

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-2008**I B.TECH SUPPLIMENTARY EXAMINATIONS
APPLIED CHEMISTRY
(CIVIL ENGINEERING)**

AUG/SEP -2008

TIME-3 HOUR
MARK-80**ANSWER ANY FIVE QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

1. (a) What is meant by critical humidity? Explain how humidity of the air is the deciding factor in atmospheric corrosion.
(b) Give an account of the corrosion occurs due to the formation of oxygen concentration cell.
2. (a) What is pickling ? Write down the composition of pickling bath used for Zn and Fe.
(b) Write a brief account on Sherardizing, coloring and chromizing.
3. Differentiate the following with suitable examples
(a) Paints from varnishes.
(b) Drying oils from non drying oils.
4. (a) Describe the free-radical polymerization of ethylene to polyethylene.
(b) Write a note on
 - i. Polymethyl methacrylate
 - ii. Urea - Formaldehyde resins.
5. (a) Define hardness of water. What are the types of hardness present in water.
(b) Name the different units of hardness and explain their interconversion.
(c) What are the disadvantages of hard water when used for steam generation in boilers.
6. (a) Write a note on sterilization of drinking water.
(b) Calculate the total hardness of a sample of water in oFr and oClarke having the following salts: $\text{CaCl}_2 = 11.1 \text{ mg/litre}$; $\text{Mg}(\text{HCO}_3)_2 = 7.3 \text{ mg/litre}$; $\text{Mg}(\text{NO}_3)_2 = 14.8 \text{ mg/litre}$ and $\text{Ca}(\text{HCO}_3)_2 = 8.1 \text{ mg/litre}$.
7. (a) Explain the difference between thermal and electrical insulators.
(b) Write briefly on the applications of these two types of insulators.
8. Give an account of the following properties of lime.
 - (a) Slaking
 - (b) Setting and hardening of lime.
 - (c) Plasticity(d) Sand carrying capacity.