MASTER OF SCIENCE (CHEMISTRY) (CBCS - 2018 COURSE)
M.Sc. (Chemistry) Sem-IV OC :SUMMER- 2022
SUBJECT : CHEMISTRY OF NATURAL PRODUCTS

Day : Tuesday
Date : 5/7/2022

S-20164-2022

Time : 03:00 PM-06:00 PM
Max. Marks : 60

N.B.:

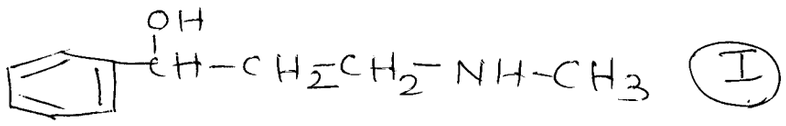
1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION – I

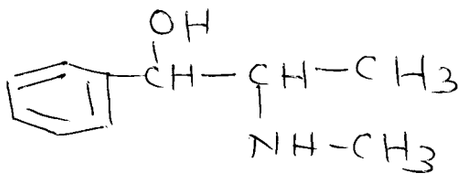
Q.1 Answer **ANY THREE** of the following: **[15]**

a) Design the total synthesis of (±) Estrone.

b) How will you distinguish between the two possible structures of I and II of Ephedrine by Hofmann's exhaustive methylation?

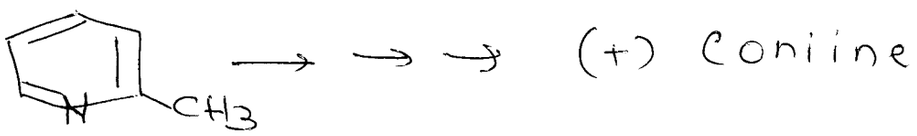


(I)



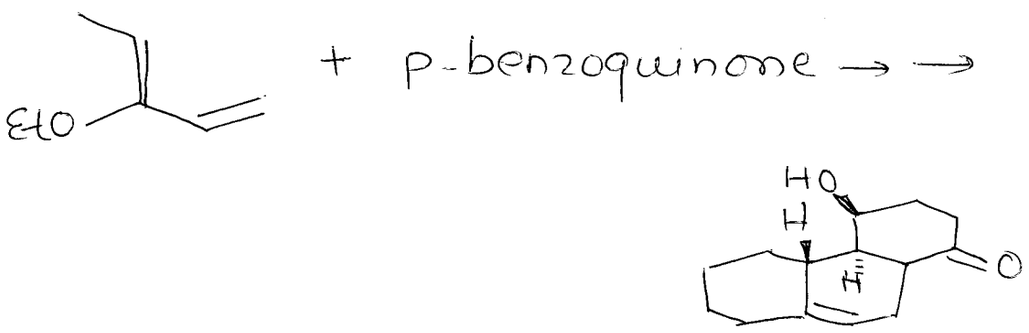
(II)

c) Complete the following sequence of reaction:



d) Design the retro synthesis of Reserpine.

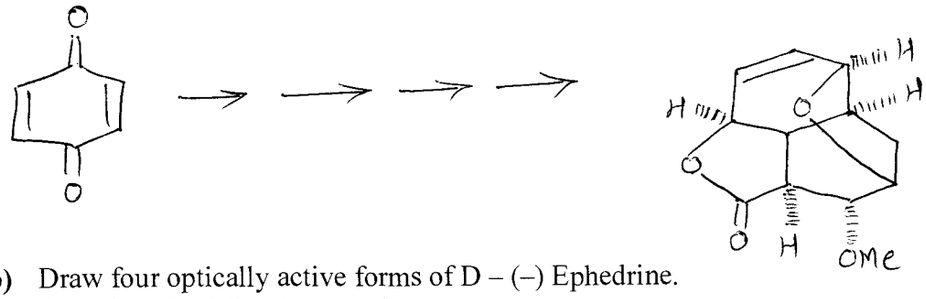
e) Complete the following sequence of reaction:



P.T.O.

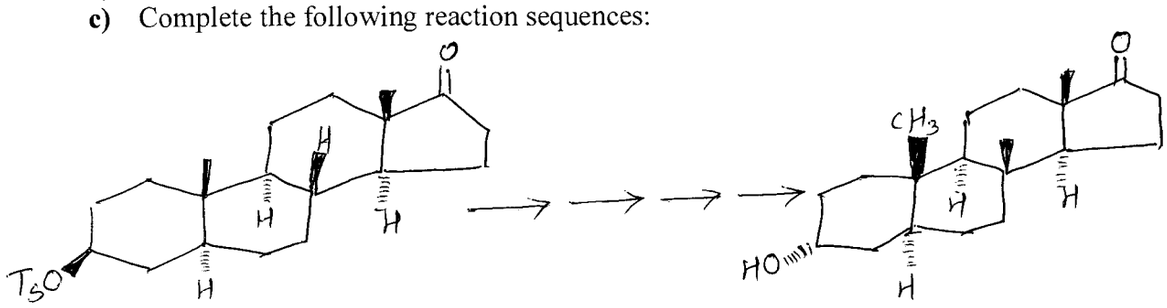
Q.2 Answer **ANY THREE** of the following: **[15]**

a) Complete the following sequence of reaction, indicate reagents used and discuss the mechanism and stereochemistry involved.



b) Draw four optically active forms of D – (–) Ephedrine.

c) Complete the following reaction sequences:

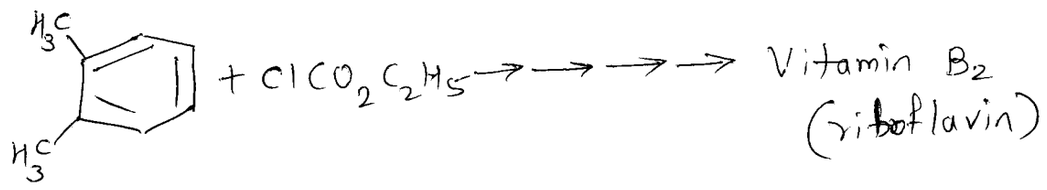


d) How will you prove the presence of following Morphine:

i) Phenolic – OH group.

ii) cyclic tertiary amine nitrogen

e) Suggest the complete reaction sequence for following synthesis:



SECTION – II

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

a) How the structure of carvone is established?

b) Discuss the degradative synthetic evidence that established the structure of zingiberine.

c) How to synthesize the hyposantonin from santonin? How the structure of hyposantonin is established?

d) How will you prove the presence of the following in abietic acid?

i) angular methyl group.

ii) COOH group.

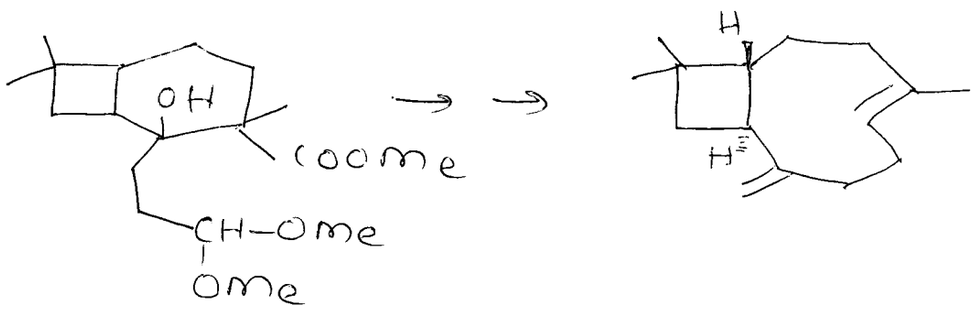
e) What are terpenoids? Write down the classification of terpenoids.

Q.4 Answer **ANY THREE** of the following: **[15]**

a) Suggest biogenetic scheme for the following:
Cinnamic acid → Coumarin

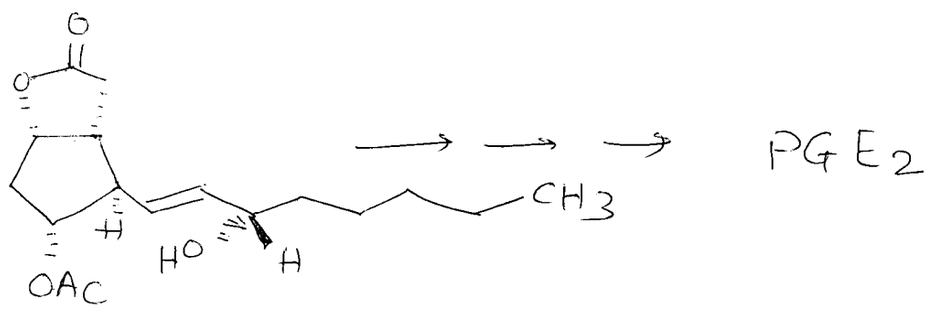
...2

b) Complete following sequence indicate the reagents used and discuss the mechanism, stereochemistry involved.

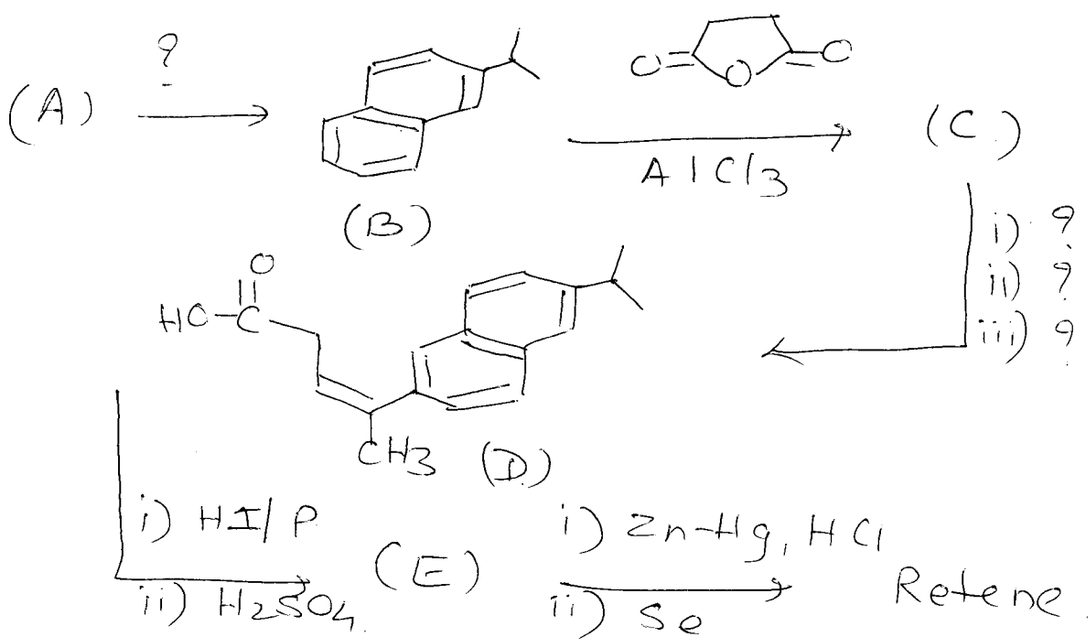


c) Write down the following biogenetic synthesis.
IPP → Carvone

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



e) Identify the missing steps / reactant / reagent / product in the synthesis of retene



* * * *