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**

*****

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]

****