647510 **23MSC2OrgC202x** **Seat No :_____**

M.Sc.(Chem.) Semester - 2 (*CBCS*) Examination
March/April – 2026 (As Per Syllabus Year-2023)
Organic Chemistry (Core)

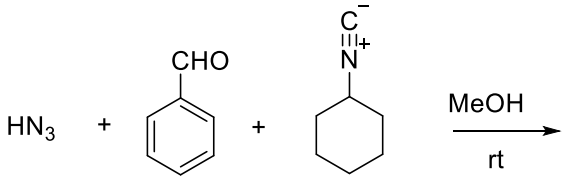
Time: 2:30 Hours **Marks:70**

Instructions:

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

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

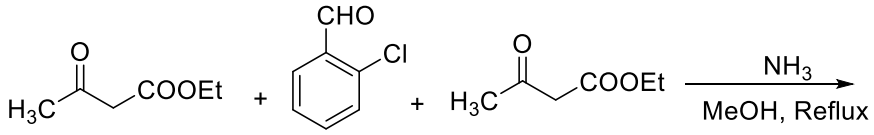
(1) Complete the following multicomponent reaction and discuss its mechanism.



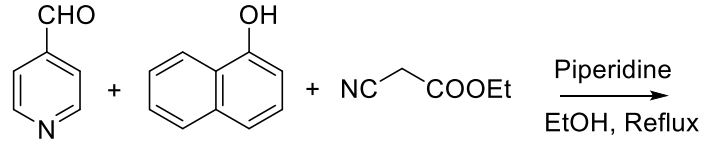
Q.1(B) **Answer any two question out of three.** **(10)**

Identify the following multicomponent reaction and give its mechanism:

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



(2) Complete the following reaction and discuss its mechanism.



(3) Write a note on Mannich reaction including mechanism, substrate variations and three applications.

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

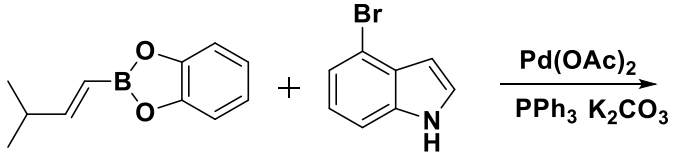
(1) Write any four structures of Pd(0) catalysts.

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

(1) Write Principle, catalytical cycle and three application of Buchwald-hartwig reaction.

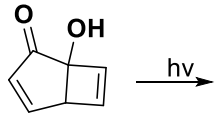
(2) Write Principle, catalytical cycle and three application of sonogashira reaction.

(3) Complete the following reaction and discuss its mechanism.



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

(1) Complete the following reaction sequence with mechanism:

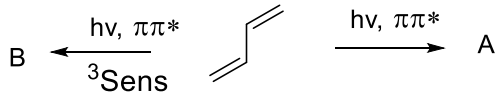


Q.3(B) **Answer any two question out of three.** **(10)**

(1) Discuss Norish Type-II reaction with mechanism.

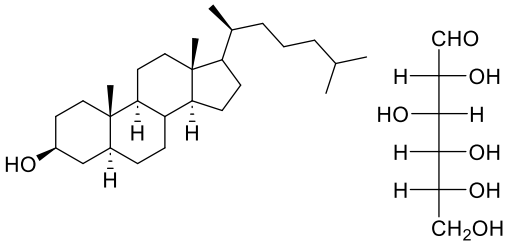
(2) Discuss intermolecular Paterno-Buchi reaction with suitable example.

(3) Complete the following reaction sequence with mechanism.



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

(1) (I) Assign the configuration at each stereocenter for following compounds:

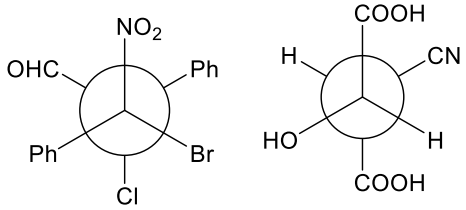


(II) Discuss in detail: Conformational and Configurational isomers.

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

(1) What is Meso compound? Explain with two examples.

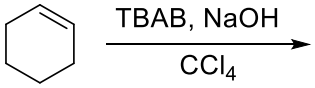
(2) Convert the following stereoisomers into Fischer projection & Zigzag projection and assign configuration:



(3) Discuss stereoisomerism in cyclooctene.

Q.5(A) Answer the following. **(04)**

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



(2) Write the structure and application of reagent TEMPO.

Q.5(B) Answer any two question out of three. **(10)**

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

(1) NBS

(2) Wilkinson catalyst

(3) DDQ

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