Q.P. Code : 60776

Third Semester M.Sc. Degree Examination, January/February 2020

(CBCS Scheme)

Chemistry

Paper C 302 OC — CHEMISTRY OF NATURAL PRODUCTS

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to Candidates : Answer question No. 1 and any five of the remaining.

1. Answer any **TEN** of the following questions :   **(10 × 2 = 20)**

   (a) What is special isoprene rule? Draw the structure of limonene and mark the isoprene units.

   (b) What are terpenoids? Write the general classification of terpenoids.

   (c) Discuss the Nametkin rearrangement of camphene.

   (d) Write the synthesis of hygrine.

   (e) What is Ziesel's method? Mention its application in the alkaloid chemistry citing suitable example.

   (f) Formulate a synthesis of ephedrine.

   (g) Predict the products and name them :

   Haemin + HI $\xrightarrow{\text{Acetic acid}}$?

   (h) Write the structure of purine and pyrimidine bases present in DNA.

   (i) How are hydroxyl groups of sugar in nucleic acid protected?

   (j) What are prostaglandins? Write the biological functions of prostaglandins.

   (k) What are insect pheromones? Give any two examples.

   (l) Write the structures of exo and endo-brevicomin.

2. (a) Describe the conversion of santonin into desmotroposantonin and santonic acid.

   (b) Elucidate the structure of gibberrillic acid.   **(5 + 5 = 10)**

3. (a) Formulate the steps involved in the synthesis of beta-caryophyllene.

   (b) How was the structure of beta-carotene established?   **(5 + 5 = 10)**

4. (a) Sketch the synthesis of haemin.

    (b) Give the sequence of reactions involved in the conversion of cobyric acid into vitamin B_{12}. (5 + 5 = 10)

5. (a) Write an account of formation of internucleotide bonds by phosphotriester approach.

    (b) Write a note on solid phase synthesis of oligonucleotides. (5 + 5 = 10)

6. (a) Outline the synthesis of papavarine.

    (b) Describe Corey's synthesis of PGE2. (5 + 5 = 10)

7. (a) Sketch the synthesis of morphine.

    (b) Propose the plausible mechanism for Hofmann degradation. (7 + 3 = 10)

8. (a) How was the structure of PGE3 elucidated?

    (b) Write the synthesis of farenal. (5 + 5 = 10)

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