

I B.Tech Examinations, May/June 2012
ENGINEERING CHEMISTRY
Common to Mechanical Engineering, Mechatronics, Production
Engineering, Automobile Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are the functions of extreme pressure additives? Give examples.
(b) Explain the process of purification of petroleum oils. [4+12]
2. (a) Write short note on pyrometric cone equivalent?
(b) Describe acidic and neutral refractories and their uses with examples.
(c) Give an account on the characteristics and engineering applications of electrical insulators. [6+5+5]
3. (a) Define
 - i. Monomer
 - ii. Degree of polymerization.(b) Write short notes on reclaimed rubber.
(c) What are homochain and heterochain polymers? Give one example each. [4+8+4]
4. Write short note on the following:
 - (a) Concentration cell corrosion with suitable example
 - (b) Conditions for wet corrosion to occur
 - (c) Units of the rate of corrosion. [10+3+3]
5. (a) What is meant by metal cladding? How it is done on the base metal?
(b) Compare phosphate coating and chromate coating.
(c) What are the objectives of electroplating on metals? [6+6+4]
6. (a) What is metallurgical coke? How it is superior than coal? Explain the manufacture of metallurgical coke by Otto Hoffman's by product coke oven method. List the various by products obtained in the process.
(b) Define octane number of gasoline. Why is ethylene di bromide added, when tetra ethyl lead is used as an antiknock? [10+6]
7. (a) Describe a method to determine various alkalinities in a given sample of water.
(b) What do mean by hardness of water? How is it classified?
(c) Mention the dis-advantages of using hard water for domestic purpose. [8+4+4]
8. (a) Give an account on scales and sludge formation in boilers and write about the methods used for their prevention.
(b) List the differences between lime soda process and ion-exchange process. [8+8]
