



PZ-863

Seat No. \_\_\_\_\_

M. Sc. (Sem. IV) Examination

April / May - 2016

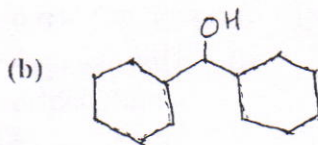
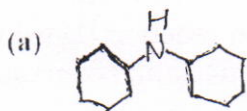
CHN - 704 (B) : Organic Synthesis

Time : Hours]

[Total Marks : 50

1 (a) Answer any **two** of the following : 10

- (i) Discuss a convenient synthesis of Fenfluramine drug acting on the central nervous systems.
- (ii) Give the synthesis of the following compound, using disconnection approach.

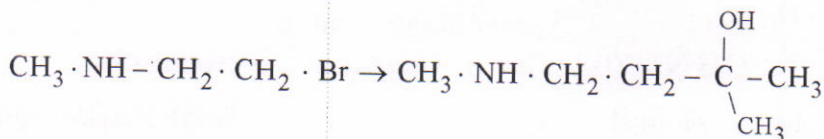


- (iii) Give a brief account of the use of acetylenes in organic synthesis.
- (iv) What is regioselectivity ? Discuss regioselective alkylation of ketones and regioselectivity in Michael reactions.

(b) Answer any **two** of the following : 6

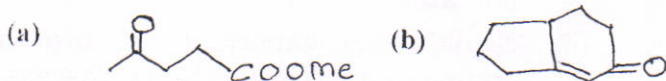
- (i) Give three methods for protecting the -OH group of alcohol by ether formation, in each case, indicate how the alcohol is liberated.
- (ii) Explain the importance of protecting groups in organic synthesis. Discuss the importance methods employed for protection and de-protection of carbonyl group.

- (iii) Show the use of a protecting group in carrying out the following transformation via Grignard reactions.



- (iv) Describe the use of following groups in organic synthesis.
- TBDMS (t-butyldimethylsilyl) group
  - Fmoc
  - 1,3-Dioxolanes
  - THP
- (c) Answer any **two** of the following : 4
- Discuss cyclization reaction (Dieckmann Condensation) for five and six membered rings.
  - Explain cyanide as an umpolung reagent.
  - Discuss the formation and Cleavage of 1,3-dioxanes.
  - How will work Esters (Phenyl ester) as protecting groups for carboxylic acids.

- 2 (a) Answer any **two** of the following : 10
- Outline the retrosynthesis analysis and synthesis of the following compounds.



- With the help of suitable example discuss one group C-C disconnections.

(iii) Give the synthesis of alkanes and cycloalkanes from thiophenes.

(iv) Outline the retrosynthetic analysis of Camphor.

(b) Answer any **two** of the following : 6

(i) Discuss an enantioselective synthesis of juvabione.

(ii) Outline a total synthesis of reserpine.

(iii) Discuss the two group C-X disconnections with suitable examples.

(iv) Synthesis of carbonyl compounds (aldehyde and ketones) from Pyridines and Pyridine N-Oxides.

(c) Answer any **two** of the following : 4

(i) Use of 2-mercaptopyridine in the synthesis of alkenes.

(ii) Synthesis of dienes from Pyrrolines.

(iii) Give structure of Fredericamycin A.

(iv) Discuss the use of nitro compounds in organic synthesis.

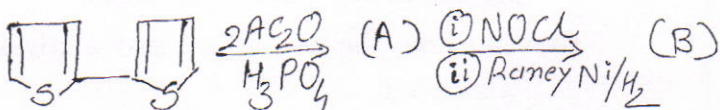
3 Answer any **five** of the following : 10

(i) What is a protecting group ? Illustrate the use of the BOC group as protecting group in organic synthesis.

(ii) Discuss the principle of protection of alcohols.

(iii) Give synthesis of dienes from pyrrolines.

(iv) Give the products in the following reaction :



- (v) What is retrosynthesis and synthon ?
- (vi) What is chemoselectivity ?
- (vii) Discuss the terms disconnection and umpolung.
- (viii) Give application of Darzens reaction.
- (ix) Discuss one group C-X disconnections with suitable example.
- (x) Discuss Witting and Reformatsky reagents.
-