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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)**