Reg. No. | | | | | | | | | |

OCH 553

IV Semester M.Sc. Examination, Sept./Oct. 2022
ORGANIC CHEMISTRY
Chemistry of Natural Products
(CBCS) (2016-17 Syllabus) (Freshers and Repeaters)

Time : 3 Hours Max. Marks : 70

Note : *Answer **all** questions from Part – **A** and **any four** questions from Part – **B**.*

PART – A **(9×2=18)**

1. a) Write the structure of products in the following reaction.
   Piperine $\xrightarrow{KOH}$? + ?
   b) Give the chemical reactions for the presence of phenanthrene nucleus in Morphine.
   c) How cinchonine can be obtained from cinchotexine ?
   d) What happens when gibberelic acid is heated with acid ?
   e) Whether the abietic acid is homoannular diene or heteroannular diene ? Comment.
   f) Sketch the structure of β-carotene and mark the isoprene units.
   g) Outline the synthesis of Diel's hydrocarbon.
   h) Write the products obtained in the following reaction.
   Ergosterol $\xrightarrow{\text{Ozonolysis}}$? $\xrightarrow{h\nu}$?
   i) What is Barbier-Wieland degradation?

PART – B **(4×13=52)**

2. a) How do you convert papaverine into papaverinic acid ?
   b) Predict the products in the following reactions :
   Cinchonine $\xrightarrow{PCl_5}$? $\xrightarrow{KOH}$? $\xrightarrow{H_3PO_4}$? + ?
   c) Explain the use of Zeisel's and Herzig-Meyer methods in alkaloid chemistry. **(4+4+5=13)**

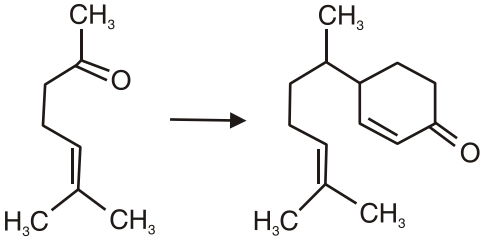
P.T.O.

3. a) Discuss the point of attachment between the Quinuclidine nucleus and Quinoline nucleus in Quinine.

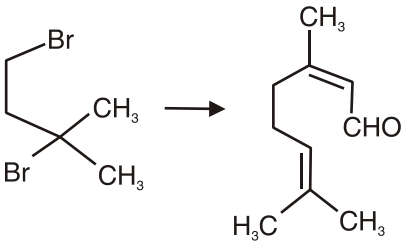
   b) Outline the synthesis of reserpine. **(6+7=13)**

4. Explain the steps involved in the following transformations.

i)



ii)



iii) Mesityl oxide $\longrightarrow$ Camphoric acid **(4+4+5=13)**

5. a) Discuss the structure and synthesis of lycopene.

   b) Account for the following :

      i) Presence of β-ionone ring system in β-carotene

      ii) Four member cyclic system in α-pinene. **(5+4+4=13)**

6. a) Outline the synthesis of the following :

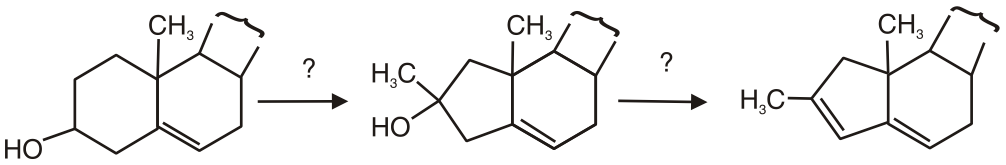
      i) Progesterone from cholesterol

      ii) 5β – Cholanic acid from Cholesterol.

   b) Write a note on Steroidal oral contraceptives. **(5+4+4 = 13)**

7. a) Explain the following :

      i) Presence of tricyclic system in ergocalciferol.

      ii) Chemical relationship between oestrone and oestriol.

   b) Suggest the reagents, reaction conditions and mechanism for the following conversion. **(4+4+5=13)**