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YMCA UNIVERSITY OF SCIENCE & TECHNOLOGY, FARIDABAD

M. Sc. Chemistry 4th SEMESTER (UNDER CBCS)

Organic Chemistry Special-I (CH-411)

Time: 3 Hours

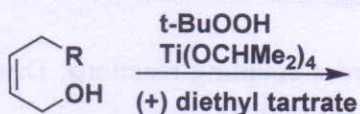
Max. Marks: 60

- Note:
1. It is compulsory to answer the questions of Part -1. Limit your answers within 20-40 word in this part.
 2. Answer any four questions from Part -2 in detail.
 3. Different parts of the same question are to be attempted adjacent to each other.

Part-1

Q1.

- a) How organozinc compounds can be used for the synthesis of cyclopropane?
- b) Give one example of Stork-enamine synthesis.
- c) Name the reaction and identify the product(s). (No mechanism required)



- d) What will be the stereochemical outcome of the perhydroxylation of Cis-2-butene by Prevost hydroxylation?
- e) Define hydrogenolysis with suitable example.
- f) Why does octacarbonyl dicobalt exist as dimer?
- g) Give one application of 1, 3-dithiane in the synthesis of organic compounds.
- h) What do you understand by the term Phase Transfer Catalyst?
- i) Give one evidence in favour of ozonide formation in the ozonolysis of alkene.
- j) Discuss one method for synthesis of sulfur ylides.

2×10=20

Part-2

Q2. Citing adequate evidences in support, sketch the mechanism of the following:

- a) Beckmann Rearrangement
- b) Darzen's glycidic ester synthesis

5×2=10

Q3. Offer explanation to the following:

- a) Why silicon can accommodate a negative charge on α -carbon and positive charge on β -carbon.
- b) Carbon dioxide reacts with Grignard reagent to give carboxylic acids while ketones are obtained with organolithium compounds.
- c) Application of organoboranes in the carbonylation of alkene

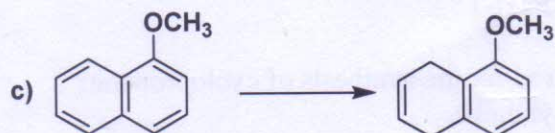
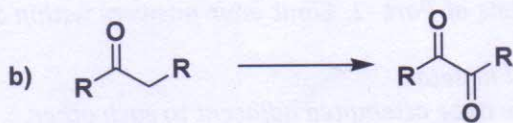
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Q4. Write short notes on the following reactions:

- a) Alkene Metathesis
- b) Pauson-Khand Reaction

5×2=10

Q5. How will you bring about the following transformations? Suggest the reagent and suitable mechanism.



4, 3, 3

Q6.

- Palladium (Pd) is the most widely used metal for cross-coupling reactions. Discuss the basic mechanistic differences between Heck & Suzuki coupling.
- Discuss the structure and functioning of Crown ethers as phase transfer catalysts.

5×2=10

Q7. Describe briefly the use of the following in organic chemistry:

- Baeyer Villiger rearrangement
- Organoiodine reagents
- Miscelles

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