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SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E/B.Tech - CSE/ECE/EEE/EIE/ETCE/E&C/IT

Title of the Paper: Applied Chemistry – II/Principles of

Electrochemical Sciences & Instrumentation Max. Marks: 80

Sub. Code: 4ET204A-5ET204A-6C0019 (2006) Time: 3 Hours

Date: 07/12/2010 Session: AN

PART - A (10 X 2 = 20)

Answer ALL the Questions

1. Why KCl is used as a salt bridge?
2. Mention any two applications of Nernst equation.
3. Iron corrodes faster than aluminium, even though iron is placed below aluminium in the emf series. Why?
4. Why are drying oils used in paints?
5. What are Secondary cells?
6. What is a Battery? How does it differ from a cell?
7. What are soft abrasives?
8. What are adhesives and adherents?
9. Define pH.
10. Mention any two uses of Chromatography.

PART – B (5 x 12 = 60)

Answer ALL the Questions

11. (a) Write the difference between Electrochemical series and Galvanic series.
(b) Explain in detail about Electrode Potential.

(or)

12. (a) Write the difference between Electrochemical cell and Electrolytical cell.
(b) Derive Nernst equation.
13. (a) Explain the mechanism of Wet corrosion by hydrogen evolution type.
(b) Explain the three types of electrochemical corrosion.
(or)
14. (a) Write the mechanism of Drying of Drying oils.
(b) Explain the steps involved in surface treatment for metallic coating.
15. (a) Write short note on
(i) Circuit voltage,
(ii) Impedance and
(iii) Charge.
(b) Explain Lead acid storage battery.
(or)
16. Define fuel cell. Explain the construction and working of hydrogen-oxygen fuel cell. What are the advantages and limitation of fuel cell?
17. (a) Write in detail about classification of Abrasives.
(b) What are all the steps involved in Development of Adhesives?
(or)
18. (a) What are all the Physical factors influencing adhesive action.
(b) Write any three properties of Lubricants
19. (a) Write the applications of Conductivity meter.
(b) Explain the working principles of pH meter.
(or)
20. Explain the working principles of Liquid Chromatography and Gas Chromatography.