GUJARAT TECHNOLOGICAL UNIVERSITY
B.E Sem-II Examination June 2010

Subject code: 110001   **Subject Name: Chemistry**
Date: 15 / 06 /2010   **Time: 02.30 pm – 05.00 pm**
Total Marks: 70

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1

  (a) What is corrosion of metals? Explain in details Dry or Chemical corrosion. **07**

  (b) Write short note on Electroplating. **04**

  (c) Explain Break Point Chlorination. **03**

Q.2

  (a) A sample of coal was found to have the following % composition by weight :   7 **07**
C= 75%, H= 5.2%, O= 12.1%, N= 3.2% and Ash= 4.5%.
Calculate
1) the Minimum amount of O_2 and air by weight necessary for complete Combustion of coal.
2) Weight of air required, if 40% excess air is supplied.
3) Gross and Net Calorific value of coal sample.

  (b) Discuss Physical properties of metals. **07**
OR
  (b) Describe in details Biogas. **07**

Q.3

  (a) What is Desalination? Explain Electrodialysis methods of Desalination. **07**

  (b) Discuss the Disadvantages of Hardness of Water. **04**

  (c) Describe Pitting Corrosion. **03**
OR
Q.3

  (a) Describe the Determination of Flash Point by Penskey Marten's Methods. **07**

  (b) Write note on Properties of Lubricating Oils. **04**

  (c) Discuss common Refractory Bricks. **03**

Q.4

  (a) Write short note on Manufacture of Portland cement by Wet process. **06**

  (b) Describe processes of Wet spinning of fibres. **04**

  (c) Differntiate between fat lime and Hydraulic lime. **04**
OR
Q. 4

  (a) What are raw materials for the manufacture of lime? Describe its manufacturing Process. **06**

(b) Distinguish between thermoplastic and thermosetting polymers or resins. **04**

(c) Discuss types of polymerization. **04**

Q.5

(a) Discuss the manufacture of acetic acid by fermentation process. **06**

(b) Write short note on Geothermal Energy. **04**

(c) Calculate the area, which receives 14.0 KW of solar energy in 2 sec. solar constant $=1.4 \text{ KW/m}^2$. **04**

OR

Q.5

(a) Discuss the Application of Biotechnology. **06**

(b) Write short note on Nuclear Energy. **04**

(c) Write short note on Environmental management. **04**

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