Code No. 7050

FACULTY OF SCIENCE

M.Sc. IV – Semester Examination, May / June 2017

Subject: Organic Chemistry

Paper – III

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 (4x8 = 32 Marks)
[Short Answer Type]

1 a) Describe the conformational aspects of non-aromatic heterocycles.

b) Outline the synthesis of diaziridines.

2 a) Draw the structure of any two purine bases and outline their synthesis.

b) Starting from 1,2-diketone how do you prepare 1,2,3-triazole and 1,2,4-triazine systems.

3 a) How do you synthesise 1-carbomethoxy azepine? Explain with mechanism.

b) Outline the synthesis of selenophenes and boroles.

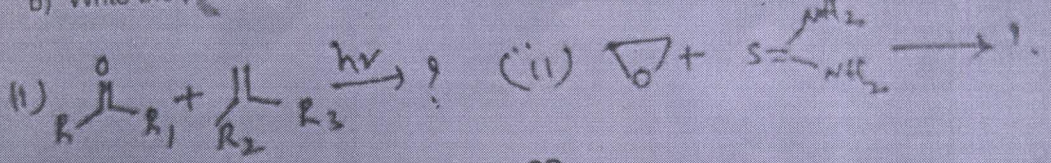
4 a) Explain the aromaticity of sydnones.

b) Predict two reactions to explain the reactivity of imidazopyridines.

PART – B (4x12 = 48 Marks)
[Essay Answer Type]

5 a) Explain the term strain with respect to azirine and diazirine.

b) Write the products in the following. Explain their formation.



OR

c) Give one method each for the synthesis of

i) Aziridine

ii) Thietanes.

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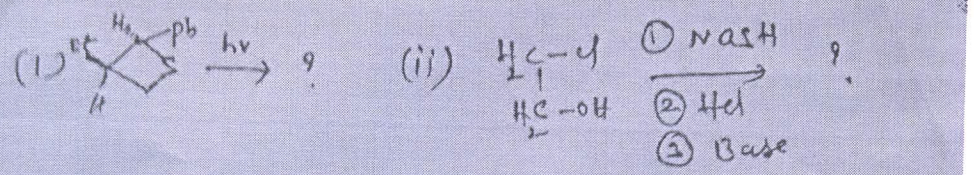
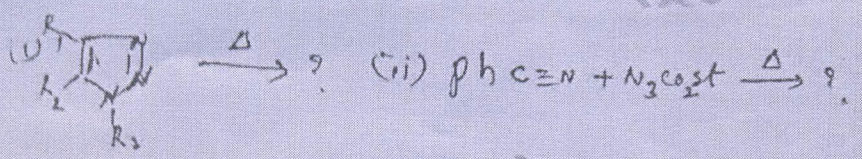
d) Predict the products in the following with mechanism.



6 a) Give the importance and synthesis of pteridines.

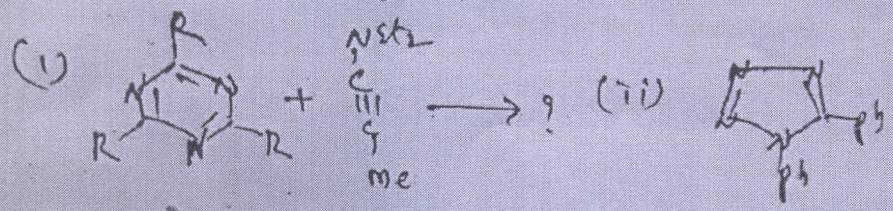
b) Predict the products in the following and explain their formation.



OR

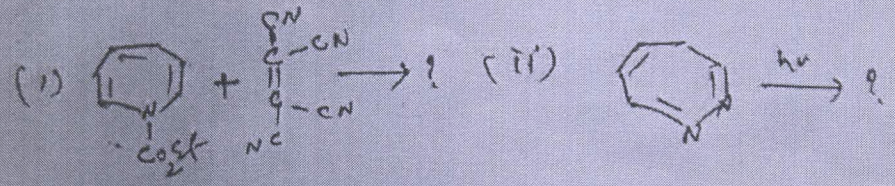
c) How do you convert uric acid into caffeine, theobramine and theophylline. Explain.

d) Write the products in the following and explain their formation.



7 a) Oxepin and benzene oxide are volence toutomers which are in equilibrium. 2,7-Disubstitution favours oxepin. Explain.

b) Predict the products in the following and explain their formation.



OR

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c) Outline the synthesis of
   i) Benzoxepines
   ii) Azonine.

d) Outline the synthesis and reactivity of thiepins.

8 a) What are mesoionic compounds? Give two such examples and mention their characteristics.

b) Describe a method for the synthesis of benzthiazole. Explain its reactivity.

OR

c) Write a note on betains.

d) Explain the reactivity of pyridine N-oxides taking two examples.

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