

Code No.: 8954

FACULTY OF SCIENCE

M.Sc. III Semester Examination, May/June 2012

ORGANIC CHEMISTRY

Paper I

(Confermental Analysis Pericyclic Reactions and Enzymes)

Time : 3 Hours]

[Max. Marks : 80

Answer **all** questions.

Part A — (Marks : $4 \times 8 = 32$)

- (a) Discuss the stereochemistry of bicyclo [3, 3, 0] octanes.

(b) Write on the stereochemistry of cyclopropane and cyclobutane.
- (a) How are pericyclic reactions classified? Give examples.

(b) What are Woodward-Hoffmann selection rules for electrocyclic reactions?
- (a) State and explain Huckel's rule.

(b) Explain cope and degenerate cope rearrangements with examples.
- (a) What are different types of RNA? Mention their role.

(b) What are nucleosides and nucleotides? Give examples.

Part B — (Marks : $4 \times 12 = 48$)

- (a) Illustrate with examples the use of optical rotatory dispersion in the study of absolute configuration.

(b) Discuss the stereochemistry of hydrindanes.

Or

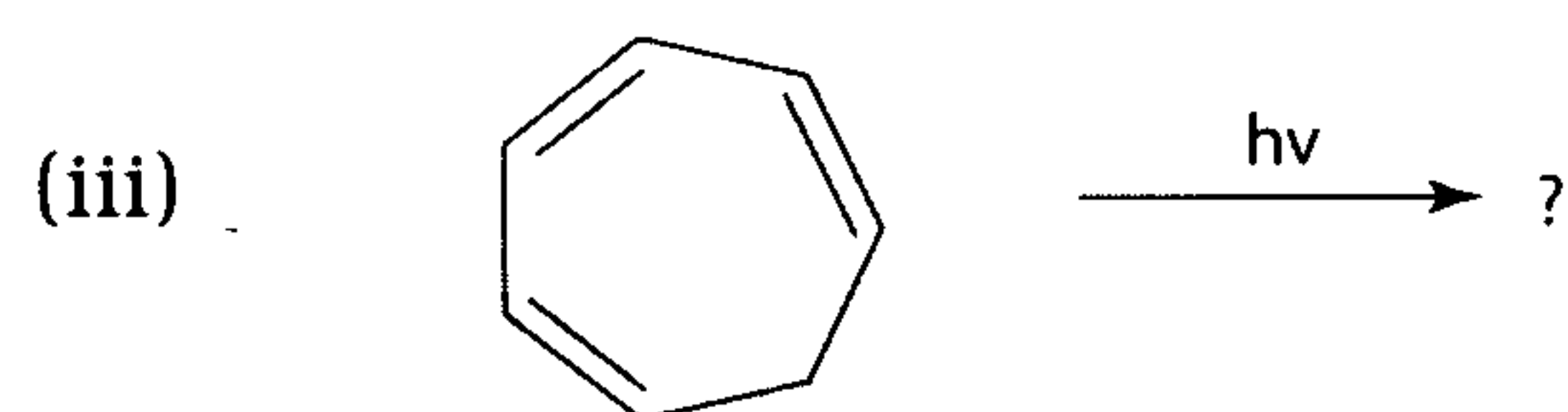
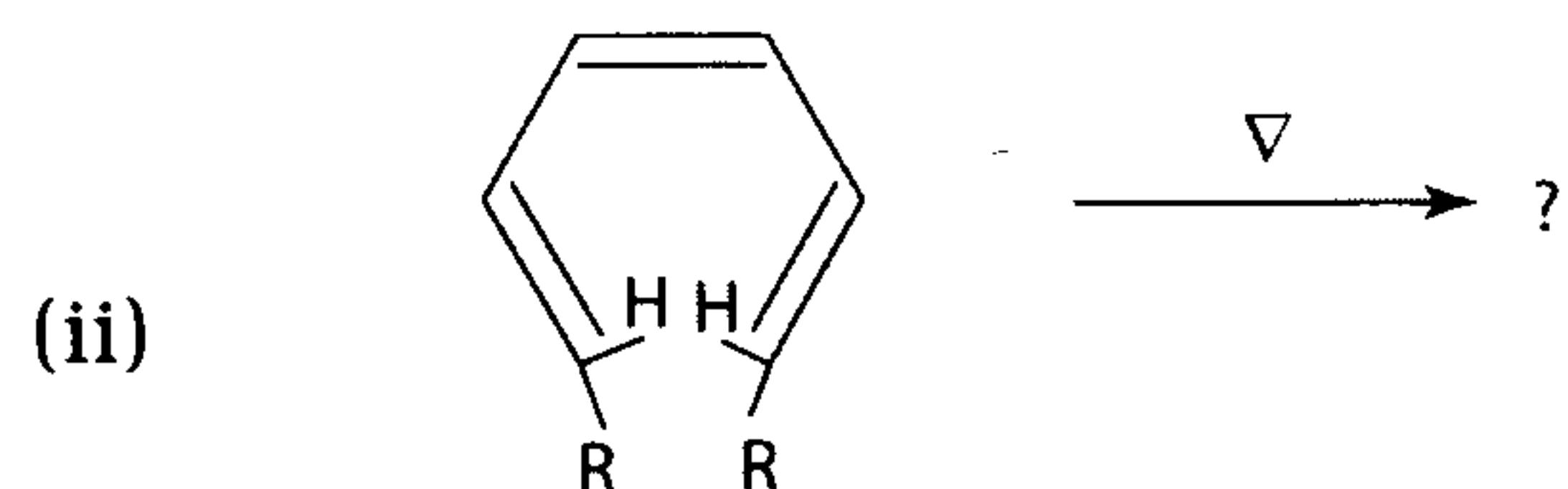
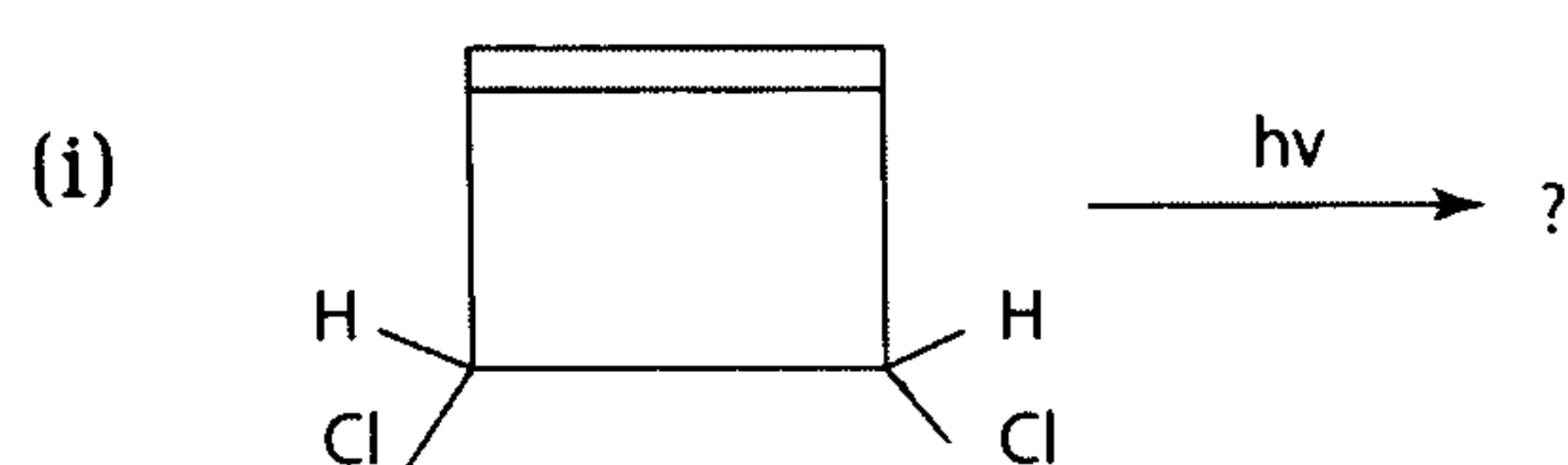
- (c) Write with mechanism the products formed when four isomeric 2-amino 4-t-butyl cyclohexanols are independently treated with NaNO_2/HCl .

[P.T.O.]

6. (a) Draw the molecular orbitals of pentadienyl cation and indicate their phases, nodes and symmetry properties.
 (b) Write briefly on Frontier Molecular orbital theory approach to electrocyclic reactions.

Or

- (c) Complete the following reactions and give mechanism



7. (a) Explain the Diels-Alder reaction using correlation diagram method.
 (b) Discuss the sigmatropic shifts of [1, 3] and [1, 5] type using Huckel Mobius approach.

Or

- (c) Write notes on:

- (i) Stereochemical aspects of $4n$ and $4n+2$ cycloadditions.
 (ii) Annulenes
 (iii) Endoselectivity

8. (a) Outline the synthesis of an acylglycerol, a phospholipid and a sphingolipid.
 (b) Discuss about immobilised enzymes

Or

- (c) Write notes on:

- (i) Protein biosynthesis
 (ii) Enzyme inhibition
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