



Code No. : 9527

FACULTY OF SCIENCE
M.Sc. IV Semester Examination, May/June 2012
ORGANIC CHEMISTRY
Paper – III : Advanced Heterocyclics Chemistry (Elective)

Time : 3 Hours]

[Max. Marks : 80

Note: Answer all questions.

SECTION – A
(Short answer type)

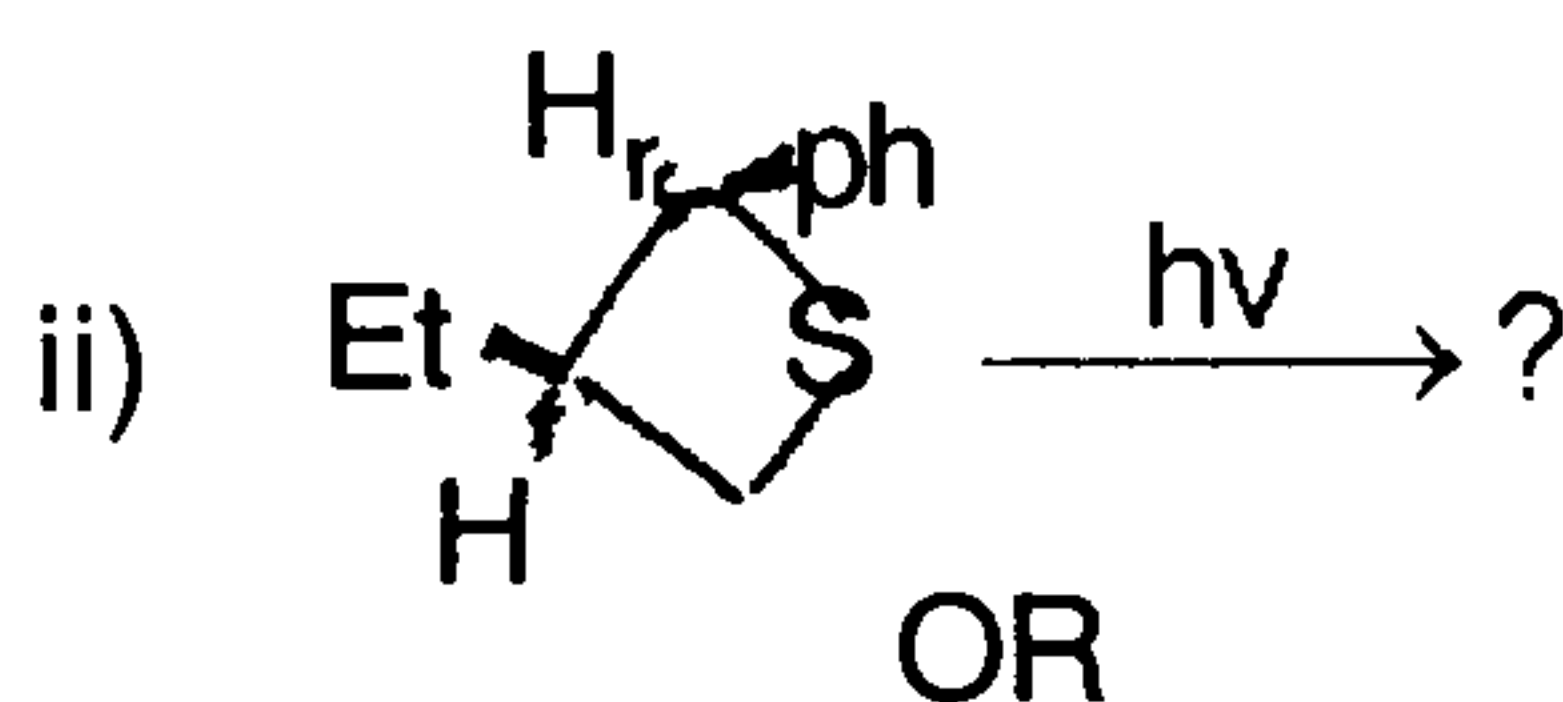
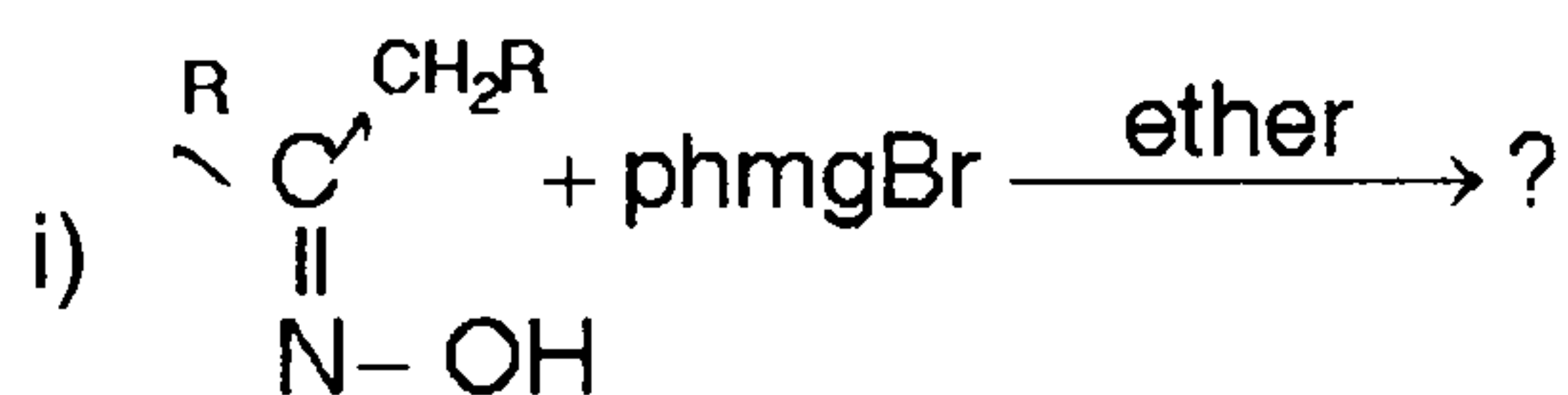
(4×8=32 Marks)

1. a) Explain the term strain with respect to azirine and aziridine.
b) Give the synthesis of oxetanes.
2. a) Draw the structure of any two purine bases and outline their synthesis.
b) Describe the reactivity of triazoles.
3. a) Discuss the stability of thiepins.
b) Outline the synthesis of benzoxepins.
4. a) Give the synthesis of quinoxolines.
b) Explain the aromaticity of sydnones.

SECTION – B
(Essay type)

(4×12=48 Marks)

5. a) Outline the synthesis and reactivity of diazerines.
b) Write products in the following reaction. Explain their formation.

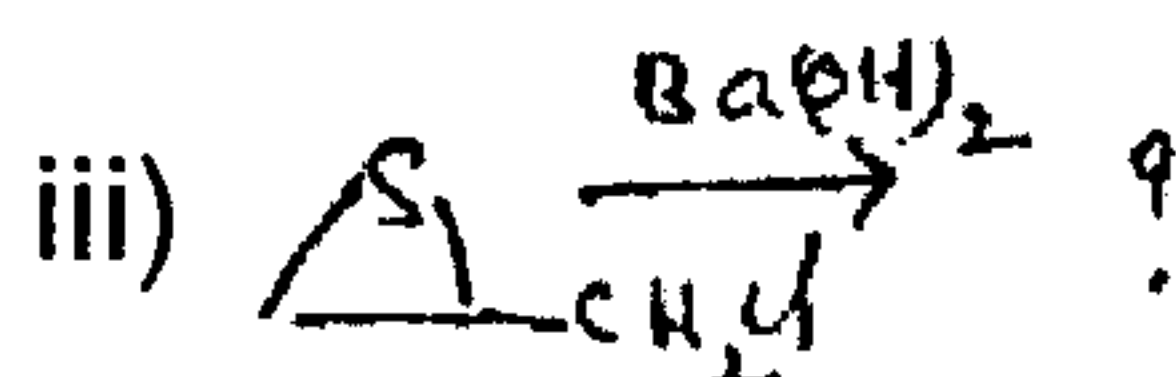
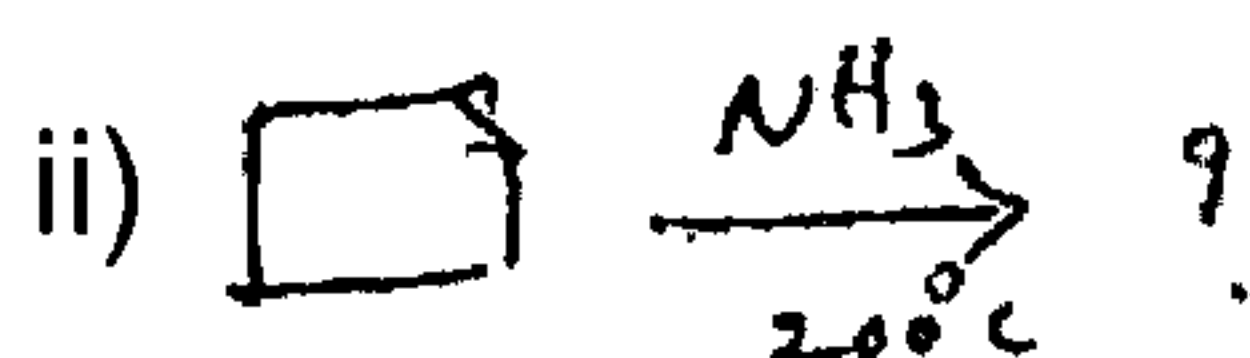
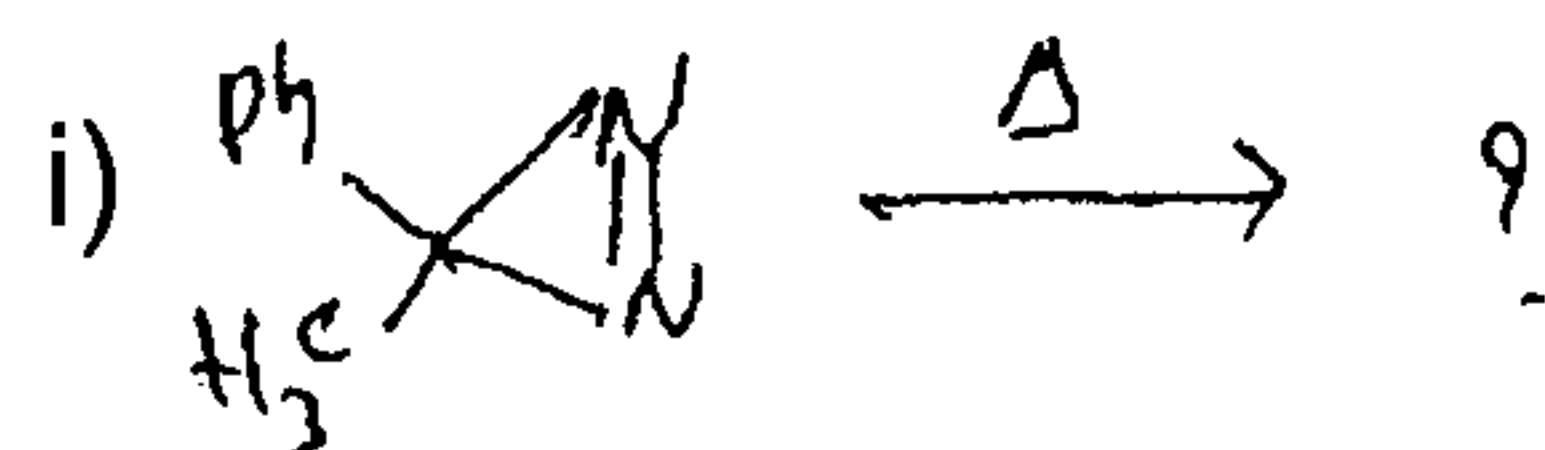




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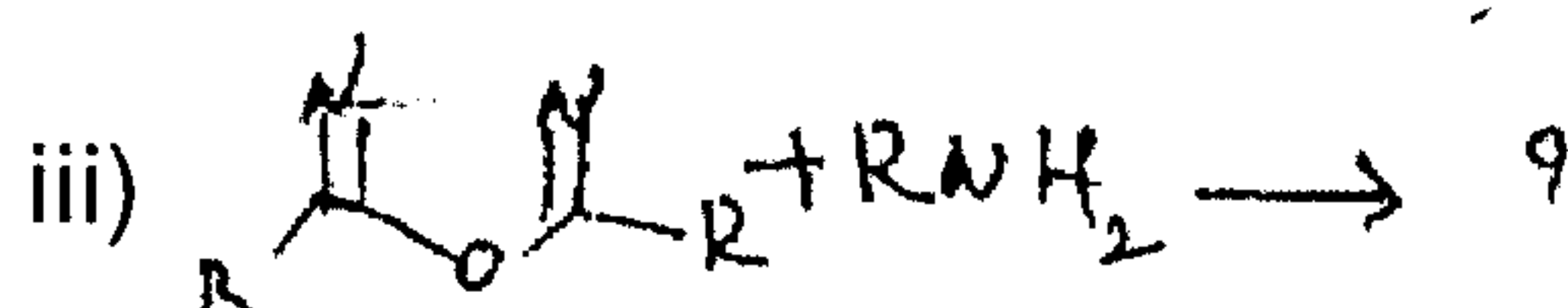
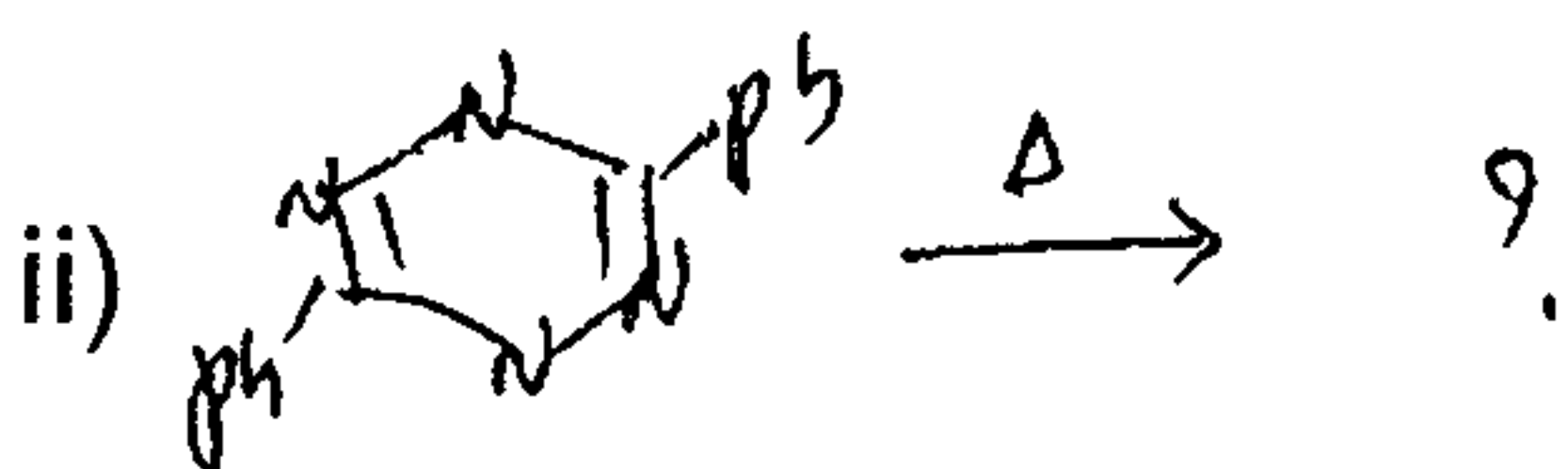
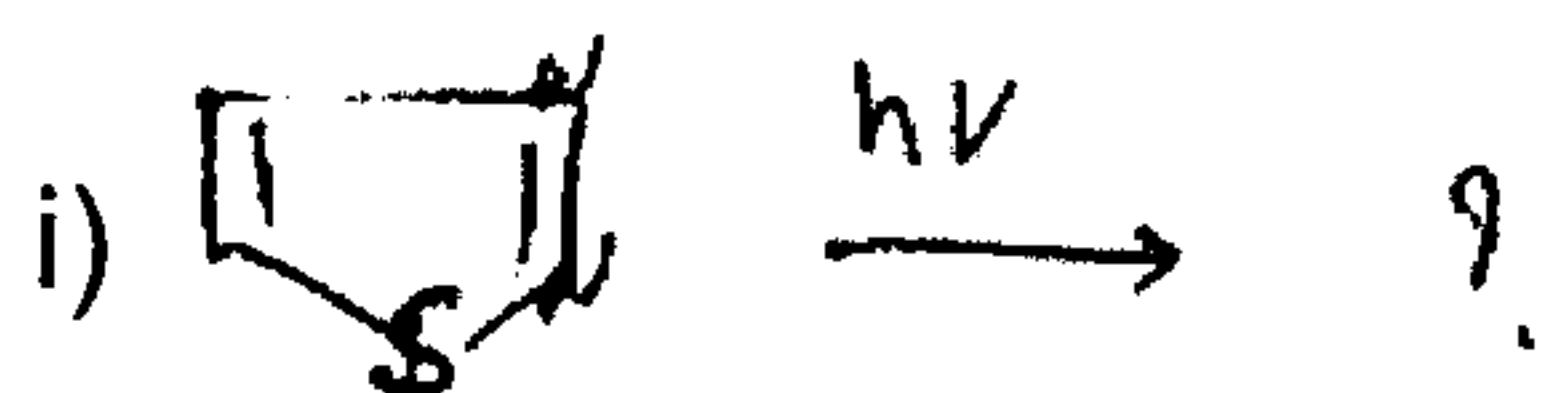
c) Give the synthesis and reactivity of oxaziridines.

d) Predict the products in the following reactions



6. a) Formulate the Traube's synthesis of caffeine, theobromine and theophylline.

b) Explain the products formed in the following reactions.



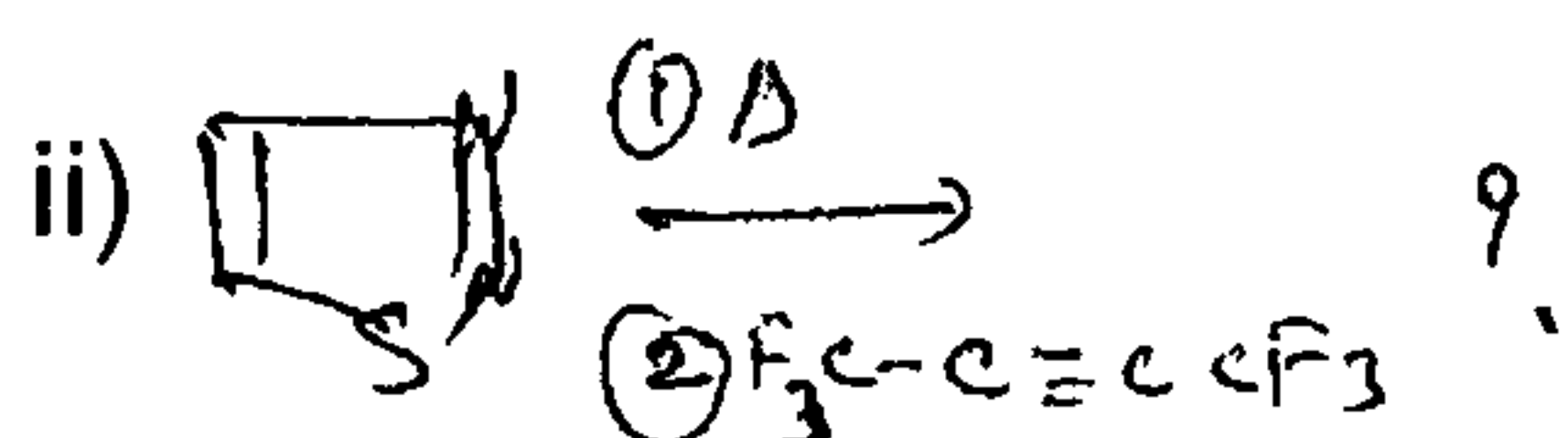
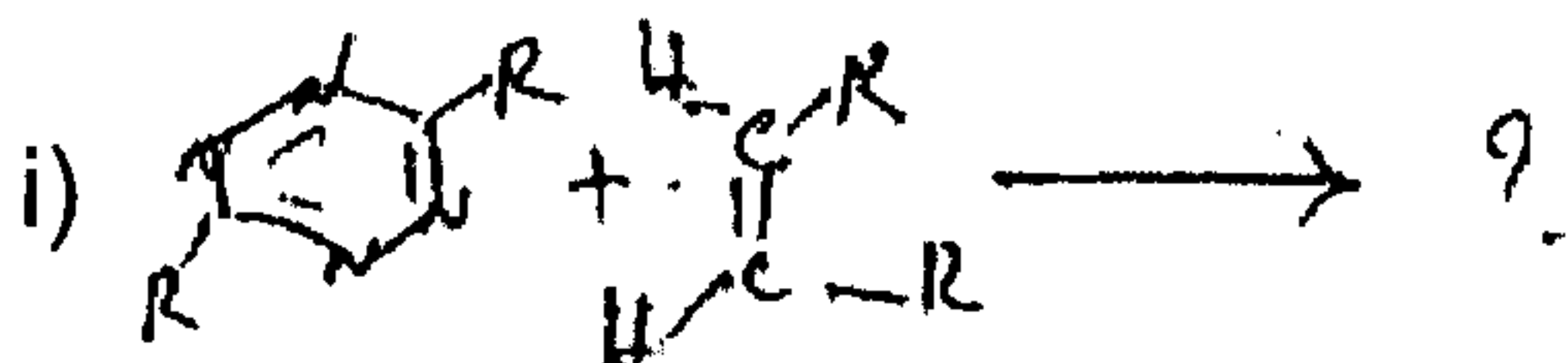
OR

c) Give the synthesis of

i) 1, 2, 5 – oxadiazole

ii) 1, 2, 5 – thiadiazole.

d) Predict the products in the following reactions. Explain their mechanism





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7. a) Discuss the rearrangement reactions of diazines.
b) Write the synthesis of :
i) Azocine
ii) Azonine

OR

- c) Explain the reactivity of oxepins.
d) Give the synthesis of
i) Boroles
ii) Phospholes
iii) Selenophenes.

8. a) Give the synthesis of
i) Benzimidazole
ii) Benzoxazole
b) Explain the aromaticity and reactivity of pyridine-N-oxide.

OR

- c) Discuss the synthesis and reactivity of benzothiazoles.
d) Discuss the following :
i) Indolines
ii) 1, 3-dipolar addition reaction of mesoionic heterocycles.