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91535

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 ?

(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

(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

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
