

FACULTY OF SCIENCE
M.Sc. III Semester Examinations, January 2018

Subject: Chemistry (Organic Chemistry)

Paper- II : Modern Organic Synthesis

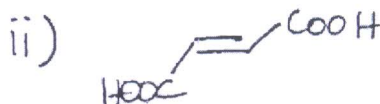
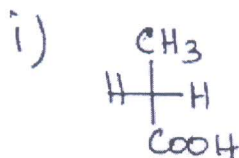
Time: 3 Hours

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

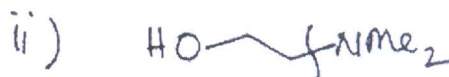
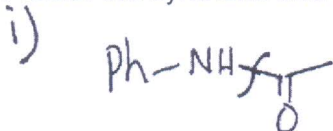
Part-A (4x8=32 marks)
(Short answer type)

- 1 a) Assign prochiral labels to the following.



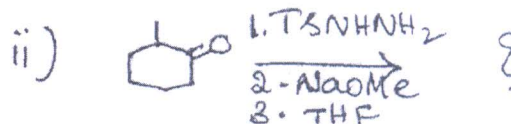
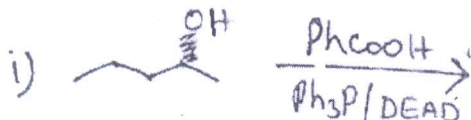
- b) What is 1,2- asymmetric induction? Explain with an example.

- 2 a) Predict the synthons and synthetic equivalents for the following disconnections.



- b) How do you apply symmetry in disconnection? Explain with an example.

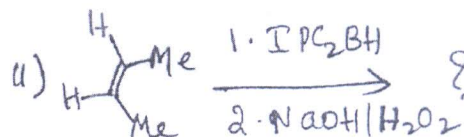
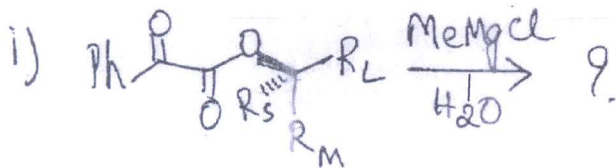
- 3 a) What is Nazarov cyclisation? Explain how regioselectivity can be controlled it?
 b) Predict the product of the following.



- 4 a) Write the structures of Wang and Rink resins.
 b) Formulate the synthesis of S-(-)-ipenol.

PART-B (4X12=48 Marks)
(Essay Answer Type)

- 5 a) What is the symmetry criteria for enantio topic and diastereotopic groups?
 Explain with examples.
 b) Complete the following reactions and give mechanism.

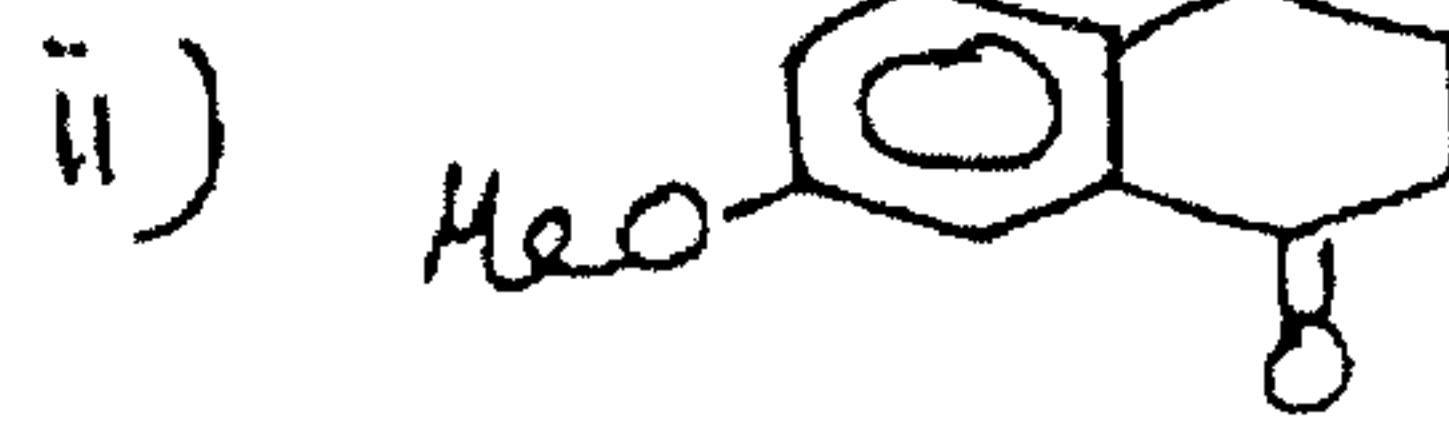


(OR)

..2..

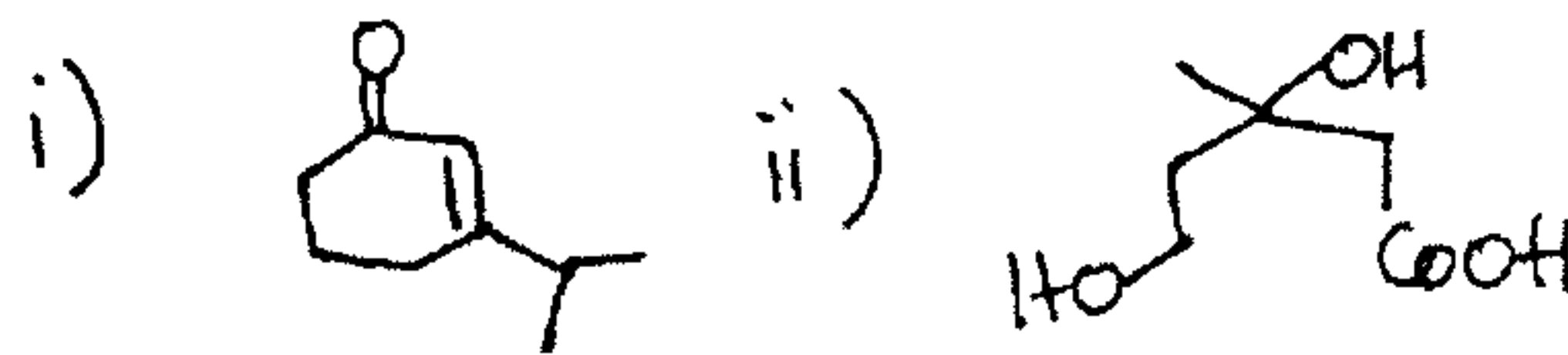
- c) Explain the mechanism of asymmetric hydrogenation with chiral Wilkinson biphosphine catalyst.
 d) Explain the determination of %ee by using chiral derivatising agents.
- 6 a) Explain the following terms with suitable examples.
 (i) FGI
 (ii) Reversal of polarity
 b) Give the retro synthesis of the following

i) S-salbutamol

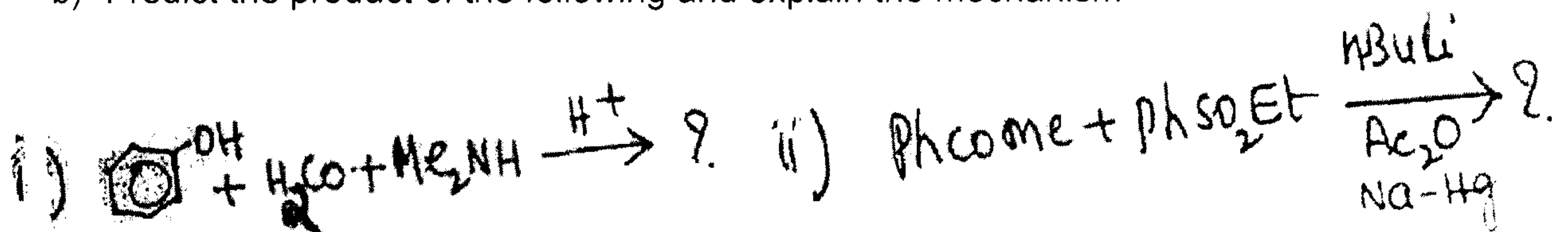


(OR)

- c) What are two group C-X disconnection? Explain taking 1,3 - difunctional compounds.
 d) Give the retrosynthesis of the following

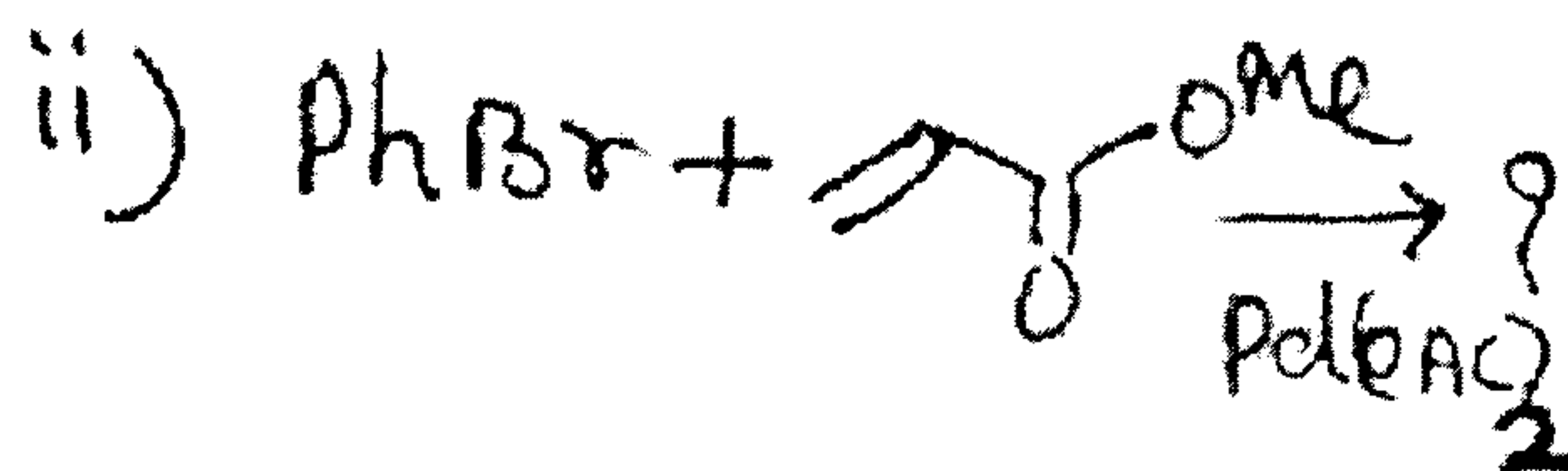
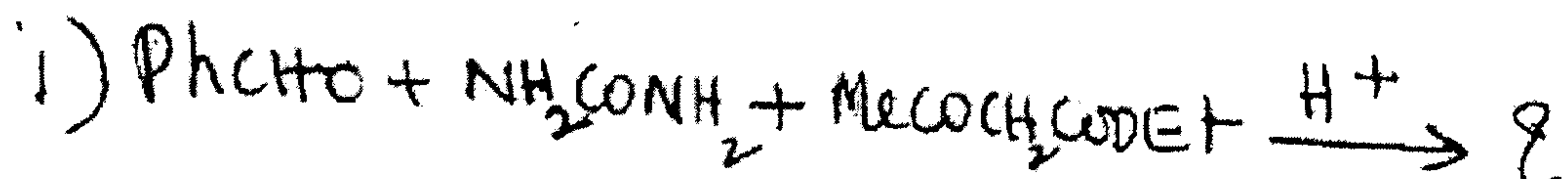


- 7 a) What is Sonogashira cross coupling? Explain its mechanism with suitable example.
 b) Predict the product of the following and explain the mechanism



(OR)

- c) What are the RCM and ROM? Give two applications of each.
 d) Complete the following and give mechanism



- 8 a) What is Kahne glycosidation? Explain
 b) Explain the tandem reactions involving conjugate addition and aldol reaction with suitable examples

(OR)

- c) State Baldwin rules for trigonal systems and give explanation with suitable examples.
 d) Explain the mechanism of PTC and give its applications.
