
8. 0.5g of CaCO_3 was dissolved using few drops of Con. HCl and the solution made up to one liter with distilled water. 50 mL of the solution requires 48mL of EDTA solution for titration. 50mL of the hard water sample required 15mL of EDTA solution sample water after boiling and filtering required 10 mL of EDTA solution. Calculate the temporary permanent and total hardness in ppm.
9. Discuss the principle and calculations in the determination of hardness of water by EDTA method
10. Describe a method to remove NaCl from water?

