

[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 2418 F-4 Your Roll No.....

Unique Paper Code : 2172401

Name of the Course : B.Sc. (Hons.) : Allied Course

Name of the Paper : Conceptual Organic Chemistry

Semester : IV

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Question No. 1 is compulsory.
3. Attempt six questions in all.

1. Explain the following (Any six)

- (a) Acetylene reacts with ammonical solution of silver nitrate to form an acetylide while ethylene does not.
- (b) Chlorine atom acts as an ortho- para director but deactivating when it is present on a benzene ring undergoing electrophilic substitution.
- (c) Toluene undergoes nitration faster than benzene.
- (d) S_N2 reactions of optically active halides are accompanied by inversion of configuration.
- (e) Aldehydes and ketones can be distinguished by treating with Tollen's reagent.
- (f) Diazonium salts of aromatic amines are more stable than those of aliphatic amines.
- (g) Chair conformation of cyclohexane is more stable than boat conformation.

(12.5)

P.T.O.

2. Define the following terms (Any three)

(a) Conformations

(b) Chirality

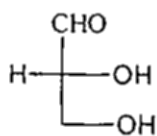
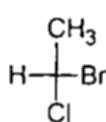
(c) Enantiomers

(d) Racemic mixture

(12.5)

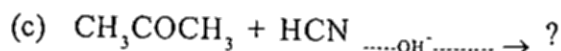
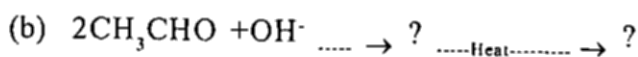
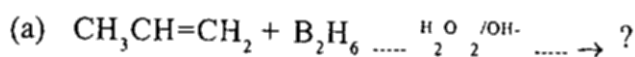
3. (a) Discuss the relative stability of different conformations of cyclohexane in terms of energy difference. Draw various conformations and relative energy diagram neatly. (6.5)

(b) Using symbol R or S, specify the configuration of each of the following



(6)

4. Complete the following reactions and give the mechanism involved (Any three)

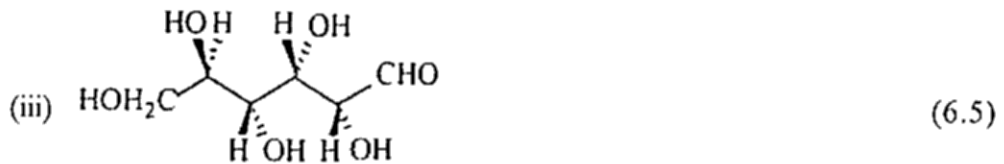
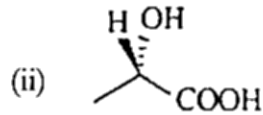
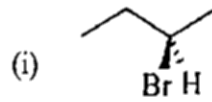


(12.5)

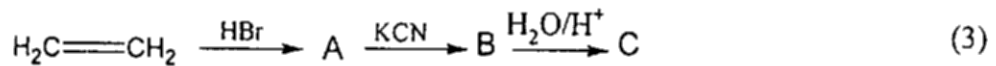
5. (a) Write a short note on resolution of racemic mixtures by salt formation method.

(6)

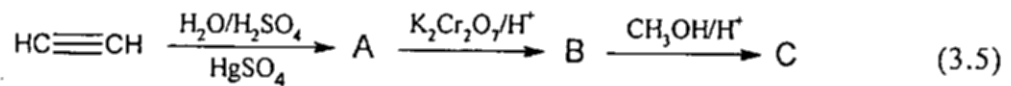
(b) Write the following Wedge formulae into Fischer projection formulae



6. (a) Identify the products A, B and C in the following reaction:

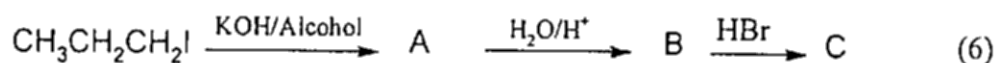


- (b) Identify A, B and C in the following reaction:

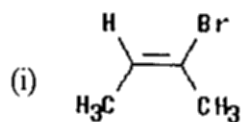


- (c) What do you understand by the term "Relative Configuration". Write the structures of all possible isomers of tartaric acid. Mention the enantiomeric pair and the meso form. (6)

7. (a) Identify the unknown compounds A, B and C



- (b) Write a short note on catalytic hydrogenation of alkenes. (3.5)
- (c) Indicate E or Z notation to the following compounds exhibiting geometrical isomerism



8. Write short notes on any of the three:

- (a) Markovnikov Rule
- (b) Claisen Condensation
- (c) Specific and molar rotation
- (d) Iodoform reaction (12.5)