

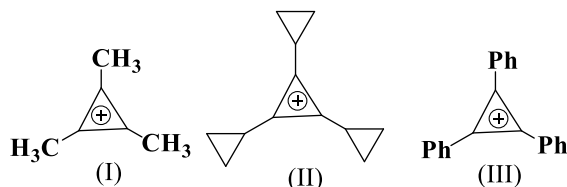
M.Sc.(Chem.) Semester - 1 (CBCS) Examination
OCT/NOV-2025 (AS PER SYLLABUS YEAR JUNE-2023)
Organic Chemistry (Core (New-23))

Time: 2:30 Hours**Marks:70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 (A) Answer the following (04)

- (1) Arrange the following compounds (I to III) as per their increasing order of stability. Justify your answer.



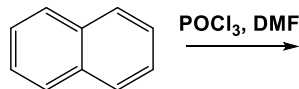
- (2) What are quasi aromatic compounds? Give four examples.

Q.1 (B) Answer any two questions out of three. (10)

- (1) What is Carbocation? Describe structure, hybridization, stability, and generation of Carbanion.
- (2) What is yield? How will you generate it? Explain reactivity of Wittig ylide.
- (3) Write three methods of synthesis for intermediate: (a) Benzyne (b) Nitrene

Q.2 (A) Answer the following (04)

- (1) Identify the following reaction and write its product and mechanism.

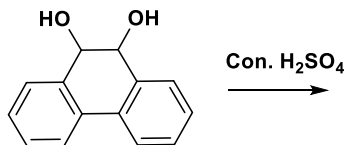
**Q.2 (B) Answer any two question out of three. (10)**

Explain, principle, mechanism and three examples of following reactions:

- (1) Michael addition
- (2) Nazarov cyclization
- (3) Mitsunobu reaction

Q.3 (A) Answer the following (04)

- (1) Identify the following rearrangement and write its product and mechanism.

**Q.3 (B) Answer any two question out of three. (10)**

Explain, principle, mechanism and three examples of following rearrangements:

- (1) Schmidt
- (2) Favorskii
- (3) Wagner-meerwein

Q.4 (A) Answer the following (04)

- (1) What is organocatalysis? Discuss organocatalyzed aldol reaction.

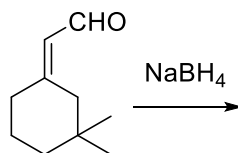
Q.4 (B) Answer any two question out of three. (10)

- (1) Describe McMurry olefination reaction with mechanism and three applications.
- (2) Explain conjugate addition of organometallic reagents with examples
- (3) Write a note on Baylis-Hillman reaction.

Q.5 (A) Answer the following

(04)

- (1) Predict the product of the following reaction & write its mechanism.



Q.5 (B) Answer any two question out of three.

(10)

Describe following reagents including preparation, mechanism and applications:

- (1) Birch reduction
- (2) Johns oxidation
- (3) DIBAL-H reagent.
