

**B.TECH DEGREE EXAMINATIONS: MAY/JUNE 2014**

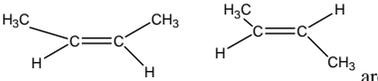
(Regulation 2009)

Second Semester

**BIOTECHNOLOGY**

CHY106: Chemistry for Biotechnology

**Time: Three Hours****Maximum Marks: 100****Answer all the Questions****PART A (10 x 1 = 10 Marks)**

- Intra molecular H-bonding occurs in
  - o- chlorophenol
  - m- chlorophenol
  - p- chlorophenol
  - m & p- chlorophenol
- Which is ionic among the following?
  - CH<sub>4</sub>
  - CO<sub>2</sub>
  - H<sub>2</sub>O
  - CaF<sub>2</sub>
- 
  - Optical isomers
  - Cis-Trans isomers
  - Tautomers
  - Diastereo isomers
- The separation of *d* and *l* forms from a racemic mixture is known as
  - Waldon inversion
  - Racemization
  - Resolution
  - Isomerization
- Calgon is
  - Na<sub>2</sub>SO<sub>4</sub>
  - Na<sub>2</sub>[Ca<sub>2</sub>(PO<sub>3</sub>)<sub>6</sub>]
  - Na<sub>3</sub>PO<sub>4</sub>
  - Na<sub>2</sub>[Na<sub>4</sub>(PO<sub>3</sub>)<sub>6</sub>]
- Name the method which separates both ionic and nonionic impurities from water
  - Zeolite process
  - Reverse osmosis
  - Carbonate conditioning
  - Ion exchange method
- The product of addition polymerization is known as
  - Dead polymer
  - Giant molecule
  - Micro molecule
  - Macromolecule
- Nylon 6,6 is obtained by the polymerization of
  - Ethylene glycol & terephthalic acid
  - 1,6 hexa methylene & di-isocyanate

- Hexamethylene diamine & adipic acid
  - Bisphenol-A & Diphenyl carbonate
- Phosphoric acid in soft cola drinks is estimated by
    - EDTA method
    - Molybdenum blue method
    - Iodometry
    - Permanganometric method
  - Fluorescein is formed by the treatment of
    - Pthalic anhydride & resorcinol
    - Iodised salt & sodium nitrite
    - Calcium carbonate & oxalic acid
    - Ethanol & acetaldehyde

**PART B (10 x 2 = 20 Marks)**

- Why HF is more polar than HI?
- What is covalent coordinate bond? Give an example.
- What are the requirements for existence of both geometrical and optical isomerism.
- Define chirality with an example.
- How is water demineralized in an ion-exchanger?
- What is meant by reverse osmosis? How is it applied in the desalination of water?
- Differentiate thermo plastics and thermo setting plastics.
- What is flouon? Mention its uses.
- What are the chemicals required for the determination of calcium in milk powder by EDTA Method.
- Write any two practical uses of super absorbent polymers.

**PART C (5 x 14 = 70 Marks)**

- Define vanderwaals' forces. Describe the types of pole moment. (7)
    - What is hydrogen bonding? Explain its role. (7)

**(OR)**

  - Define hybridization & explain its role in determination of structure.
- Explain the resolutions of racemates using chromatography (7)
    - Write a short note on asymmetric synthesis. (7)

**(OR)**

  - Discuss briefly the optical isomerism. (7)
    - What are geometrical isomers? Explain effect of cis – rans isomers with example (7)

23. a) (i) Explain zeolite process with neat diagram. (7)  
(ii) Explain the different methods of internal conditioning of water. (7)

**(OR)**

- b) Discuss the different steps involved in common effluent treatment

24. a) (i) What are the objectives of vulcanization? Explain the process of vulcanization of rubber. (4)

- (ii) Explain the free radical mechanism for addition polymerization (10)

**(OR)**

- b) (i) Give an account of preparation, properties and applications of Polythene. (4)

- (ii) Define polymerization. Briefly explain addition, condensation and co-polymerization processes (10)

25. a) Explain briefly the extraction and identification of DNA from green peas

**(OR)**

- b) Describe briefly the analysis of kidney stones by permanganometric titration

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