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M.Sc. (Final) Examination, 2022

Chemistry

Paper-IV

(Biomolecules)

Time : Three Hours] [Maximum Marks : 100

Note : Attempt **all** the sections as per instructions.

Section-A

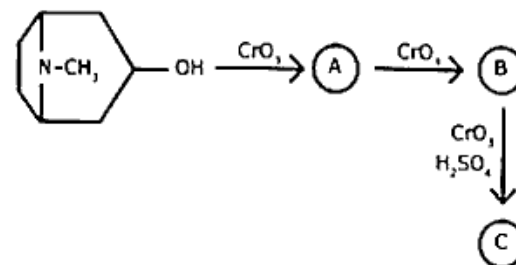
Note : Attempt **all** questions. Answer each question in about 50 words. Each question carries equal marks. $2 \times 10 = 20$

1. (a) How Terpene are isolated from the plant?
- (b) Write the structure of $\text{PGE}_{2\alpha}$.
- (c) Benzofaran undergoes substitution in position 2 not at position 3.

P.T.O.

(2)

- (d) Explain why pyrene is not aromatic.
- (e) Write resonating form of pyridine.
- (f) Describe general characteristics of alkaloids.
- (g) Show that oxygen present in menthol is in the form of hydroxyl group.
- (h) Complete the reaction.



- (i) Define the Diels hydrocarbon.
- (j) Write the structure of Nicotine.

Section-B

Note : Attempt **all** questions. Write answer of each question in about 200 words. Each question carries 10 marks. $5 \times 10 = 50$

2. Isolation and structure of citral.

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(3)
OR

Isolation and structure of α -Terpenol.

3. Establish the structure of camphor.

OR

Establish the structure abietic acid.

4. Define Alkaloids. Discuss the structure of Atropine.

OR

Establish the structure of Morphine.

5. Discuss the biosynthesis of steroid.

OR

Write a short notes on Hofmann exhaustive methylation.

6. Discuss the structure of RNA.

OR

Write the structure and conformation of Maltose and Sucrose.

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P.T.O.

(4)
Section-C

Note : Attempt any **two** questions. Give answer of each question in about 500 words. Each question carries 15 marks.

15×2=30

7. Describe synthesis and reaction including medicinal application of benzofuranes and benzopyrroles.
8. What are carbohydrates? Established the structure of cellulose.
9. Give the synthesis of quinine.
10. Describe the chemical synthesis of $\text{PGF}_{2\alpha}$.
11. Discuss the double helical model of DNA and explain its chemical structure.

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