

M.Sc.(Chem.) Semester - 1 (CBCS) Examination
Nov/Dec - 2022 [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**4 Marks**

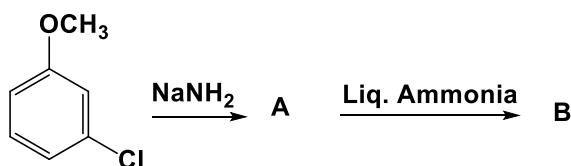
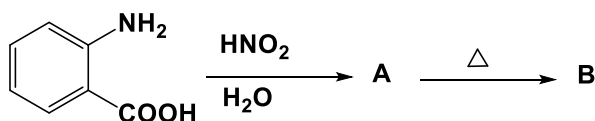
- (1) Arrange the following compounds according to their increasing order of PKa.



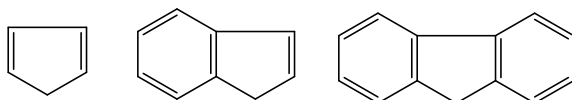
- (2) How will you generate enamine? Explain with one example.

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

- (1) What is carbene? How will you generate carbene? Discuss reactivity of single and triplet carbene with examples.
- (2) What are ylides? Explain generation and reactivity of hard and soft S-ylides with examples.
- (3) Complete the following reaction with mechanism.

**Q.2 (a) Answer the following****4 Marks**

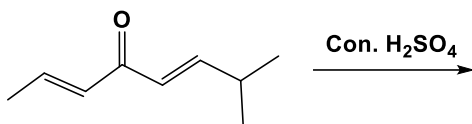
- (1) What is annelation effect? Discuss acidity of following compounds using annelation effect:

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

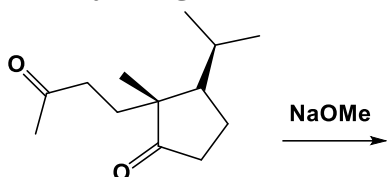
- (1) Write a note on the aromaticity of Fulvalenes
- (2) Discuss aromaticity of non-benzenoid compounds.
- (3) What are annulenes? Describe aromaticity in: (a) [14]annulene (b) [18]annulene.

Q.3 (a) Answer the following**4 Marks**

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



- (2) Identify the given reaction and write its product with mechanism.

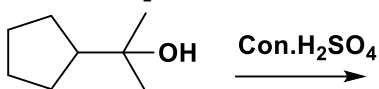
**Q.3 (b) Answer any two questions out of three.****10 Marks**

Describe principle, mechanism and three applications of following:

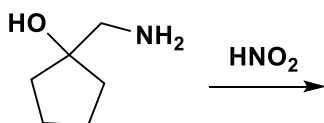
- (1) Mitsunobu reaction
- (2) Corey-Fuchs reaction
- (3) Vilsmeier-Haack formylation

Q.4 (a) Answer the following**4 Marks**

- (1) Write the product of the following reaction with mechanism.



- (2) Write the product of the following reaction with mechanism.

**Q.4 (b) Answer any two questions out of three.****10 Marks**

Describe Principle, mechanism and three applications of following:

- (1) Neber rearrangement
- (2) Schmidt rearrangement
- (3) Baker-Venkatraman rearrangement

Q.5 (a) Answer the following**4 Marks**

- (1) Give the structure of 9-BBN and give its one application.
- (2) Write the structure of DIBAL-H and give its one application.

Q.5 (b) Answer any two questions out of three.**10 Marks**

Write a note on following reagents:

- (1) Birch reduction
- (2) Swern oxidation reagent
- (3) SeO_2
