

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

Max. Marks :80

Sub. Code :6C0072

Time : 3 Hours

Date :19/12/2009

Session :FN

PART - A

(10 x 2 = 20)

Answer ALL the Questions

1. Write any two coagulants.
2. Define Ultraviolet treatment.
3. What is the role of salt bridge in galvanic cell?
4. What is EMF series? What is its significance?
5. Why does part of a Nail inside the wood undergoes corrosion easily?
6. Define vapour phase inhibitor.
7. What are dynamites? Give an example.
8. What is meant by oxygen-balance of an explosive?
9. How do you propose to control CO and SO₂ emission?
10. What are incidental additives with example?

PART – B

(5 x 12 = 60)

Answer All the Questions

11. (a) What is meant by hardness of water? What are the common units of measurements of hardness of water? Give relationship between various units.
(b) What is reverse process for desalination of brackish water?
(or)
12. (a) Explain the following steps involved in purification of water:
(i) Sedimentation with coagulation
(ii) Filtration using slow sand filter.
(b) Discuss the process of softening of water by using zeolites.
13. (a) Describe the construction of calomel electrode.

(b) What is an electrochemical series? Explain its different uses?

(or)

14. (a) Derive Nernst equation for measuring EMF of a cell. Describe its utility.

(b) How you determine the sparingly soluble salts using potentiometric titrations?

15. (a) Describe the mechanism of electrochemical corrosion. Discuss the role of oxygen in corrosion cells.

(b) How will you protect an underground pipeline from corrosion by impressed current cathodic protection method?

(or)

16. (a) Explain the different steps involved in pretreatment of metal surfaces before coating.

(b) Explain the principle and process of electroplating of copper.

17. (a) Write short note on requisites of explosives.

(b) What kind of compounds are desirable as rocket fuels and why.

(or)

18. (a) Explain the classification of propellants with suitable example.

(b) Write short note on: (i) TNT and (ii) RDX

19. (a) Enumerate the biological effects of the following substances

(i) Mercury and (ii) Lead

(b) What is the risk involved when BHA and BHT are present in food?

(or)

20. (a) Explain when unintentional and intentional additives should be used and should not be used.

(b) Explain the classification of food additives.

