

**2E1026****2E1026****B.Tech. I Year II Semester (Back) Examination-2014****Common to all branches of Engg.****206 Engineering Chemistry - II****Time : 3 Hours****Maximum Marks : 80****Min. Passing Marks : 24****Instructions to Candidates:**

*Attempt any **five** questions, selecting **one** question from each **unit**. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)*

**Unit - I**

1. a) Define cracking? What are the advantages of catalytic cracking. Describe with neat and labelled diagram of fixed bed catalytic cracking (12)
- b) Write on "Characteristics of a good fuel". (4)

**OR**

1. a) Explain the manufacturing of synthetic petrol by Bergius process. (8)
- b) Write short notes on any two
  - i) Octane number
  - ii) Oil Gas
  - iii) Carbonization of coal(2×4)

**Unit - II**

2. a) Define calorific value of fuel? Explain the determination of CV of gaseous fuel by Junker's calorimeter. (8)
- b) Calculate the gross and net calorific value of a coal sample, having the following composition- C=85%, S=1%, H=5%, O =8% & rest is ash. (8)

OR

2. a) Write short notes on
- i) Flue gas analysis by Orsat's apparatus
  - ii) Significance of ultimate analysis (4+4)
- b) A sample of coal was found to contain the following % composition C=80%, H=5%, O=2%, N=3% & rest is ash. Calculate the minimum weight of oxygen and air required for complete combustion of 1kg of coal. (8)

## Unit - III

3. a) What is phase rule? Discuss the term phase, component and degree of freedom with example.. (8)
- b) Explain sulphur system in detail. (8)

OR

3. a) What is reduced phase rule? Explain phase diagram of Bi-Cd system (8)
- b) Write short note on any two
- i) Application of Ag - Pb system
  - ii) Triple point
  - iii) Eutectic point (2×4)

## Unit - IV

4. a) Define optical fibres? Describe the construction, working and applications of optical fibers. (10)
- b) Write notes on applications of conducting organic polymers (6)

OR

4. a) What are super conductors? Discuss their properties and uses (10)
- b) Write notes on fullerenes (6)

**Unit - V**

5. a) What is corrosion? Explain electro chemical corrosion/wet corrosion mechanism in detail (10)
- b) Discuss concentration cell corrosion (6)

**OR**

5. a) Write any four factors to influencing corrosion and any four methods to control the corrosion (10)
- b) Distinguish between Galvanizing and Tinning. (6)

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