



III Semester M.Sc. Degree Examination, December 2018

ORGANIC CHEMISTRY

(CBCS) (Old Syllabus)

Reaction Mechanisms and Photochemistry

(Repeater) (2015 Batch)

Time : 3 Hours

Max. Marks : 70

Note : i) Answer **any ten** sub-divisions from Part – A and **any five** questions from Part – B.

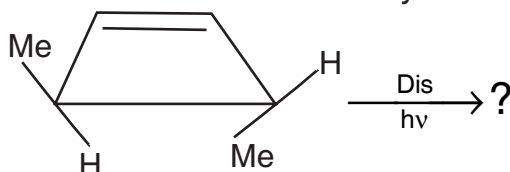
ii) Figures to the **right** indicate marks.

PART – A

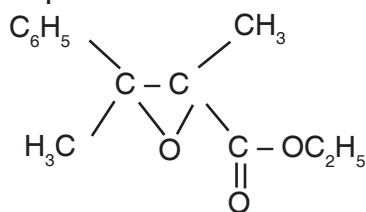
1. Answer **any ten** sub-divisions :

(10×2=20)

- Explain the phenomena of optical pumping taking suitable example.
- What is Yang cyclization ? Explain with an example.
- Illustrate Norrish Type-I cleavage with an example.
- What is con rotation ? Which symmetry element is preserved in this mode of rotation ?
- Predict the stereochemistry in the following reaction.

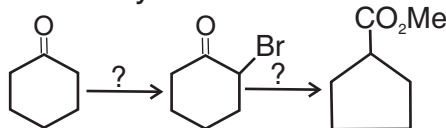


- With suitable example illustrate oxy-cope rearrangement.
- What is stork examine reaction ? Explain with an example.
- Benzoin condensation is specifically catalysed by cyanide ion. Account for.
- Illustrate the application of Darzens reaction for the synthesis of the following compound.

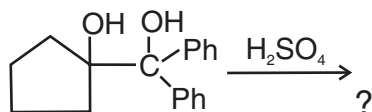




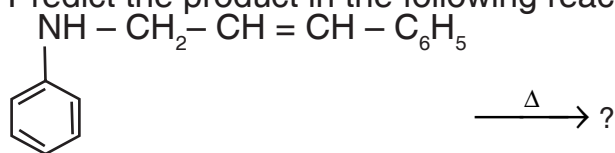
j) How do you achieve the following conversion ?



k) Predict the product in the following.



l) Predict the product in the following reaction

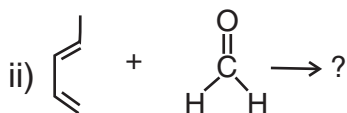
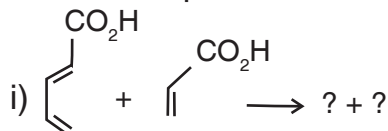


PART – B

Answer **any five** questions :

(5×10=50)

2. a) Explain the fate of an excited molecule using Jablonski diagram.
- b) What is photo reduction ? Explain the mechanism taking proper example. (6+4=10)
3. a) What is remote functionalization ? Explain its synthetic utility.
- b) Explain Di- π methane rearrangement taking proper example.
- c) Explain briefly the photochemistry of vision. (4+3+3=10)
4. a) With the help of correlation diagram predict whether the photochemical interconversion of butadiene to cyclobutene is dis-rotatory or con-rotatory.
- b) Predict the products in the following :



(5+5=10)

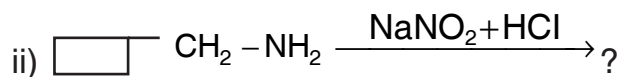
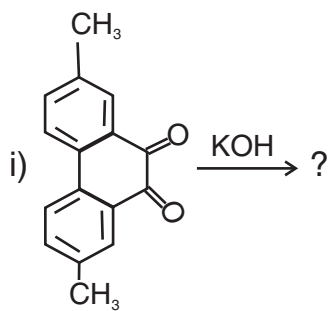


5. a) Deduce Woodward-Hofmann rules for the (4+2) cycloaddition using FMO approach.
b) How do you analyze a sigmatropic rearrangement? Explain taking proper example. **(4+6=10)**

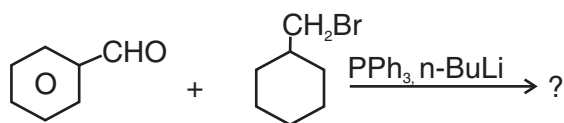
6. Taking suitable examples explain the mechanism of the following reactions.

- i) Amadori rearrangement
ii) Baker Venkataraman rearrangement
iii) Schmidt rearrangement. **(3+4+3=10)**

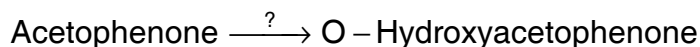
7. Predict the product and propose suitable mechanism.



8. a) Predict the product and propose mechanism.



b) How do you achieve the following conversion?



c) Suggest a method for the conversion of 2-Naphthol into 2-Naphthylamine.

(3+4+3=10)



9. a) Explain the mechanism of following name reactions taking suitable example.

i) Heck reaction.

ii) Cannizzaro reaction.

b) Predict the product formed in the following reaction and propose suitable mechanism. **(6+4=10)**

