Register Number: ……..

B.TECH DEGREE EXAMINATIONS: MAY/JUNE 2014

(Regulation 2013)

Second Semester

BIOTECHNOLOGY

U13CHT205: Chemistry of Biotechnology

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Predict the hybridization of underlined carbon atoms in the following system. $\underline{\mathbf{C}}H_3$- CH=$\underline{\mathbf{C}}H_2$
   a) Sp3 and sp2 b) Sp3 and sp
   c) Sp2 and sp d) Sp2 and sp2
2. The weak inter-molecular force existing between H_2O and O_2 is ……. and …….
3. Which one of the following compounds exhibits optical isomerism?
   a) Malic acid b) Fumaric acid
   c) Lactic acid d) Acetic acid
4. Diethyl ether and methyl propyl ether exhibits…….. isomerism
5. Calgon reagent is
   a) Trisodium phosphate b) Sodium hexameta phosphate
   c) Sodium aluminate d) Aluminium sulphate
6. In demineralization, the exhausted anion exchange column is regenerated by passing a dilute…….. solution
7. Which of the following are heterochain polymers?
   a) PVC b) Polyester
   c) Teflon d) Polystyrene
8. The number of reactive sites in a monomer is called …….. of monomer.
9. The colour of calcium-EDTA complex is
   a) Wine red b) Steel blue
   c) Purple d) Colourless
10. …….. is used as an indicator for iodimetry titration.

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. Ionic compounds are soluble in polar solvents but insoluble in non-polar solvents- justify
12. Define dipole moment. Mention any one of its application.
13. What is meant byChirality?
14. Distinguish between enantiomers and diasteromers.
15. What is scale?
16. What is meant by phosphate conditioning of water?
17. Distinguish between thermoplastics and thermoset plastics.
18. What is meant by copolymerization? Give one example
19. What is Iodometry? How does it differ from iodimetry
20. What are super absorbent polymers?

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. What is meant by hydrogen bond? Describe the inter-molecular and intra-molecular hydrogen bonding with suitable examples. Mention their consequences

22. a) (i) Illustrate sequence rules for assigning R and S configuration to an optically active compound. (4)
    (ii) Write a note on classification of isomers. (10)

(OR)

    b) (i) Discuss the optical isomerism of tartaric acid. (7)
    (ii) Write a brief note on geometrical isomerism. (7)

23. a) Discuss the various steps involved in sewage water treatment.

(OR)

    b) (i) Describe the ion- exchange process for softening of hard water. (7)
    (ii) Write the principle and process of purification of sea water by Reverse Osmosis method. (7)

24. a) (i) Explain the mechanism of free radical polymerization (7)

(ii) Write a brief note on bio-polymers and their applications. (7)

(OR)

b) (i) What is Ziegler-Natta catalyst? Explain the mechanism of coordination polymers (7)

(ii) Discuss the addition and condensation polymerization with suitable examples. (7)

25. a) Explain the determination of calcium in milk by EDTA method.

(OR)

b) (i) Describe the estimation of phosphonic acid in coca cola by molybdenum blue method. (7)

(ii) Write the synthesis of fluorescein. (7)

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