

B.Tech I Year (R07) Supplementary Examinations, December 2010
ENGINEERING CHEMISTRY
(Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. (a) Why does water become hard?
(b) Explain the different methods for the estimation of water.
2. Write short notes on the following:
 - (a) Colloidal conditioning
 - (b) Sodium aluminate condition
 - (c) Calgon conditioning
 - (d) Carbonate conditioning.
3. Give reasons for the following:
 - (a) Iron sheets undergo corrosion at a faster rate when riveted with copper rivets.
 - (b) A zinc article under strain undergoes corrosion at a higher rate.
4. Write short note on:
 - (a) Distemblers
 - (b) Emulsion paints
 - (c) Lacquers.
5. (a) What is a plastic?
(b) Write the merits and demerits of using plastics in place of metals?
(c) Explain the differences between a thermoset and thermo plastic material with examples.
6. Explain the below mentioned properties of the lubricants and discuss their significance.
 - (a) Saponification value
 - (b) Aniline point
 - (c) Viscosity and viscosity index.
 - (d) Flash point.
7. How to select lubricants for the following:
 - (a) cutting tools
 - (b) I.C engines
 - (c) steam engines
 - (d) steam turbines
 - (e) Gears.
8. (a) Calculate the gross and net calorific value of coal having the following composition.
Carbon = 82%, Hydrogen = 8%, Sulphur = 1.5%, Nitrogen = 3%,
Ash = 5.5%,
Latent heat of steam = 587 cal/gm.
(b) Write a note on Nuclear fuels.
