

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
April/May-2023 (NEW COURSE)
Organic Chemistry (CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

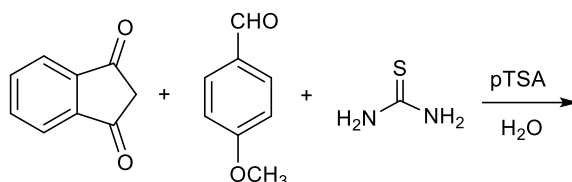
1. All questions are compulsory.
2. Figures to the right indicate marks.

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

1. What are MCR? Enlist four examples of MCR.
2. How many components are utilized in Mannich reaction? Give at least three examples of each component.

Q.1(B) Answer the following question. (Any Two) (10)

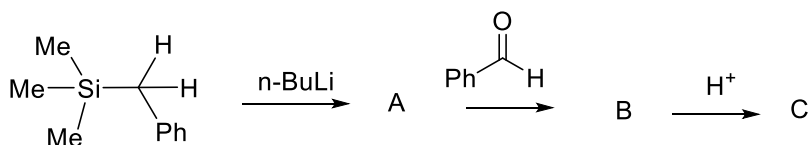
1. How will you prepare symmetrical DHP compound using MCR? Explain with one and discuss its mechanism.
2. Identify the following reaction and write its Product with mechanism:



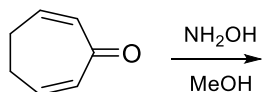
3. Explain principle, mechanism and three applications of Passerini Reaction.

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

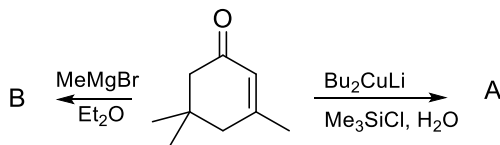
1. Give difference between direct addition vs conjugative addition reactions.
2. What products (A, B and C) will form in the following reaction sequence?

**Q.2(B) Answer the following question. (Any Two) (10)**

1. Identify the following reaction and write its mechanism:



2. Give product (A & B) of the following reaction and explain its mechanism:



3. Write a short note on organocatalyzed aldol reaction with mechanism.

Q.3(A) Answer the following questions.

(04)

1. Give structures of following Pd-catalyst:

(I) (BINAP)PdCl₂ (II) (DPPF)PdCl₂

2. Describe mechanism of transmetallation in Pd-catalytical cycle with any one example.

Q.3(B) Answer the following question. (Any Two)

(10)

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

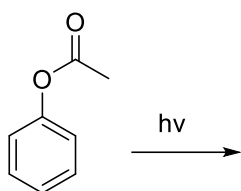
1. Suzuki reaction 2. Sonogashira reaction. 3. Buchwald-Hartwig reaction

Q.4(A) Answer the following questions.

(04)

1. What is Organic photochemistry? Why it is important?

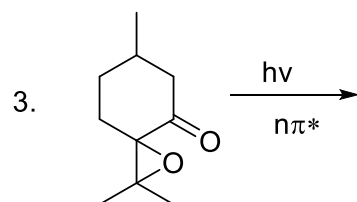
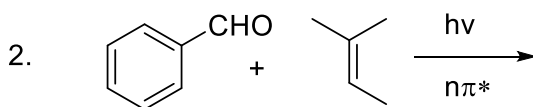
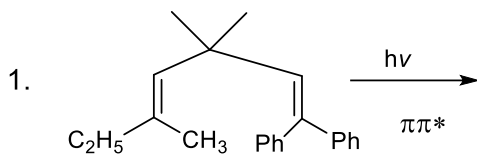
2. Write the product of the following reaction with mechanism:



Q.4(B) Answer the following question. (Any Two)

(10)

Describe reaction mechanism of following photochemical reaction and give product:



Q.5(A) Answer the following questions.

(04)

1. What is Phase transfer catalyst? Give its one application

2. Discuss any two applications of DDQ reagent.

Q.5(B) Answer the following question. (Any Two)

(10)

Give structure and write one any one application with mechanism:

1. TEMPO

2. NBS.

3. DCC
