

ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE  
B.E. / B.TECH. DEGREE EXAMINATIONS : NOV / DEC 2011  
REGULATIONS : 2008  
SECOND SEMESTER

080010002 - ENGINEERING CHEMISTRY II  
(COMMON TO ALL BRANCHES)

Time : 3 Hours

Max.Marks : 100

PART - A

(10 x 2 = 20 MARKS)

ANSWER ALL QUESTIONS

1. What is the significance of electrochemical series? Mention any two uses.
2. Define Reference electrode. Give two examples.
3. State Pilling Bed worth rule. Name two metals in which the specific volumes of their oxides are greater than that of metals
4. Small anodic area results in intense corrosion. Why?
5. Distinguish between Gross and Net calorific value of a fuel.
6. What do mean by synthetic petrol? Give the suitable reaction.
7. Define Meta-stable equilibrium in water system.
8. Define stainless steel. Give its any two applications.
9. What is Beer-Lambert's law? Give its mathematical formula.
10. Define Chromophores and auxochrome.

PART - B

(5 x 16 = 80 MARKS)

ANSWER ALL QUESTIONS

11. (a) i) Write short notes on Standard Hydrogen Electrode and Ion Selective electrode (8)  
ii) Derive the Nernst Equation for an electrode potential. (8)

(OR)

11. (b) i) Explain in detail about the conductometric titrations of strong acid and strong base and its applications. (8)  
ii) Discuss about potentiometric titrations and its applications with a suitable example. (8)

12. (a) i) How corrosion control is more effective in using sacrificial anode and impressed cathodic current methods. (8)  
ii) Discuss the mechanism of Electrochemical corrosion. (8)

(OR)

12. (b) What is paint? Mention the different constituents of paint and explain their functions.
13. (a) i) Describe the Otto-Hoffman's by product method for the manufacture of metallurgical coke. (8)  
ii) What is catalytic cracking of gasoline and how is it carried out? Describe any one method in detail (8)

(OR)

13. (b) i) Explain in detail about the Orsat method of flue gas analysis and its significance with a neat diagram. (8)  
ii) Write shorts notes on Octane and cetane number. (8)

14. (a) i) Discuss the salient features and applications of the one component system (8)
- ii) Discuss the salient features and applications of the simple eutectic system with a suitable example and diagram. (8)

(OR)

14. (b)i) Explain the term alloy. State the purposes of alloying with suitable example. (8)
- ii) Describe the different varieties of brasses and bronzes. Give their engineering properties and applications in detail. (8)

15. (a)i) Explain the technique involved in the UV-visible spectrometer for the analysis of a compound with a neat block diagram. (8)
- ii) Discuss in detail about the estimation of Sodium using Flame photometry. (8)

(OR)

15. (b) Explain in detail about the following instrumentation with neat diagram :
- i) Infra Red spectroscopy (8)
- ii) Atomic Absorption Spectroscopy (8)

\*\*\*\*\*THE END\*\*\*\*\*