

Roll No.

21203

B. Sc. (Pass Course) 2nd Semester

Examination – May, 2019

CHEMISTRY-III (Organic Chemistry-III)

Paper : CH-203

Time : Three hours]

[Maximum Marks : 29

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 Unit. Question No. 1 is compulsory and is of 5 marks. All other questions are of 6 marks.

1. Compulsory Question : 5 × 1 = 5

- What is Hoffmann elimination reaction ? Explain with suitable example.
- Write down the attacking species in sulphonation of benzene.
- Define anti-aromatic compounds. Give examples.

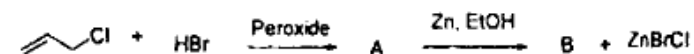
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- What happens when CaC_2 is treated with H_2O ?
- Write down the structure of 1-chloro-2,2-dimethylpropane.

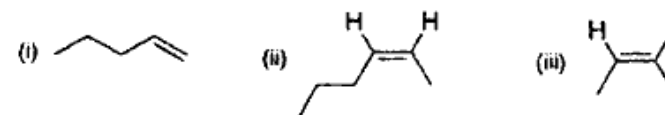
SECTION – A

2. (a) Identify A and B in the following reaction : 3

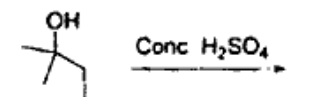


(b) How will you differentiate between 1-pentene and 2-pentene by ozonolysis method ? 3

3. (a) Write IUPAC name of the following compounds : 3

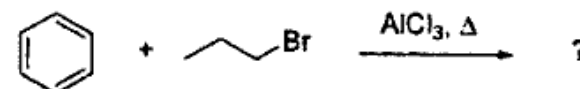


(b) Write down the product with mechanism for the following reaction : 3



SECTION – B

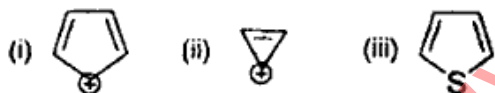
4. (a) Describe the mechanism of following Friedel-Crafts alkylation reaction : 3



(2)

(b) write down the steps involved in the nitration of toluene with mechanism.

5. (a) Which of the following has aromatic character? why?



(b) How will you account for the fact that the -CH₃ group at the benzene ring is *ortho*-directing while -CHO group is *meta*-directing?

SECTION - C

6. (a) Discuss the orbital structure of acetylene. How will you explain the acidic nature of C-H in acetylene?

(b) Write down the effect of temperature on the addition of reagents to conjugated dienes.

7. (a) Write a short note on Diels-Alder reaction.

(b) Discuss the relative stabilities of the α -olefins over isolated dienes.

(3)

(a) Why are S_N² displacements more difficult with 2-chloro-2-methylbutane than with 1-chloro-2-methylbutane? 3

(b) Explain the mechanism of S_N¹ reaction of R-X with energy profile diagram. 3

(a) How does the resonance theory explain the low reactivity of halides? 3

(b) Give mechanism of elimination-addition reaction in halides and also give evidence in support of it. 3

(4)