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VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) I-Semester Old Examinations, May/June-2018

Engineering Chemistry

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. The hardness of a water sample is 800 ppm. Express the hardness in Clarke degree and in Degree French.
2. 500 ml of water sample contains 1.36 gm of CaSO₄. Calculate hardness of water in ppm.
3. What is the functionality of a monomer? Explain how it affects the structure of a polymer.
4. Explain homo chain and hetero chain polymer with an example each.
5. Give the relationship between HCV and LCV.
6. What are anti knocking agents? Explain.
7. Why iron undergoes faster corrosion than copper?
8. What is Galvanic corrosion? Explain with an example.
9. What are inhibitors? Give examples.
10. Explain hot dipping.

Part-B (5 × 10 = 50 Marks)

11. a) What are the various boiler troubles? Explain. [5]
 b) 20 ml standard hard water containing 500 ppm of hardness required 22 ml of EDTA solution. 20 ml of hard water required 15 ml of the above EDTA solution. 20 ml of same hard water sample after boiling and cooling required 10 ml of EDTA solution. Calculate total temporary and permanent hardness of water sample. [5]
12. a) Differentiate addition and condensation polymerization. [5]
 b) Discuss the preparation and applications of Bakelite. [5]
13. a) Illustrate and explain fixed bed catalytic cracking process. [5]
 b) A coal sample contains, C=78%, H=8%, B=4%, N=2%, All=4% and rest is oxygen. Compute HCV and LCV of the coal. [5]
14. a) Explain differential aeration corrosion of iron with mechanism. [5]
 b) Explain the following factors which affect the rate of corrosion [5]
 i) Nature of metal ii) Nature of corrosion product
15. a) Explain the principle involved in electroplating. What are the factors which affect the rate of electroplating? [4]
 b) Explain sacrificial anodic protection method with neat diagram. [6]
16. a) What is break point chlorination? Explain its use. [4]
 b) Distinguish between thermoplastics and thermosets. Give three examples for each. [6]
17. Answer any **two** of the following:
 - a) What is the significance of ultimate analysis? [5]
 - b) List the constituents of paints and discuss their functions. [5]
 - c) Distinguish between anodic and cathodic coatings. [5]

