

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM- I / II Winter Examination-Dec.-2011

Subject code: 110001
Subject Name: Chemistry
Time: 10.30 am -1.00 pm

Date: 24/12/2011

Total marks: 70

Instructions:

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** What is meant by softening of water? With a neat schematic diagram, describe cold lime soda process. **07**
- (b)** What are the characteristic of a good fuel? Explain any one method of analysis. **07**
- Q.2 (a)** Define the desalination of brackish water and Explain method of electro dialysis. **07**
- (b)** Calculate the temporary and total Hardness of water sample containing following data in mg/L. **07**
 $\text{Mg}(\text{HCO}_3)_2=73$; $\text{Ca}(\text{HCO}_3)_2=162$; $\text{MgCl}_2=95$; $\text{CaSO}_4=136$ Given: molecular weight of. $\text{Mg}(\text{HCO}_3)_2=146$; $\text{Ca}(\text{HCO}_3)_2=162$; $\text{MgCl}_2=95$; $\text{CaSO}_4=136$.
- Q.3 (a)** Describe with the help of a neat diagram of rotary kiln for the manufacture of Portland cement by wet process. **07**
- (b)** Discuss the classification of polymers. **07**
- Q.4 (a)** What are the constituents of Portland cement? Discuss the mechanism of setting and hardening of Portland cement. **07**
- (b)** Explain the types of polymerization giving suitable examples. **07**
- Q.5 (a)** Explain the mechanism of electrochemical corrosion. **07**
- (b)** What is galvanic corrosion? Explain its mechanism. **07**
- Q.6 (a)** Define heat treatment and explain the following methods. **07**
(i) Annealing; (ii) Hardening.
- (b)** Define the term lubricant. Explain the following properties of lubricants and their significance. **07**
(i) Viscosity; (ii) Flash point.
- Q.7 (a)** Describe the process of melt spinning and wet spinning of fibers. **07**
- (b)** Explain the manufacture of ethyl alcohol by fermentation. **07**
