DPA - 530

First Year M.Sc.(Previous) Chemistry Degree Examination

August / September 2009

Directorate of Correspondence Course

(Freshers)

DECHEM : 103 : Chemistry - I

Organic Chemistry

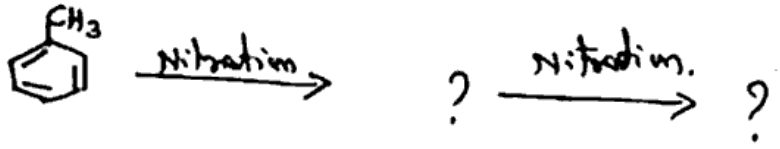
Time : 3 Hours Max. Marks : 85

Note : Answer Part A (any Eleven questions) THREE questions from Part B and Part - C

Part - A

(2x11=22)

1. a. How free radicals are generated? Give example.
   b. How do you explain the stability of benzyl cation?
   c. What are electrophiles and nucleophiles? Give one example to each.
   d. What is mutarotation?
   e. Complete the following reaction.



   f. State Huckel Rule of aromaticity.
   g. Write the structure of R and S for 2- butanol.
   h. State Markownikov's rule ?
   i. What are enantiomers? Give examples.
   j. Illustrate with an example the Hoffman's rule
   k. Write the ring structure for sucrose
   l. Calculate the number of optical isomers for a compound containing four chiral centres.
   m. Give any one example of molecular rearrangement involving carbocations.
   n. What is an aldol condensation? Explain with example.
   o. Why pyridine is more basic than pyrrole?

Part - B

(8x3=24)

2. a. With a suitable example discuss the sterio chemistry of SN1 mechanism.
   b. Discuss the aromaticity of cyclopentadienyl anion. (4+4)

3. a. Describe the factors influencing the stability of carbo cations.
   b. Describe the relation between elements of symmetry and optical activity. **(4+4)**
4. a. Write the mechanism of aromatic sulphonation by taking a suitable examples.
   b. Discuss the mechanism of Fisher Indole synthesis. **(4+4)**
5. a. How amino acids are classified? Give the use of melonic ester synthesis for amino acids.
   b. Write a note on blocking agents in the synthesis of peptides. **(4+4)**

Part - C **(13x3=39)**

6. a. Describe the mechanism of free radicles addition which leads to polymerisation.
   b. What are DL and RS nomenclature? Discuss with an example.
   c. Write any two methods of synthesis of quinolines. **(4+4+5)**
7. a. Elucidate the structure of sucrose.
   b. Define saytzeff's rule. Explain with an example.
   c. Write a note on cope eliminations. **(4+4+5)**
8. a. State the requisite conditions for an organic molecule to exhibit aromaticity.
   b. How carbo anions are generated? Give any two methods of their synthesis.
   c. Discuss secondary structure of proteins. **(4+4+5)**
9. a. Out line the synthesis of amino acids by Azoloctone and Hydention approaches.
   b. Write a note on structure of proteins.
   c. List out the applications of [18] crown in organic synthesis. **(5+4+4)**
10. a. Describe a reaction where it does not follow Markovnikov's Rule.
    b. Give the generation and application of carbenes in organic synthesis.
    c. Write a note on comparative aromaticity of furan, pyrrole and thiophene. **(4+4+5)**

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