

1212-13-503-012

## FACULTY OF SCIENCE

M. Sc. IV – Semester Examination, May / June 2015

Subject : Organic Chemistry

Paper – III (403) : Advanced Heterocyclic Chemistry

Time : 3 Hours

Max. Marks: 80

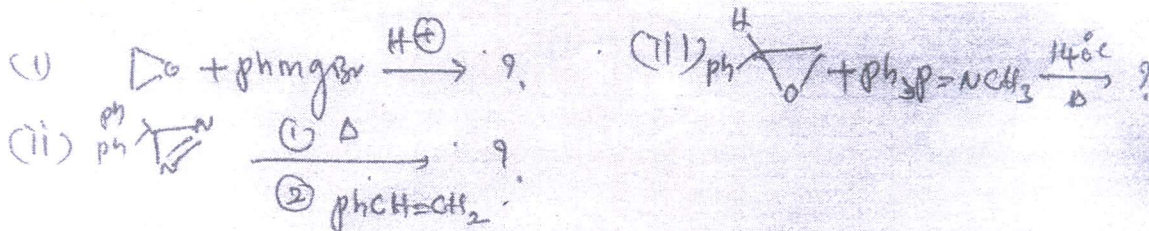
Note : Answer all questions from Part–A and Part–B. Each question carries 8 marks in Part–A and 12 marks in Part – B.

PART – A (4 x 8 = 32 Marks)  
(Short Answer Type)

- Explain different types of strains present in three membered non-aromatic heterocyclics.
  - Out line the synthesis of oxetanes.
- Give the synthesis of 1, 2, 3 – triazoles.
  - Describe the reactivity of 1, 2, 3 – triazines.
- Out line the synthesis of Azonines.
  - Describe the rearrangement reactions of diazepines.
- Explain the aromaticity of sydnones.
  - Give the synthesis of Indolizines.

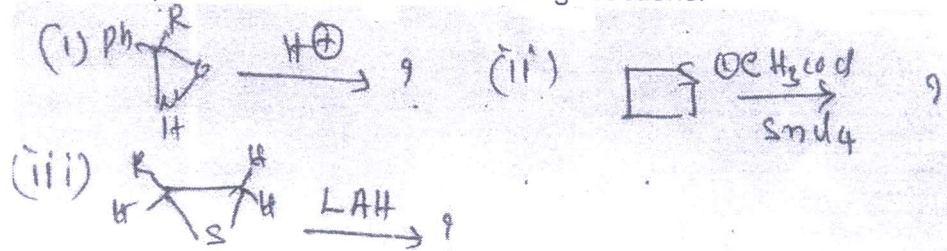
PART – B (4 x 12 = 48 Marks)  
(Essay Answer Type)

- Out line the synthesis and reactivity of Azirines.
  - Predict the products in the following reactions. Explain their formation.

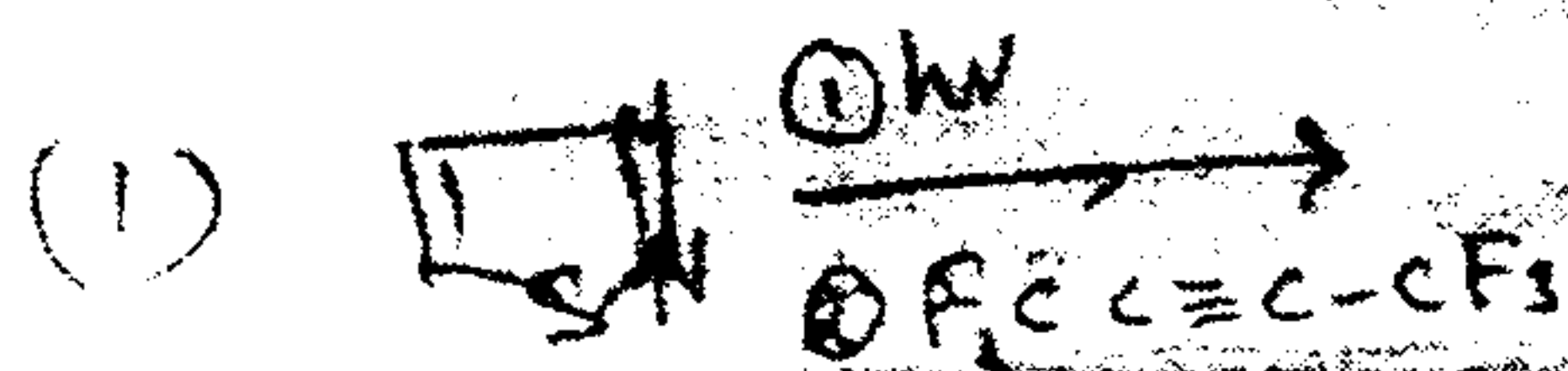


OR

- Give the synthesis and reactivity of Azetidines.
- Predict the products formed in the following reactions.

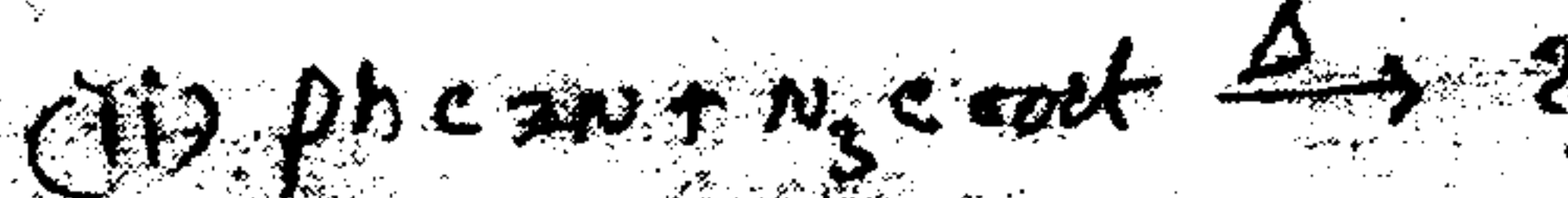
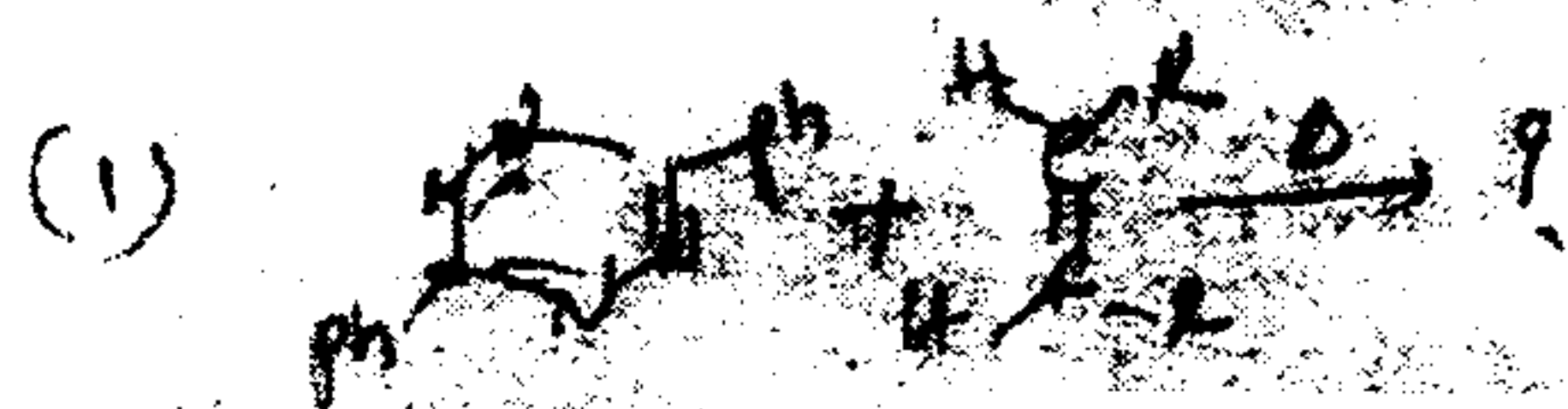


- 6 (a) Give the Fisher-synthesis of Caffeine, theobromine and theophylline.  
 (b) Predict the products in the following reactions. Explain their formation.



OR

- (c) Give the synthesis of (i) 1, 2, 4 – triazole (ii) Adenine  
 (d) Predict the products in the following reaction. Explain their formation.



- 7 (a) Describe the synthesis and reactions of oxepines.  
 (b) Outline the synthesis of (i) Benzo oxepines (ii) Boroles

OR

- (c) Outline the synthesis and reactivity of azepines.  
 (d) Give the synthesis of (i) Benzodiazepines (ii) Selenophenes

- 8 (a) Give one synthesis each for (i) Benzimidazole (ii) Benzoxazole  
 (iii) Benzothiazole

- (b) Explain the aromaticity and reactivity of imidazo pyridines

OR

- (c) Explain the 1, 3 – dipolar addition reactions of mesoionic compounds.  
 (d) Give the synthesis and reactivity of Quinolozines.

\*\*\*\*\*