

Subject Code: R13204/R13

Set No - 1

I B.Tech II Semester Supplementary Examinations Dec./Jan. – 2015/2016

**ENGINEERING CHEMISTRY**

(Common to ECE, EEE, EIE, Bio-Tech, E Com E, Agri E)

**Time: 3 hours**

**Max. Marks: 70**

Question Paper Consists of **Part-A** and **Part-B**  
Answering the question in **Part-A** is Compulsory,  
Three Questions should be answered from **Part-B**

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**PART-A**

1. (a) A coal sample gave the following analysis C = 66.2%, H = 4.2%, O = 6.1%, N = 1.4%, S = 2.9% and remaining ash. If one Kg of coal is burnt with 25 % excess air, determine the quantity of products of combustion.
  - (b) Write short notes on: (i) Biodegradable polymers (ii) Break point chlorination  
(iii) Electroless plating (iv) Electrode potential  
(v) Stereo-specific polymers
- [7+(3+3+3+3+3)]

**PART-B**

2. (a) What are boiler troubles? Explain the formation and disadvantages of scale and sludge particles in boilers.
  - (b) Write notes on preparation and applications of phenol formaldehyde resins.
  - (c) Explain the refining of petroleum.
- [6+5+5]
3. (a) What is meant by reference electrode? Explain principle and working of primary reference electrode.
  - (b) Write notes on differential aeration and pitting corrosion.
  - (c) Write notes on green house effect.
- [6+5+5]
4. (a) Explain theory of dry corrosion and nature of oxide film formed on the metal surface.
  - (b) Explain the functions of lime and soda in removal of permanent and temporary hardness of water sample, give chemical reactions.
  - (c) Explain the anionic addition polymerization with example.
- [6+5+5]
5. (a) Write notes on preparation and uses of BUNA-S and Thiokol.
  - (b) Explain the conductance behavior of weak electrolyte and strong electrolyte.
  - (c) Write any one method for synthesis of CNTs
- [6+5+5]
6. (a) What is meant by ultimate analysis. Explain the determination of carbon and nitrogen content in a coal sample.
  - (b) Describe a method for estimation of hardness of water.
  - (c) Explain the working of Ni-Cd cell with suitable reactions.
- [6+5+5]
7. (a) What is setting and hardening of cement. Explain with proper chemical reactions.
  - (b) Define Calorific value of a fuel. Write notes on HCV and LCV.
  - (c) What is meant by organic surface coating? Write notes on constituents of paints.
- [6+5+5]

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