

553

Total Pages : 4

Roll No.

CHE-553

Natural Products, Heterocyclic, Biogenesis and Spectroscopy

M.Sc. CHEMISTRY (MSCCH-12/13/16/17)

2nd Year Examination, 2021 (Winter)

Time : 2 Hours]

Max. Marks : 80

Note : This paper is of Eighty (80) 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 Twenty (20) marks each. Learners are required to answer any Two (02) questions only.

(2×20=40)

1. (a) Write a short note on structure determination of morphine.
(b) Write stereochemical structure of Reserpine.

2. What are alkaloids? Explain :
 - (a) Functions and properties of alkaloids.
 - (b) Methods of Isolations of alkaloids.

3. (a) What are enzymes? Describe the mechanism of enzyme catalysis.
 - (b) Discuss briefly the various applications of C^{13} NMR spectroscopy.

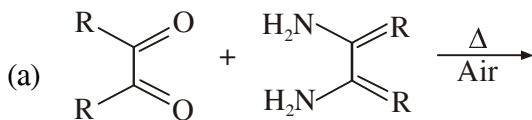
4. What is Porphyrin ring? Discuss its synthesis and applications.

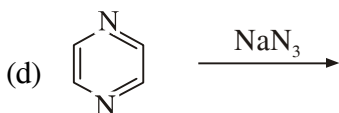
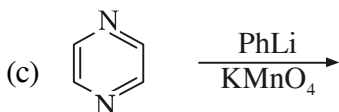
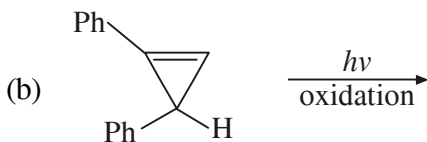
5. Write a short note on followings :
 - (a) F^{19} – NMR.
 - (b) Octane rule.
 - (c) Chemical shift.
 - (d) P^{31} – NMR.

SECTION-B
(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any Four (04) questions only. (4×10=40)

1. Complete the following reactions.





2. What are enzyme inhibitors? Discuss briefly about the type of enzyme inhibitors.
3. Discuss synthesis and uses of the following :
 - (a) Pyrazine,
 - (b) Oxirane,
4. What are three, four and five membered heterocyclic compounds? Write the structures of each group of compounds and discuss their basic characters.
5. Write the synthesis on followings :
 - (a) Lipogenesis.
 - (b) Oxetanes.
 - (c) Off- resonance.

6. Write short note on :
- (a) Fatty acids.
 - (b) 2-D COSY-NMR.
 - (c) Rotenoids.
7. What are Prostaglandins? What is their biological significance? Discuss with examples.
8. Discuss classification of alkaloids with structure of each category.
-