

7. (a) Describe with mechanism : 4  
 (i) Nitration of benzene  
 (ii) Halogenation of benzene
- (b) Why Friedel-Craft acylation is preferred over Friedel-Craft alkylation ? 2
- (c) Why nitration of toluene is easier than benzene ? 2

### SECTION - D

8. (a) Explain *two* methods of formation of alkyl halides. 2
- (b) Describe the addition elimination mechanism of nucleophilic aromatic substitution. 3
- (c) Why allyl halides are more reactive while vinyl halides are less reactive than alkyl halides ? 3
9. (a) Explain : 3  
 (i) Gattermann reaction  
 (ii) Hunsdiecker reaction
- (b) Explain the mechanism and stereochemistry of  $SN^1$  reaction with energy profile diagram. 3
- (c) Write the preparation of DDT and BHC. 2

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Roll No. ....

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B. Sc. (Hons.) Chemistry 2nd Sem.  
 Latest Examination – April, 2018

ORGANIC CHEMISTRY

Paper : 203

Time : Three Hours ]

[ Maximum Marks : 40

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) What is reforming or aromatization ?  
 (b) Why trans alkenes have zero dipole moment ?  
 (c) What are dienophiles ? Give examples.  
 (d) What happens when ethyne is treated with HCN ?  
 (e) Why benzene undergoes substitution rather than addition reactions ?  
 (f) What is Fittig reaction ?

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(g) Why nitrobenzene is used as a solvent in Friedel-Craft reactions ?

(h) What is Swarts reaction ?  $1 \times 8 = 8$

### SECTION - A

2. (a) Why cis-alkenes have higher boiling point than corresponding trans alkenes ? 2

(b) Dehydration of alcohols to alkenes is carried out by heating with  $H_2SO_4$  and not with  $HNO_3$  and  $HCl$ . Explain. 3

(c) Explain hydroboration-oxidation reactions of alkenes with mechanism. 3

3. (a) Describe : 4

(i) Peroxide effect

(ii) Hofmann elimination reaction

(b) Write note on : 4

(i) Cetane number

(ii) Cracking

### SECTION - B

4. (a) What are conjugated dienes ? Why they are more stable than isolated dienes ? 3

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(b) Why terminal alkynes are acidic in nature ? 3

(c) Describe the structure and bonding in alkynes. 2

5. (a) Illustrate the Pschorr synthesis of phenanthrene. 2

(b) How does anthracene reacts with the following reagents : 2

(i) Maleic anhydride

(ii) Chromic acid

(c) Describe 1, 2 and 1, 4-addition reactions of conjugated dienes. 4

### SECTION - C

6. (a) Classify the following into aromatic, anti-aromatic and non-aromatic compounds : 4

(i) Cyclo-octatetraene

(ii) Pyrrole

(iii) Cyclopropenyl anion

(iv) Cyclobutadiene

(b) Explain : 4

(i) Huckel rule of aromaticity

(ii) Annulenes

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