

M. SC. (Organic Chemistry) Sem-IV (Choice Based Credit & Grade System) : WINTER - 2018

SUBJECT : CHEMISTRY OF NATURAL PRODUCTS

Day : Tuesday
Date : 23/10/2018

W-2018-1005

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

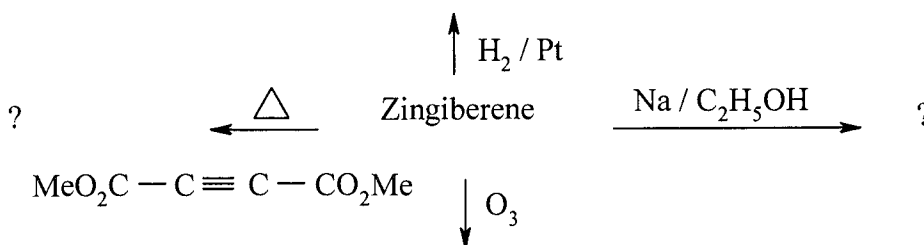
N.B.:

- 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]

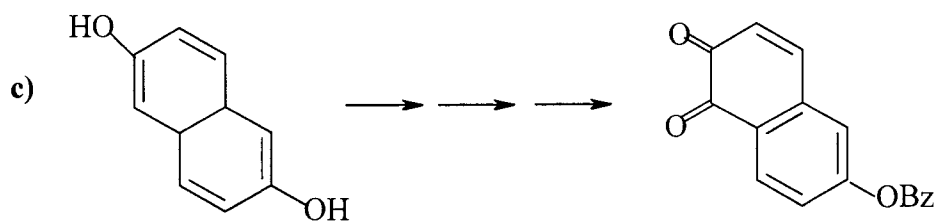
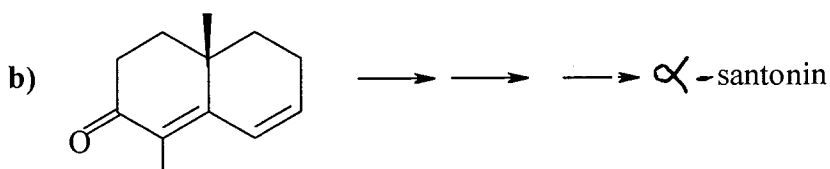
- a) Write down the products in the following reactions.



- b) Give the evidences to establish the presence of the following in abietic acid:
 - i) Position of carboxylic group
 - ii) Tricyclic nature
- c) How will you prove the presence of the following in reserpine acid:
 - i) Carboxylic group
 - ii) Two methoxy group
 - iii) Secondary alcoholic group
- d) Give all the evidences to prove the structure of coniine.
- e) Give the evidences to prove the presence of four and nine membered rings in caryophyllene.

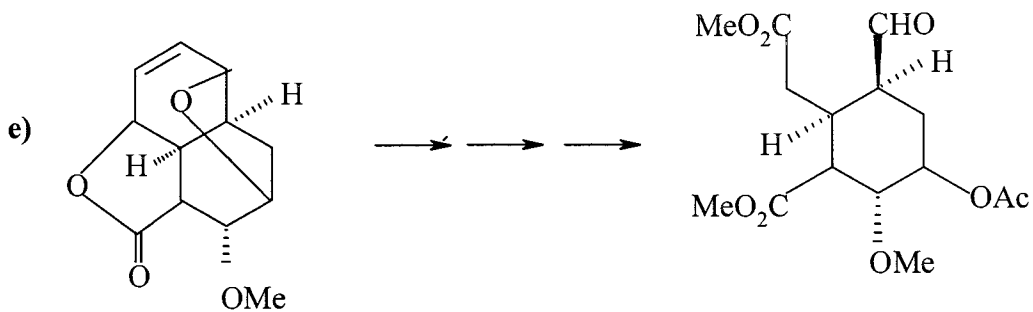
Q.2 Complete ANY THREE of the following sequences. Indicate the reagents used and discuss the mechanism, stereochemistry involved. [15]

- a) Benzaldehyde $\longrightarrow \longrightarrow \longrightarrow$ (\pm) ephdrine



- d) Methylheptenone (6-Methylhept-5-en-2-one) $\longrightarrow \longrightarrow \longrightarrow$ Zingiberene

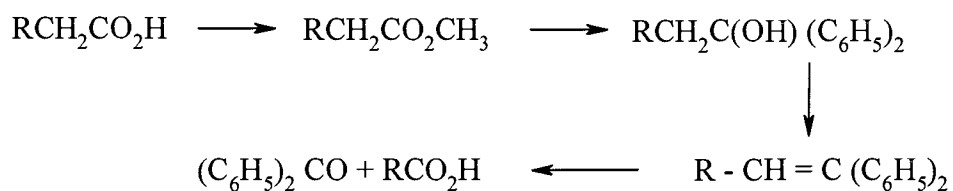
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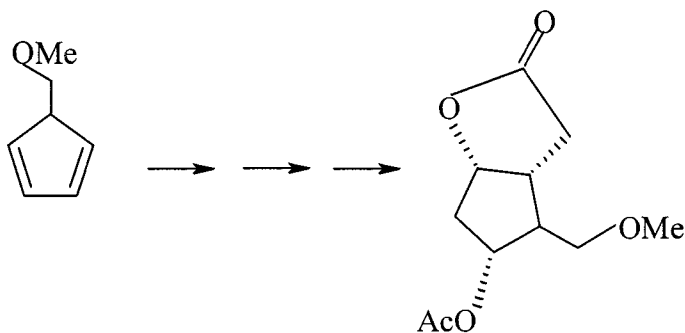
SECTION - II

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

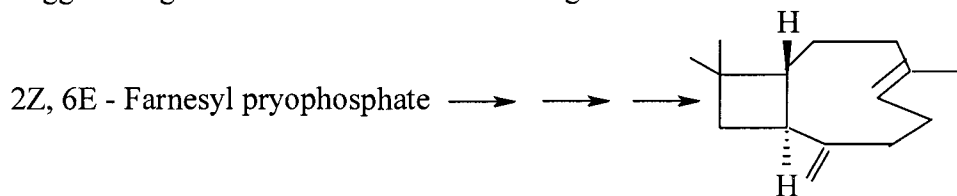
- a) The reagents for the following conversion are given below. Arrange these in the correct order. Justify. What is name of reaction?



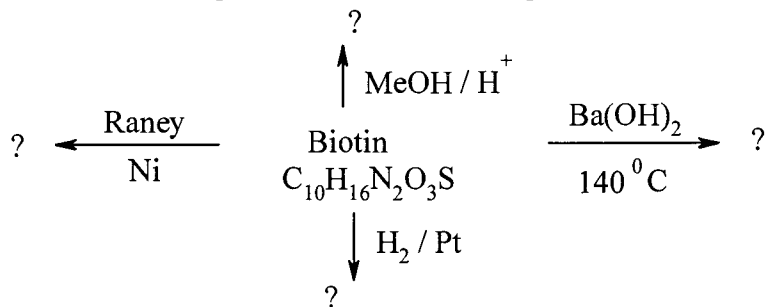
- i) H^+ ii) $2\text{C}_6\text{H}_5\text{MgBr}$ iii) $\text{CH}_3\text{OH}/\text{H}^+$ iv) K_2CrO_3
- b) Outline the steps in the following synthetic sequence. Indicate the reagents used and discuss the mechanism and stereochemistry.



- c) Suggest biogenetic scheme for the following



- d) Write down the products in the following reactions

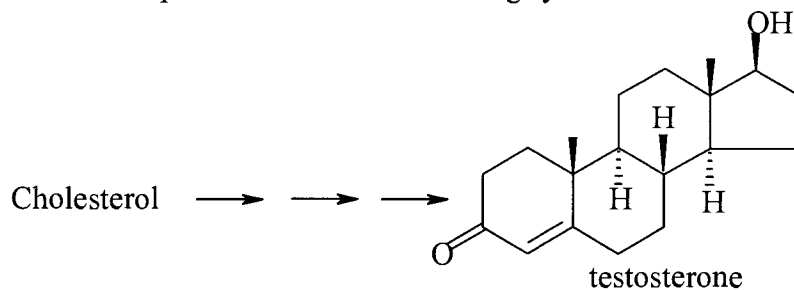


- e) Give the biological functions of: i) Folic acid ii) Thiamine.

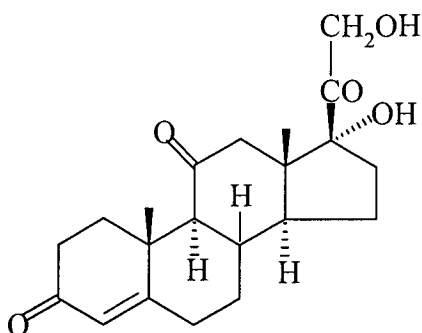
Q.4 Answer ANY THREE of the following:

[15]

- a) Give the steps involved in the following synthetic scheme.



- b) Suggest biogenetic scheme for PGE₂.
- c) The structure of cortisone is as follows: Examine the structure and answer the following:



- i) Calculate M.F.
 - ii) Calculate sites of unsaturation
 - iii) Number of chiral atoms
 - iv) Number of stereoisomers
- d) Write down all possible stereoisomers of Farnesy Pyrophosphate and their nomenclature.
- e) Suggest biogenetic scheme for the following:



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