

S-1126

Total Pages : 3

Roll No.

CHE-553

Natural Product, Heterocyclic and Spectroscopy

M.Sc. Chemistry (MSCCH)

2nd Year Examination, 2022 (Dec.)

Time : 2 Hours]

Max. Marks : 70

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION-A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. Describe in brief :

- Structure of Vitamin D and its uses.
- Structure of chlorophyll and its uses.
- Structure of cholesterol and its functions.

- (d) Structure of morphine and its uses.
 - (e) Physiological activity of prostaglandins.
2. Write note on :
- (a) Factors affecting the enzyme catalysis.
 - (b) Glycolysis.
3. Discuss the following :
- (a) Shikmic acid pathway.
 - (b) Biosynthesis of Monoter-Pinoids.
4. Give note on the following :
- (a) Principle of C13 NMR.
 - (b) 19 F and 3 IP spectroscopy.
 - (c) HETEOCOSY.
5. What do you understand by ORD? How is it different from CD? Discuss analytical application of ORD technique.

SECTION-B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. Draw the structure of hemoglobin and myoglobin. Explain their difference and functions.

2. What is enzyme immobilization? Discuss briefly about the types of enzyme inhibitors.
 3. Give the biosynthesis of acetyl coenzyme A.
 4. Explain the significance of heterocyclic compounds as: Antibiotics, Antimicrobial and other biological activities.
 5.
 - (a) Describe the basicity order of furan, thiophene and pyrrole.
 - (b) Describe why lone pair of electrons on nitrogen of pyridine do not take part in resonance.
 6. Give short note on the following :
 - (a) Octant rule.
 - (b) Chemical shift.
 7. Describe the steps involved in Krebs cycle.
 8. Give the synthesis of the following :
 - (a) Caffeine.
 - (b) Thymine.
-

