(180-PA-203331C) Roll No. .....

PAPER ID—10128

B. Sc. EXAMINATION, 2023

(Second Semester)

ORGANIC CHEMISTRY (III)

Code : CH-203

Time : 3 Hours *Maximum Marks : 29*

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

Note : This paper consists of nine questions and attempt *Five* questions in all. Q. No. 1 is compulsory and contains five short answer type questions and carries 5 marks. All questions in Section A, B, C, and D equal carry marks. Attempt *one* question in each Section A, B, C, and D and all the parts of that question must be attempted.

1. (a) What do you mean by ortho-para directing group ?

(b) What is Anti-Markownikoff rule ?

(c) State Huckel rule.

(d) What are conjugated dienes ?

(e) What is Walden inversion ? 5×1=5

Section A

2. (a) Explain mechanism of dehydration of *n*-butyl alcohol with conc. H_2SO_4. 3

(b) What happens when : 3

(i) 1, 2 dibromopropane is heated with zinc

(ii) Addition of diborane to propene

(iii) Ethene reacts with cold Alkaline $KMnO_4$.

3. (a) Explain the following in brief : 3

(i) Why dipole moment of Trans-But-2-ene is zero ?

(ii) Why is boiling point of neopentane lower than n-pentane ? 3

(b) Explain dehydrohalogenation of alkyl halides to form alkene using Saytzeff's rule. 3

Section B

4. (a) Give the mechanism of Friedel-Craft acylation. 3

(b) Though benzene is unsaturated hydrocarbon, yet it fails to give Baeyer's test. 3

5. (a) Give reaction of nitration of benzene and give reason why Nitration of toluene takes place more easily as compared to benzene or toluene. 3

(b) What are aromatic, anti-aromatic and non-aromatic compounds ? Explain with examples. 3

Section C

6. (a) What happens when 2-butyne is treated with : 3

(i) $Pd/BaSO_4$ (Lindlar's catalyst)

(ii) Sodium dissolved in liquid ammonium.

(b) Why terminal alkynes are acidic in nature ? Explain on the basis of hybridisation and stability of alkynyl ion. 3

7. (a) Discuss the mechanism of 1, 2 and 1, 4 addition of 1, 3 butadiene. 3

(b) What are Dienes ? How do conjugated and cummulated dienes differ in their structure ? 3

Section D

8. (a) Why does nucleophilic substitution of chlorobenzene takes place through benzyne mechanism and that of p-nitro chlorobenzene proceeds via addition elimination mechanism ? Explain it. 3

(b) What will happen when chloroethane reacts with : 3

(i) Alc. KOH.

(ii) Aq. KOH

(iii) Moist Ag_2O.

9 (a) Write short notes on the following : 3

(i) Sandmeyer's reaction.

(ii) Wurtz reaction.

(b) Give difference between S_N1 and S_N2 reaction. 3