Code No: R5100304

R5

B.Tech I Year(R05) Supplementary Examinations, December 2010
ENGINEERING CHEMISTRY
(Mechanical Engineering)

Time: 3 hours   **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Why does hardwater does not give latter with soap?

   (b) A sample of hardwater contains 150 ppm of tempory hardness and 300 ppm of permanent hardness. Express the above hardness in degree clank and degree french.

   (c) How do you estimate the total hardness of water?   [4+4+8]

2. Distinguish between the following:

   (a) Internal conditioning and external conditioning of water.

   (b) Boiler scales and sludges.   [8+8]

3. What happens and why it happens for the following:

   (a) When a zinc plate fixed below the ship.

   (b) When an iron pole is partly buried under earth.   [8+8]

4. (a) How will you differentiate a paint from varnishes and lacquers?

   (b) What is anodizing?   [10+6]

5. (a) What are the advantages of using plastics over other materials?   [8]

   (b) Explain the following :

       i. Copolymerisation.

       ii. Condensation polymerization.

                                                                                           [4+4]

6. Write a note on lubricants with special reference to their classification, mode of action, examples and applications.   [16]

7. Discuss the various types of liquid lubricants.   [16]

8. A coal containing 62.5% C, 4% H_2, 6.9% O_2, 1% N_2, 1.0% S, 15.1% moisture and 9.7% ash was burnt in such a way that dry fuel gas contained 12.9% CO_2, 0.2% CO, 6.1% O_2 and 80.8% N_2. Calculate

   (a) the weight of air theoretically required per kg of coal

   (b) the weight of dry flue gas obtained per kg of fuel

   (c) the weight of air actually used.   [16]

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