Code No. 9464

FACULTY OF SCIENCE

M.Sc. IV – Semester Examination, April / May 2014

Subject: Organic Chemistry

Paper – III: Advanced Heterocyclics Chemistry (Elective)

Time: 3 Hours **Max.Marks: 80**

Note: Answer all questions from Part - A and Part - B. Each question carries 4 marks in Part - A and 12 marks in Part - B.

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

1 (a) How do you convert 2-methyloxirane to 2-methylthiirane. Give mechanism.
(b) Illustrate with two reactions the ring opening reactions of aziridines.

2 (a) Describe the synthesis and importance of pteridines.
(b) Outline one method each for the synthesis of (i) tetrazole (ii) tetrazene.

3 (a) How do you prepare ethyl azepine-1-carboxylate? Explain its mechanism.
(b) Give the synthesis of (i) Sclenophenes, (ii) Phospholes.

4 (a) Taking suitable example explain addition reactions of mesoionic compounds.
(b) give the synthesis of (i) indolizines (ii) benzimidazole.

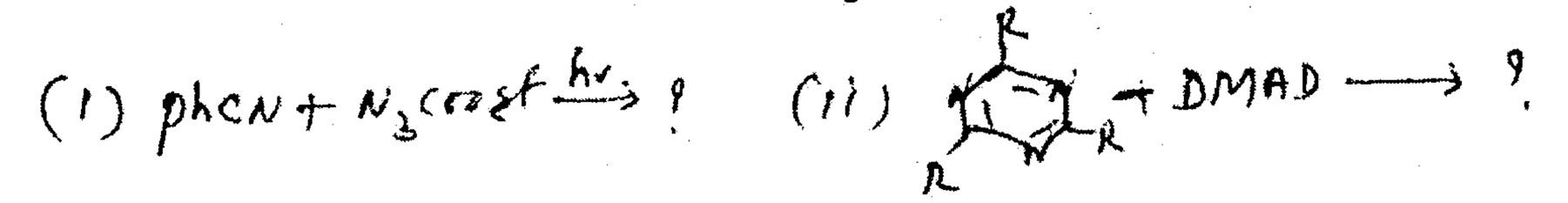
PART – B (4 x 12 = 48 Marks)
[Essay Answer Type]

5 (a) Give a method for the synthesis of diaziridine and oxaziridine from a common ketone.
(b) Discuss the type of strains associated with three membered ring containing nitrogen and oxygen atom.

OR

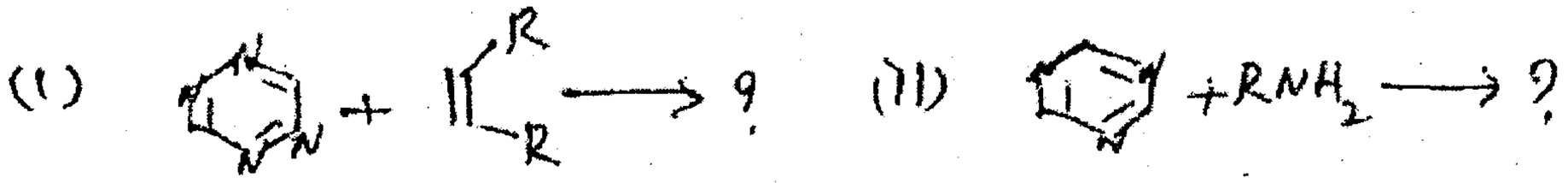
(c) Outline the synthesis of (i) Oxetane (ii) Azirine.
(d) Discuss the synthesis and reactivity of thietanes.

6 (a) Give the synthesis and importance of (i) Adenine (ii) Caffeine.
(b) Explain the products formed in the following reactions.



OR

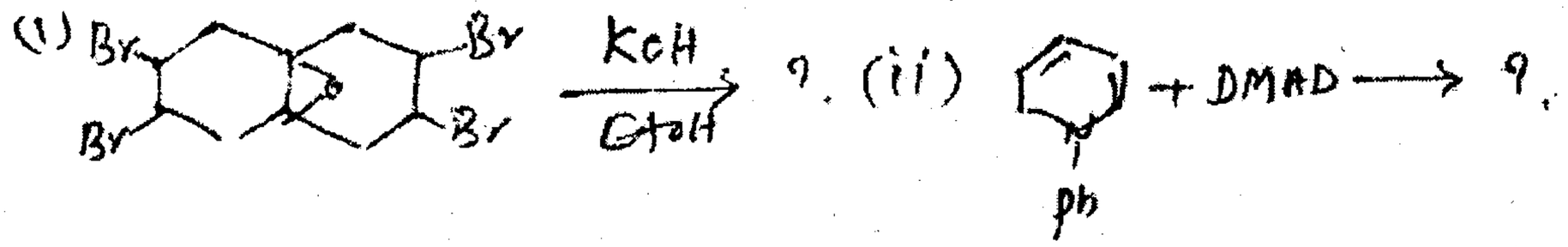
(c) Give the synthesis of the following:
i) Theobromine ii) 1,2,4-oxadiazole iii) 1,2,5-Thiadiazole
(d) Formulate the product(s) in the following reactions, giving mechanism.



7 (a) Give the synthesis of (i) Benzoxepin ii) 1H-1,4-bebnzodiazepin.
(b) Discuss the photochemical reactions of 1,2-diazepins.

OR

(c) Give the synthesis of (i) Azonine ii) Boroles iii) Thiepine
(d) Write products in the following reactions. Explain their formation.



8 (a) Give a method for the synthesis of (i) quinolozines (ii) sydnones.
(b) Discuss the synthesis and reactivity of benzoxazoles.

OR

(c) Explain the reactivity of pyridine N-oxides taking two examples.
(d) i) Discuss the reactivity of betaines.
ii) Explain the synthesis and reactivity of imidazopyridines.

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