

B.A./B.Sc. 1<sup>st</sup> Semester

## CHEMISTRY (Organic Chemistry—B)

Time Allowed—3 Hours]

[Maximum Marks—35

**Note** :— Attempt any five questions, selecting at least one from each Section. The Fifth question may be attempted from any Section.

## SECTION—A

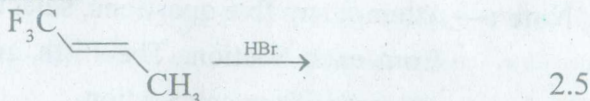
1. (a) Which of the two, aniline and cyclohexylamine is more basic and why ? 3
- (b) Arrange the following acids in order of their increasing acidity and justify your answer : Benzoic acid, Salicylic acid, 2, 6-dihydroxybenzoic acid. 4
2. (a) Which of the following carbocation is more stable and why ?  
 $\oplus\text{CF}_3$      $\text{H}_2\text{C}^{\oplus}\text{-CF}_3$  3
- (b) An aqueous solution of tropylium bromide on treatment with  $\text{AgNO}_3$  gives a white precipitate, why ? 2
- (c) Write the stable form of Cyclohexa-2, 4-dienone and justify your answer. 2

## SECTION—B

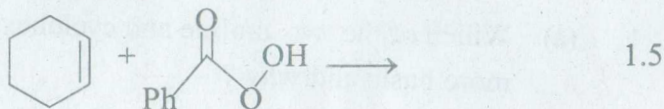
3. (a) Explain why chlorination of n-butane in the presence of light gives a mixture of 72% of 2-chlorobutane and 28% of 1-chlorobutane while bromination gives 98% of 2-bromobutane and 2% of 1-bromobutane ?

3

- (b) Complete the following reaction with suitable mechanism :



- (c) Complete the following reaction with suitable mechanism.



4. (a) Using cis-and trans-stilbene, justify the fact that "Bromination of alkene is a stereospecific reaction."

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- (b) Why alkynes are less reactive towards electrophilic substitution reaction than alkenes ?

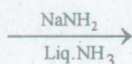
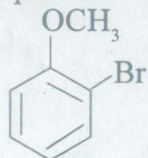
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## SECTION—C

5. (a) n-butyl bromide when heated with  $\text{AgNO}_3$  gives a precipitate of  $\text{AgBr}$  while phenyl bromide does not give any reaction even on prolonged heating. Why ?

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- (b) Complete the following reaction with suitable mechanism and give explanation for the product expected :

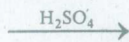
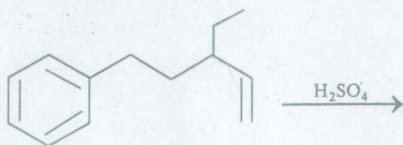


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- (c) Explain the term "Banana Bonds". 1
6. (a) Giving a suitable example, justify the fact that " $S_N2$  reaction proceeds with inversion of configuration". 3
- (b) Vinyl chloride does not give nucleophilic substitution reaction but allyl chloride does, why? 3
- (c) Cyclopropane is more reactive than Cyclohexane, why? 1

### SECTION—D

7. (a) Chlorobenzene is far less reactive than aniline towards electrophilic substitution reaction although chlorine and nitrogen have the same electronegativity, why? 3
- (b) Complete the following reaction with a suitable mechanism :



4

44(2118)/DAG-6496

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(Contd.)

8. Complete the following reactions with suitable mechanism :

