

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
March/April – 2025 (As Per Syllabus Year-2023)
Organic Chemistry (Core)

Time: 2:30 Hours

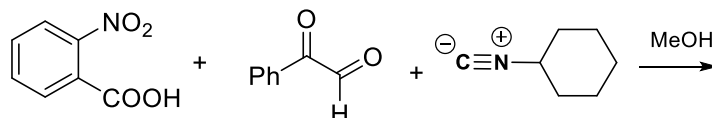
Marks: 70

Instructions:

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

Que-1(A) Answer the following**(04)**

- (1) Complete the following reaction and discuss its mechanism.

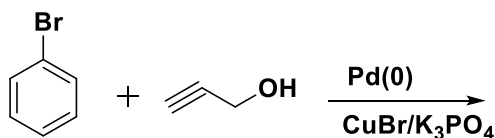
**Que-1(B) Answer any two questions out of three.****(10)**

Explain the mechanism and give three applications of the following reaction:

- (1) Ugi reaction
- (2) Biginelli reaction
- (3) Doebner Quinoline synthesis

Que-2(A) Answer the following.**(04)**

- (1) Complete the following reaction and discuss its mechanism:

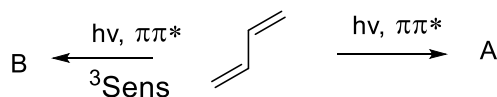
**Que-2(B) Answer any two questions out of three.****(10)**

Write the principle of following reaction and explain its catalytic cycle:

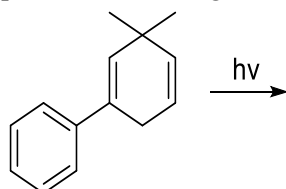
- (1) Heck reaction
- (2) Negishi reaction
- (3) Suzuki reaction

Que-3(A) Answer the following.**(04)**

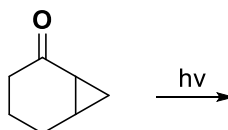
- (1) Discuss the basic laws of photochemistry.
- (2) Complete the following reaction sequence:

**Que-3(B) Answer any two questions out of three.****(10)**

- (1) Discuss intermolecular Paterno-Buchi reaction with suitable example.
- (2) Complete the following reaction with mechanism.



- (3) Complete the following reaction with mechanism:



Que-4(A) Answer the following.

(04)

(1) Explain the following term:

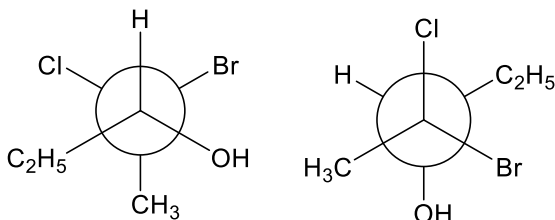
- (a) Enantiomer
- (b) Diastereomers
- (c) Asymmetric center
- (d) Optical isomerism.

Que-4(B) Answer any two questions out of three.

(10)

(1) Discuss in detail: Conformational and Configurational isomers.

(2) Discuss relationship between the following stereoisomers and convert it to fisher projection:



(3) Draw following stereoisomers in Fischer projection and convert it to staggered wedge-dash projection and assign configuration.

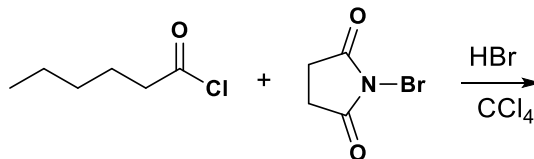
(I). [2R,3S]2,3-difluorobutanol,

(II). [2S, 3R]2-cyano-3-nitrobutraldehyde

Que-5(A) Answer the following.

(04)

(1) Complete the following reaction sequence and write its mechanism:



(2) Write the structure and synthesis of following: (a) DDQ

Que-5(B) Answer any two questions out of three.

(10)

Describe chemical structure, mechanism and at least three applications of following reagent:

- (1) AIBN
- (2) DCC
- (3) TEMPO
