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Reg. No.

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IV Semester M.Sc. Degree Examination, September /October - 2022

CHEMISTRY**Chemistry of Natural Products**

(CBCS Scheme 2019-20)

Paper : CH - 402-OC

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

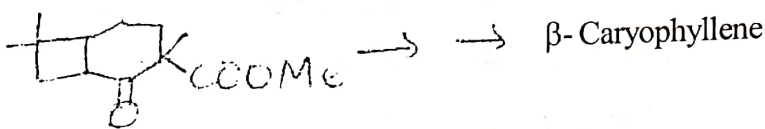
Answer question No.1 and any five of the remaining questions. Figures to the right indicate marks.

1. Answer any **Ten** of the following: (10×2=20)
- What is isoprene rule? Draw the structure of α -pinene and indicate the isoprene units in it.
 - Predict the product in the following:
$$\text{Squalene} \xrightarrow[\text{acetone}]{\text{KMnO}_4} ?$$
 - How is α -pinene converted to camphor?
 - Draw the stereo chemical structure of morphine and give its Nomenclature.
 - With a suitable example, give the importance of Emde degradation.
 - Outline the synthesis of ephedrine.
 - Sketch down the structure of vitamin B12.
 - Illustrate the method of formation of internucleotide bonds by phosphodiester approach.
 - What are the components of nucleic acids? Give an example.
 - In prostaglandin PGE₁ and PGA, what does E1 and A refer to?
 - Explain the biological role of prostaglandins.
 - Write briefly on use of pheromones in pest control.

[P.T.O.]





2. a) Discuss the stereochemistry of farnesol.
 b) Outline the chemical synthesis of β -carotene.
 c) Account for the presence of cyclobutane ring in α -pinene. (3+3+4=10)
3. a) Indicate the sequence of reactions in the following conversion:
 β -Caryophyllene
 b) Describe the synthesis of Abietic acid.
 c) Write a note on cyclisation of squalene into α -lanosterol. (3+3+4=10)
4. a) Outline the total synthesis of quinine.
 b) Write a brief account of biosynthesis of Hygrine. (6+4=10)
5. a) Sketch the conversion of morphine to codeimethane.
 b) Formulate the photochemical synthesis of coradyline.
 c) Outline the synthesis of vitamin B12 from cobyric acid (3+3+4=10)
6. a) Discuss the structural features of chlorophyll-a and chlorophyll-b. How can they be separated?
 b) Comment on the degradation products of Haemin.
 c) Explain a method of synthesis of nucleotides. (4+3+3=10)
7. a) Describe the protecting groups employed for hydroxy group and amino group in Nucleic acid synthesis.
 b) Give the synthesis of Bombykol.
 c) Sketch the synthesis of PGE₂ (3+3+4=10)
8. a) Explain briefly the classification and nomenclature of Prostaglandins.
 b) Outline the chemical synthesis of Grandisol.
 c) Describe the synthesis of Thromboxane B2. (4+3+3=10)

