

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
March/April – 2024 (As Per Syllabus Year-2023)
Organic Chemistry (Core)

Time: 02:30 Hours

Marks: 70

Instructions:

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

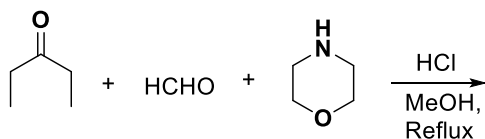
Q.1 (A) Answer the following questions.**(04)**

- (1) What are MCRs? Enlist four examples of MCR and Discuss its advantages.

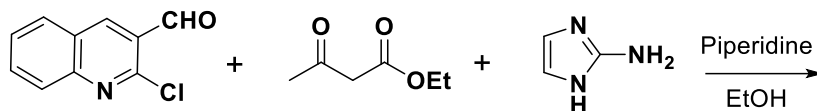
Q.1 (B) Answer any two questions out of the following three questions.**(10)**

Identify the following reactions and write their mechanism:

(1)



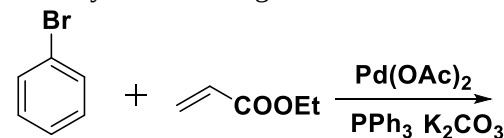
(2)



(3)

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

- (1) Give structures of following: (a) (BINAP)PdCl₂ (b) (DPPF)PdCl₂
- (2) Identify the following reaction and write its product:

**Q.2 (B) Answer any two questions out of the following three questions.****(10)**

Write Principle, catalytical cycle and three applications of following coupling reaction:

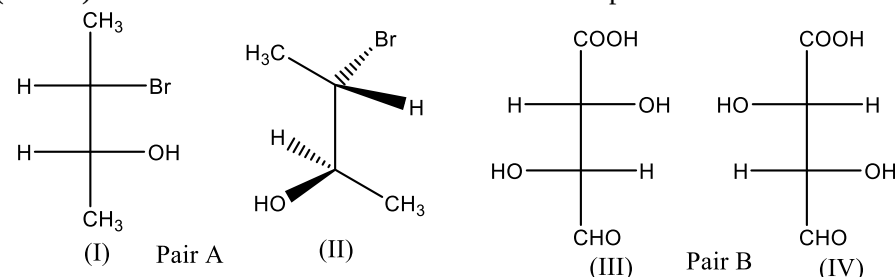
- (1) Suzuki reaction
- (2) Sonogashira reaction.
- (3) Negishi reaction

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

- (1) Define the following term with one example: (a) Asymmetry (b) Optical isomerism.

Q.3(B) Answer any two questions out of the following three questions.**(10)**

- (1) Assign appropriate configuration at each stereocenter for following pair of compounds (A & B) and discuss their stereochemical relationship.



- (2) What is geometrical isomerism? Discuss isomerism in cyclooctene.
- (3) Draw [2R,3S]2,3-difluorobutanol in Fischer projection and convert it to staggered wedge-dash projection and assign configuration.

Q.4 (A) Answer the following questions.

(04)

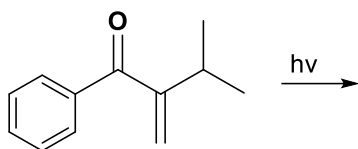
- (1) What is Organic photochemistry? Discuss Jablonski diagram for the fate of excited states.

Q.4 (B) Answer any two questions out of the following three questions.

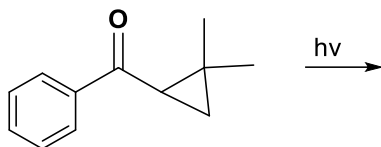
(10)

Describe reaction mechanism of following photochemical reaction and give product:

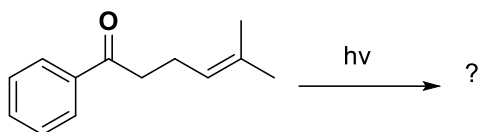
(1)



(2)



(3)



Q.5 (A) Answer the following questions.

(04)

- (1) What is Phase transfer catalyst? Give its examples and discuss mechanism.

Q.5 (B) Answer any two questions out of the following three questions.

(10)

Give structure and write one any one application with mechanism:

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