

**M. SC. (ORGANIC CHEMISTRY) SEM-IV (CHOICE BASED
CREDIT & GRADE SYSTEM) : SUMMER - 2018
SUBJECT : CHEMISTRY OF NATURAL PRODUCTS**

Day : **Tuesday**
Date : **24/04/2018**

S-2018-0892

Time : **03.00 PM TO 06.00 PM**
Max. Marks : 60

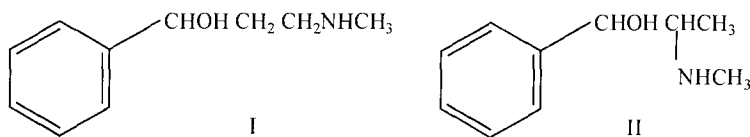
N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

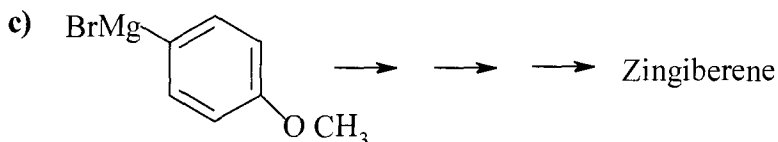
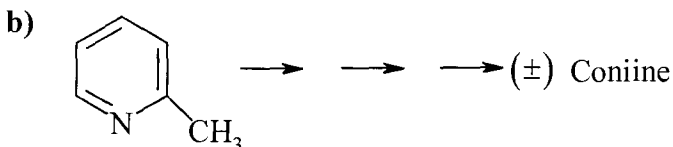
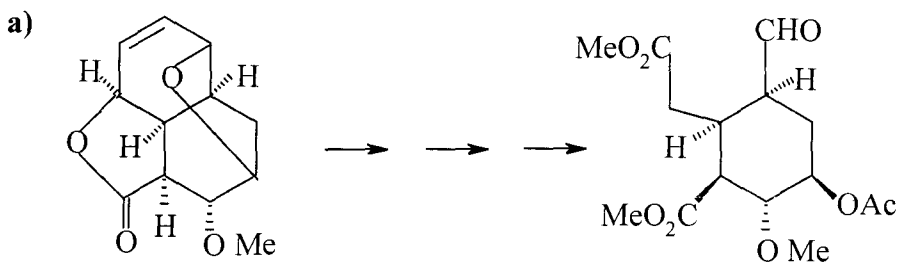
Q.1 Answer **ANY THREE** of the following: **[15]**

- a) How will you prove the presence of the following in morphine
 - i) Presence of phenolic - OH.
 - ii) Presence of secondary alcoholic - OH.
 - iii) Presence of an isolated ethylenic C = C double bond.
- b) Give detail evidences to prove the structure of coniine.
- c) Give the evidences to establish the presence of following in caryophyllene:
 - i) Bicyclic nature.
 - ii) Presence of two double bonds.
 - iii) Exocyclic double bond.
- d) How you will differentiate between the two possible structures of ephedrine I and II by the hydramine fission reaction as well as by the Hofmann exhaustive methylation?

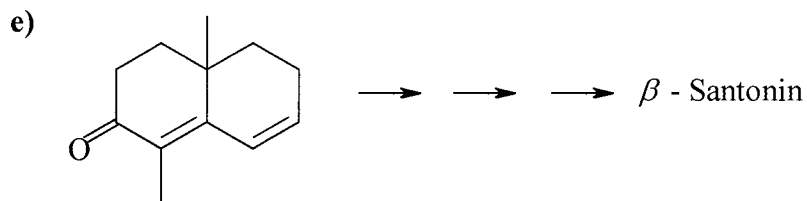
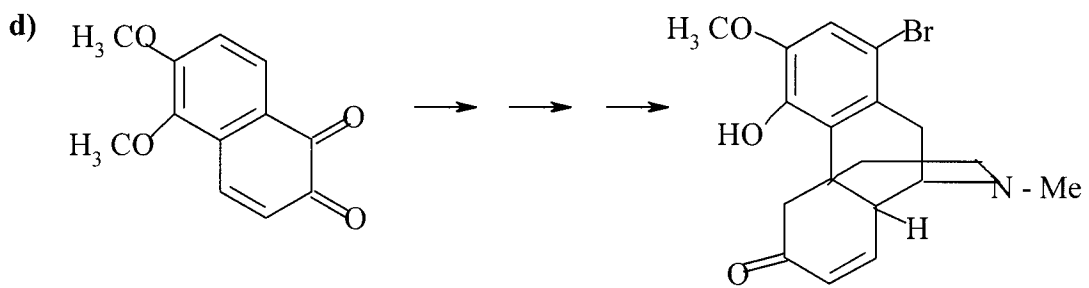


- e) Give the evidences to prove the following in abietic acid:
 - i) Position of two double bonds.
 - ii) Position of the carboxyl group.

Q.2 Complete **ANY THREE** of the following sequences. Indicate the reagents used **[15]** and discuss the mechanism stereochemistry involved.



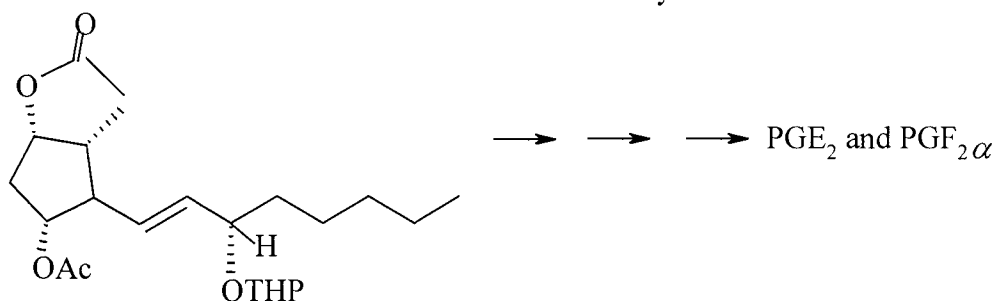
P.T.O.



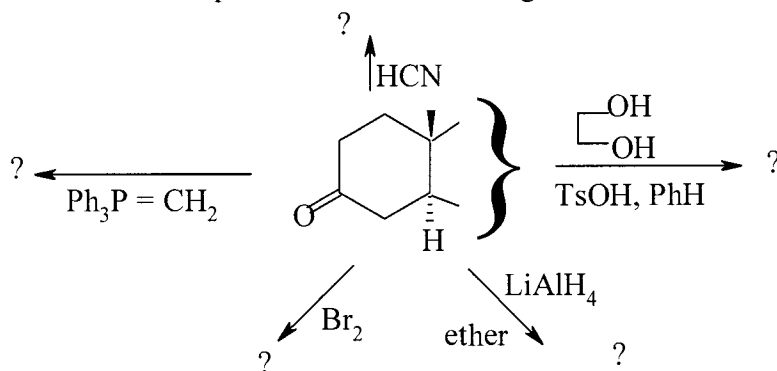
SECTION - II

Q.3 Answer ANY THREE of the following: [15]

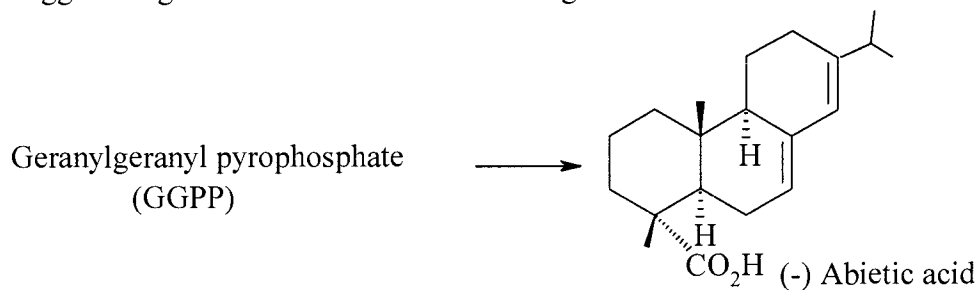
- a) Outline the steps in the following synthetic sequence. Indicate the reagents used and discuss the mechanism and stereochemistry involved.



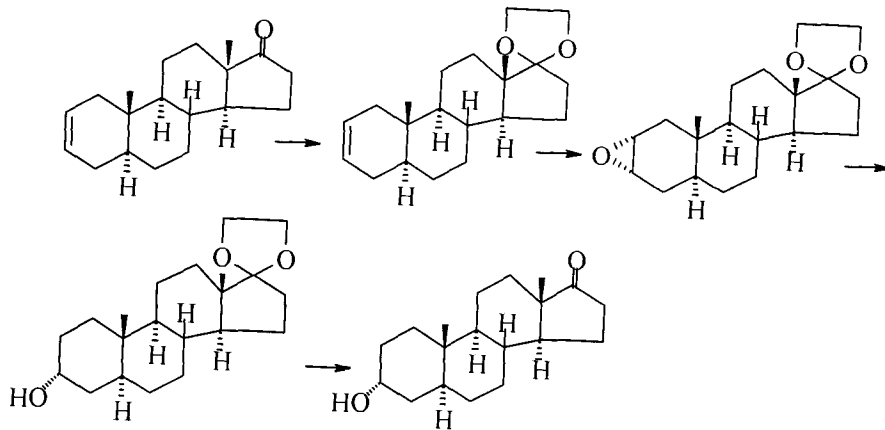
- b) Write down the products in the following reactions:



- c) Suggest biogenetic scheme for the following:

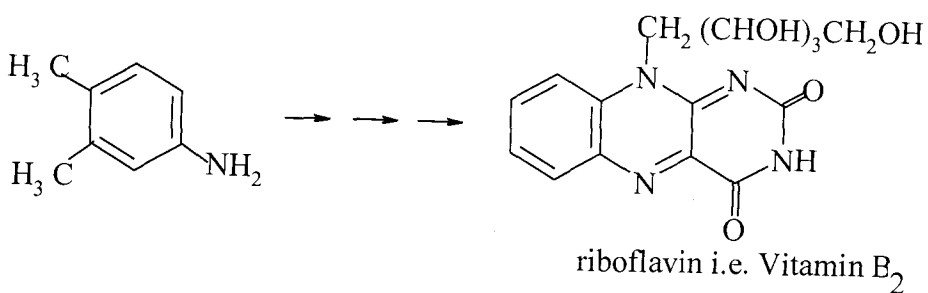


- d) The reagents for the following conversions are given below. Arrange these in the correct order. Justify your answer.



i) LiAlH_4 ii) AcOH aq. iii) PhCO_3H iv)

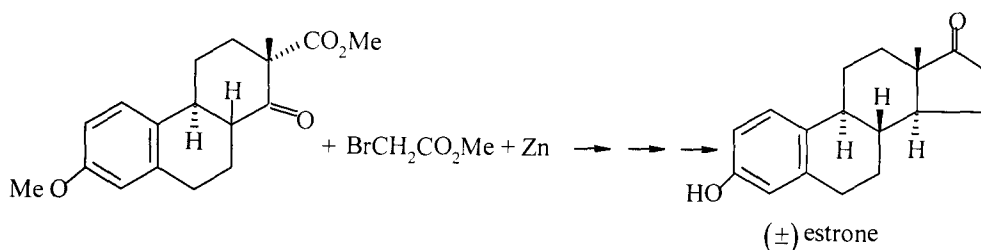
e) Outline the steps in the following synthetic sequence. Indicate the reagents used and discuss mechanism.



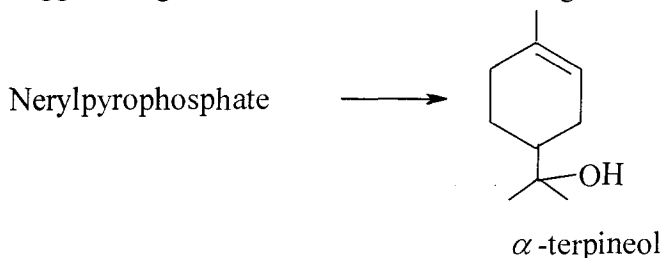
Q.4 Answer ANY THREE of the following:

[15]

a) Complete the following sequence. Indicate the reagents used, discuss the mechanism and stereochemistry.

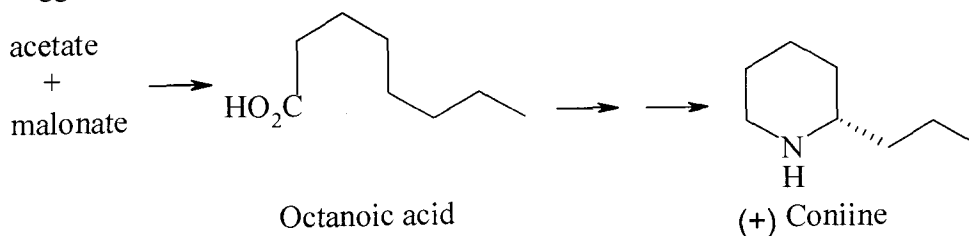


b) Suggest biogenetic scheme for the following.



c) Give synthesis of thiamine (Vitamin B₁). Add comment on vital functions that involve thiamine.

d) Suggest biogenetic scheme for the following.



e) Write down structures of different members of the prostaglandin depending upon the functionality in the five membered ring system i.e., prostaglandin A to F.

* * * *