

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E./ B.Tech – Common to ALL Branches

Title of the paper: Engineering Chemistry

Semester: I

Max. Marks: 80

Sub.Code: 6C0072(2007-2008)

Time: 3 Hours

Date: 20-12-2008

Session: FN

PART – A

(10 x 2 = 20)

Answer All the Questions

1. Analysis of 500 ml of hard water contains 111 mg of CaCl_2 and 60 mg of MgSO_4 . Calculate the degree of hardness.
2. Explain break-point chlorination.
3. Why does $\text{Ag}/\text{Ag}^+(0.1 \text{ M})//\text{Ag}^+(1.0\text{M})/\text{Ag}$ constitute a cell?
4. What is electrode potential? How is it developed?
5. Why metal shows tendency to undergo corrosion?
6. What are vapour phase inhibitors?
7. What is oxygen balance? Mention its significance.
8. What is RDX? How is it prepared?
9. What are natural food colorants? Give examples.
10. How do sulphur compounds function as Preservatives? Mention their disadvantages.

PART – B

(5 x 12 = 60)

Answer All the Questions

11. Explain demineralization process of water softening with neat diagram. Compare with permutite process.

(or)

12. What is desalination? Explain electrolysis process with neat diagram. Compare with reverse osmosis process.
13. (a) With a diagram explain the construction and use of the saturated calomel electrode. (8)
(b) What is electrochemical series? Mention its significance. (4)
(or)
14. Explain any four applications of emf measurements.
15. (a) Explain the mechanism of electrochemical corrosion with neat diagram. (8)
(b) Explain sacrificial anodic method. (4)
(or)
16. Explain the various steps involved in electroless plating. Compare with electroplating.
17. What are explosives? How are they classified? Give examples. Mention the requirements of explosives.
(or)
18. (a) Give a brief account of liquid propellants. (8)
(b) Explain polymer binders. (4)
19. Enumerate the biochemical effects of the following substances with particular reference to the sources, species and pathways in the environment and impact on man.
(a) Mercury (b) Lead
(or)
20. (a) Classify the different additives used in food industry and give two examples for each class. (8)
(b) Write a note on non-nutritive sweeteners. (4)