(i) **Printed Pages : 4** **Roll No. .....**

(ii) **Questions : 9** **Sub. Code : 0 1 5 0**

Exam. Code : 0 0 0 2

B.A./B.Sc. (General) 2nd Semester

1046

CHEMISTRY

(Same for B.Sc. Microbial & Food Tech.)

Paper : VI Organic Chemistry–B

Time Allowed : Three Hours] **[Maximum Marks : 22**

Note :– Attempt **five** questions in all, selecting **one** question from each section. Question No. **IX** is compulsory.

SECTION–I

I. (a) Describe Sache-Mohr theory of strainless rings How does it account for the stability of cycloalkanes containing six or more carbon atoms ?

(b) Discuss the mechanism of chlorination of methane. Give two evidences in support of this mechanism 2,2

II. (a) Halogenation of alkanes in presence of tetraethyl lead proceeds at a lower temperature than when it is done in its absence, explain.

(b) Cyclopropane and cyclobutane undergo addition reactions while higher cycloalkanes do not. Why ?

(c) What are isomers of pentane ? Give their IUPAC names. Which isomer has highest b.p. and why ? 1,1,2

SECTION–II

III. (a) How does ozonolysis help in locating the position of a double bond in alkenes ? Explain with two examples.

(b) Discuss the mechanism of anti-Markownikov's rule of addition of HBr to unsymmetrical alkenes. 2,2

IV. (a) Complete the reactions :

(i) Cyclohexene + Perbenzoic acid $\rightarrow$ .....

(ii) Cyclopentene + Br_2 /CCl_4 $\rightarrow$ .....

(b) Discuss the S_N^1 mechanism of dehydration of alcohols to alkenes.

(c) Explain, why addition of chlorine to propene at ordinary temperature gives 1,2–dichloropane but at 773 K, it gives 3–chloropane. 1,2,1

SECTION–III

V. (a) Explain the orbital structure and resonance structure of 1,3-Butadiene.

(b) Write the major product and suggest suitable mechanism for the following reactions.

$$CH_2 = CH - CH = CH_2 + HBr \xrightarrow[313\ K]{193\ K} \begin{matrix} ? \\ ? \end{matrix}$$ 2,2

VI. (a) Give chemical equations for the following reactions :

(i) Reduction of But-2-yne with H_2 Pd /$BaSO_4$

(ii) Reduction of But-2-yne with Na /liq NH_3

(b) How will you explain that alkynes undergo nucleophilic addition reactions but alkenes do not ?

(c) How will you prepare a higher alkyne from a lower alkyne ?

1,1,2

SECTION–IV

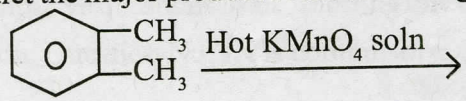
VII. (a) Discuss the kekule structures of benzene and also give objections to these structures.

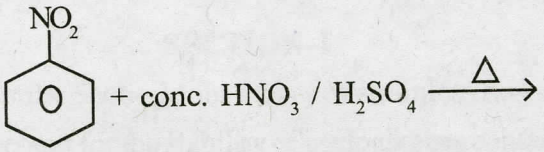
(b) Give the mechanism of Friedel Craft's acylation reaction.

2,2

VIII. (a) Nitration of benzene takes place readily than that of nitrobenzene. Explain.

(b) Predict the major product of the following reactions

(i) 

(ii) 

(c) Give one method of formation of Phenyl acetylene and one method of formation of biphenyl. 1,1,2

SECTION–V

(Compulsory Question)

IX. (a) Free radical chlorination of alkanes is not a good method for the preparation of alkyl halides yet neopentyl chloride is generally prepared by free radical chlorination of neopentane.

(b) Out of cis 2-butene and trans 2-butene, which has more m.p. and why ?

(c) Penta 1,3-diene is more stable than penta 1,4-diene. Why ?

(d) Though benzene is an unsaturated hydrocarbon, yet it fails to give Baeyer's Test. Why ?

(e) What are terminal alkynes and non-terminal alkynes ? Give examples.

(f) Why in case of ortho and para disubstitution, the para isomer generally dominates ? $6 \times 1 = 6$