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Your Roll No.....

909

**B.Sc. (Hons.)/II**

**C**

**CHEMISTRY--Paper VIII**

**(Organic Chemistry--II)**

*Time : 3 Hours*

*Maximum Marks : 38*

*(Write your Roll No. on the top immediately on receipt of this question paper.)*

Attempt any six questions.

Question No. 1 carries 8 marks.

1. (a) Compound A,  $C_5H_{12}O$  does not give precipitate with phenylhydrazine. Oxidation of (A) with potassium dichromate gives B,  $C_5H_{10}O$ . Compound B reacts readily with phenyl hydrazine but does not give Tollen's test. the original compound (A) can be dehydrated with sulphuric acid to give a hydrocarbon C,  $C_5H_{10}$ . Ozonolysis of the hydrocarbon (C) gives acetone and acetaldehyde. Deduce the structures of A, B and C and explain the reactions. 6
- (b) Giving example explain keto-enol tautomerism. 2

P.T.O.

2. (a) What is the effect of heat on  $\alpha$ ,  $\beta$  and  $\gamma$ -hydroxy acids. 3
- (b) Discuss addition of derivatives of ammonia to carbonyl compounds. Give its mechanism. 3
3. How will you obtain the following starting from diethylmalonate or ethylacetoacetate (any *three*) : 3×2=6
- (1) Adipic acid
  - (2) Acetyl cyclohexane
  - (3) 2-Methyl hexanoic acid
  - (4) 4-Methyl uracil.
4. Explain the following : 3×2=6
- (a) Ketones cannot be prepared from  $\text{RCOCl}$  and Grignard reagent  $\text{RMgX}$  although they can be prepared from  $\text{RCOCl} + \text{R}_2\text{Cd}$ .
  - (b) Williamson's synthesis of tertiary butyl methyl ether using butyl bromide and sodium methoxide is not a good synthesis.
  - (c)  $\text{CH}_3\text{---CH=C=CH---Cl}$  has no chiral carbon atom yet it is a chiral molecule. Why ?

5. Name the products formed and give the mechanism of the reactions involved in the following : 2×3=6

(a) A mixture of formaldehyde and benzaldehyde is heated with concentrated solution of alkali.

(b) Benzil is heated with potassium hydroxide solution.

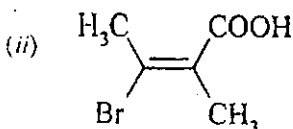
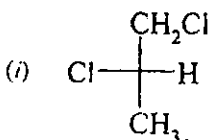
6. (a) What happens when nitrobenzene is reduced under acidic medium ? 2

(b) Convert the following : 2×2=4

(i) Nitrobenzene to *m*-bromophenol

(ii) Benzene to 2, 4, 6-tribromoaniline.

7. (a) Specify R/S configuration of (i) and E/Z configuration (ii) : 2×1=2



- (h) Write all the possible stereoisomers of tartaric acid (2, 3-dihydroxybutanedioic acid). Correlate them as pairs of enantiomers and diastereomers. Which of them are optically active ? 4
8. Write notes on the following : 2×3=6
- (a) Electrocyclic reaction
  - (b) Perkin condensation
  - (c) Hinsberg's test for amines
  - (d) Resolution of racemic mixture.