

2016

ADVANCED ORGANIC CHEMISTRY

Time : Three Hours]

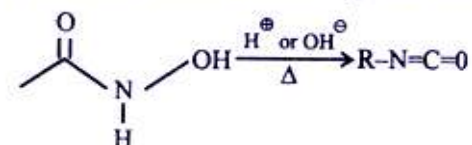
[Maximum Marks : 80

Answer from both the Section as directed. The figures in the right hand margin indicate marks.

SECTION-A

1. Answer any four of the following (a-f) of Q1 : 4×4

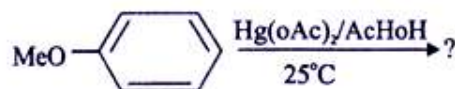
- (a) Discuss Hückel-Mobius method in [1,3]-sigmatropic rearrangement.
- (b) Explain Paterno-Buchi reaction citing one example.
- (c) What is Lossen rearrangement ? How will you bring about following conversion ?



- (d) How many types are given by organocopper reagents? Give atleast one example of each.

(2)

(e) Complete the following reaction :



(f) Define the Internal Conversion and Inter System Crossing in photochemical reactions.

**OR**

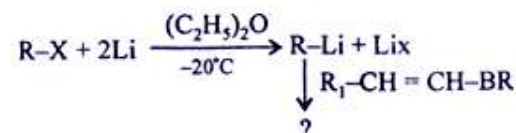
2. Answer all the questions :

2×8

- Draw only The HOMO and LUMO of 1,3-butadiene.
- What is conrotatory motion in pericyclic reaction ?
- What is Barton reaction ? Give an example.
- Comment on photochemistry of vision.
- Define Neber rearrangement with a suitable example.
- What is molecular rearrangement ? Explain.
- Write the name of two organomercury reagents.

(3)

(h) Complete the following reaction :

**SECTION-B**

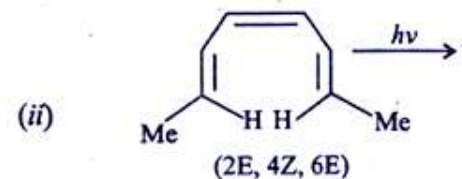
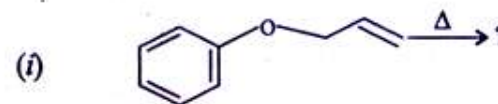
Answer all questions :

16×4

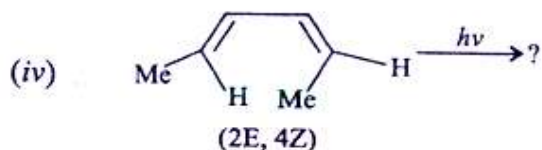
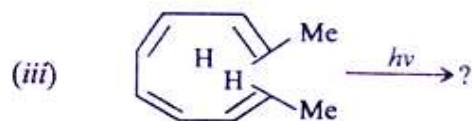
- (a) Discuss the Woodward-Hoffmann method and Huckel-Mobius approach for pericyclic reactions producing suitable examples in each case.

**OR**

- Give the product with its stereochemistry in the following reactions :



(4)

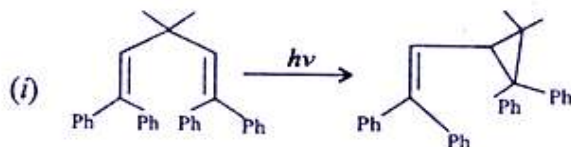


4. (a) Write short note on the following with examples :

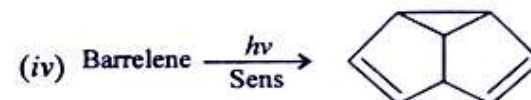
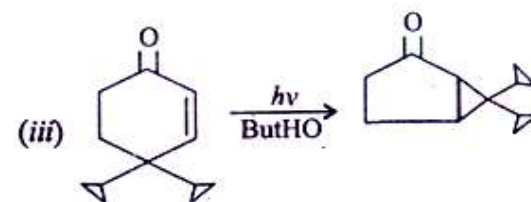
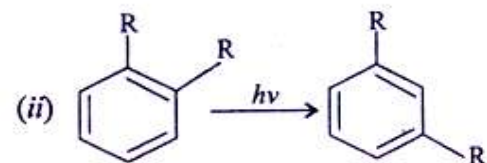
- Paterno-Buchi Reaction or Barton Reaction.
- Di-Pi methane rearrangement.
- Photo-oxidation of alkene.
- Photo-Fries rearrangement.

OR

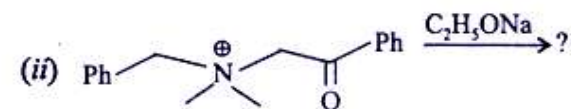
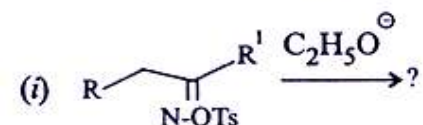
(b) How will you bring about following conversions ?



(5)



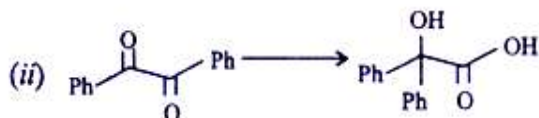
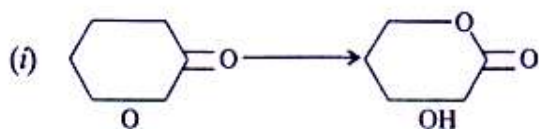
5. (a) Explain Beckmann and Wagner-Meerwein rearrangement by giving example and discuss their mechanism also. Complete the following reactions and suggest a suitable pathway.



OR

( 6 )

- (b) Discuss the stobbe condensation and shapiro reaction in detail. How will you bring about following conversions :



6. (a) Write short note on the following :

- (i) Carbocationic behaviour and carbanionic behaviour of reagents in organometallic reactions.
- (ii) How is the M-C ionic character is related to the reactivity among different organometallic reagents. Explain with facts.

**OR**

- (b) Discuss the synthetic application of following:

- (i) Organocopper reagents

( 7 )

- (ii) Organolithium reagent
- (iii) Organocadmium reagent
- (iv) Organomercury reagent