Exam. Code : 210404
Subject Code : 4964

M.Sc. Chemistry 4th Semester

NATURAL PRODUCTS

Paper : Course-XXIV

Time Allowed—2 Hours] [Maximum Marks—75

Note :— There are ***eight*** questions of equal marks. Candidates are required to attempt any ***four*** questions.

1. (a) Discuss the bio-synthetic pathway for the synthesis of Usnic acid.
   (b) Sketch the bio-synthesis of Abietic acid using Geranyl-pyrophosphate pathway.
2. (a) Discuss the chemistry of Camphor.
   (b) State and explain isoprene rule.
3. Sketch the synthesis of Cholesterol.
4. (a) Starting from 1, 2-dimethoxybenzene, discuss the synthesis of papaverine and confirm its structure.
   (b) Discuss the synthesis of Progesterone using stigmasterol as precursor.
5. (a) Discuss the synthesis of D-penicillamine and prove its structure.
   (b) Describe the synthesis of Prostaglandin E2.

6. (a) What are secondary structures of proteins ? Discuss the β-pleated sheet structure in detail.
   (b) Discuss in brief the nomenclature and role of prostaglandins.
7. (a) Taking glucose as an example, how can methylated sugars be used to determine the ring size of monosaccharides.
   (b) Discuss briefly the structures of maltose, lactose and sucrose.
8. (a) The two strands of DNA are not identical but complimentary. Explain.
   (b) Enlist the major differences between DNA and RNA.