BACHELOR OF SCIENCE (CBCS-2018 COURSE)
T. Y. B. Sc. Sem-V : WINTER :- 2021
SUBJECT: CHEMISTRY : ORGANIC CHEMISTRY-I

Day : Monday
Date 24-01-2022

W-18416-2021

Time : 02:00 PM-05:00 PM
Max. Marks: 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labeled diagram **WHEREVER** necessary.

Q.1 Attempt **ANY TWO** of the following: **[12]**

a) What is alkylation? Discuss the mechanism of Friedel-Craft alkylation of benzene. What are its limitations?

b) Discuss the mechanism and stereochemistry of SN^1 reaction.

c) Write a note on : Ozonolysis.

Q.2 Attempt **ANY TWO** of the following: **[12]**

a) What is elimination? Discuss the mechanism of E_2 reaction. Give factors affecting on it.

b) Draw chair conformations of *cis* and *trans* 1, 3 – dimethyl cyclohexane. Comment on their stability and optical activity.

c) Write a note on : Markownikoff's rule and peroxide effect.

Q.3 Attempt **ANY TWO** of the following: **[12]**

a) What is nitration? Discuss the mechanism of nitration of benzene. Explain the role of conc. H_2SO_4 in nitration.

b) What is Hoffmann and Saytzeff elimination? Illustrate with suitable examples.

c) Write a note on : Factors affecting on SN^1 and SN^2 mechanism.

Q.4 Attempt **ANY THREE** of the following: **[12]**

a) What is hydroxylation? Discuss it with alkaline $KMnO_4$.

b) Explain the terms:
i) Bredt's rule **ii)** Optical activity

c) Explain activating and deactivating groups.

d) Write a note on: Stereochemistry of SN^2.

P.T.O.

Q.5 Predict the product/s and suggest the mechanism for **ANY FOUR** of the following: **[12]**

a)  $\xrightarrow{Br_2 / AlBr_3}$?

b)  + $CH_3-\overset{O}{\overset{\|}{C}}-O-\overset{O}{\overset{\|}{C}}-CH_3$ $\xrightarrow{AlCl_3}$?

c) $CH_3-\underset{2}{CH}-\underset{Br}{\overset{CH_3}{\overset{|}{C}}}-CH_3$ $\xrightarrow[E1]{C_2H_5ONa / C_2H_5OH}$?

d) $CH_3-\overset{CH_3}{\overset{|}{C}}=CH_2 + HO_2$ $\xrightarrow{H_2SO_4}$?

e)  $\xrightarrow[ii)\ H_2O / H^+]{i)\ OsO_4 / pyridine}$?

f) $CH_3-CH_2-CH=CH_2$ $\xrightarrow[ii)\ H_2O / H^+]{i)\ cold\ conc\ H_2SO_4}$?

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