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Code No.: 1124

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) I-Semester (Main) Examinations, December-2016

Engineering Chemistry
(Common to all Branches)

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. What are boiler troubles? Explain.
2. 50ml of a water sample required 15ml of N/50 H₂SO₄ for phenolphthalein end point and another 10ml for methyl orange end point. Calculate the type and amount of alkalinity in ppm.
3. Distinguish between Homo and Copolymers with an example of each.
4. Write the structure of Polycarbonate. Mention its applications.
5. Explain the requisites of a good fuel.
6. How will you grade the petrol and diesel? Explain.
7. State Pilling-Bedworth rule? Explain with reference to dry corrosion.
8. Bolt and Nut made up with same metal is not preferred. Justify your answer.
9. What are anodic inhibitors? How they prevent corrosion?
10. Explain Sacrificial Anodic Protection of Corrosion.

Part-B (5 × 10 = 50 Marks)

11. a) Explain the principle and method of determination of hardness of water by complexometric titration method. [6]
b) Compute the carbonate, bicarbonate and total hardness of a sample of water containing the following dissolved salts per 500ml: [4]
Ca (HCO₃)₂ = 16.2mg, CaSO₄ = 27.2mg, Mg (HCO₃)₂ = 4.38mg and MgCl₂ = 9.5mg.
12. a) Give the preparation and engineering applications of the following polymers. [6]
i) Bakelite ii) Styrene rubber
b) What is Natural Rubber? Explain the Chemistry of vulcanization of rubber. [4]
13. a) What is analysis of coal? Explain the proximate analysis and give its significance. [6]
b) Calculate the weight and volume of air required to burn 1kg of coal sample containing C = 80%, H = 8%, S = 4%, Ash = 4% and rest is oxygen. [4]
14. a) Explain Differential aeration corrosion with suitable examples? [4]
b) Discuss the factors, which influence the rate of corrosion with reference to nature of metal? [6]
15. a) What is paint? What are its constituents and their functions? [6]
b) Write the principle and method of application of electroplating of Cu on Fe. [4]
16. a) What are the requisites of potable water? Discuss break point chlorination of water. [6]
b) Differentiate condensation and addition polymerization with a suitable example. [4]
17. Answer any *two* of the following:
a) Suggest and discuss any two methods for enhancement the quality of petrol. [5]
b) Galvanic corrosion with mechanism. [5]
c) Galvanization. [5]

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