

**PD-497-CV-19**  
**M.Sc. (4<sup>th</sup> Semester)**  
**Examination, June-2021**  
**CHEMISTRY**  
**Paper-IV**  
**CHEMISTRY OF NATURAL PRODUCT**

Time : Three Hours]

[Maximum Marks : 80  
[Minimum Pass Marks : 29

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Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

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Section-A

1. Answer any ten of the following questions:- 2x10=20
- (a) How many isoprene units are present in the following compounds:-  
(1)  $\alpha$  Pinene    (2) Zingiberene    (3) Abiotic acid
  - (b) Write note on isolation and separation of terpenoids from essential oil.
  - (c) Explain Emde method in Alkaloid chemistry.
  - (d) Give the classification of Alkaloids (only names).
  - (e) Prove that cholesterol and Bile acids are structurally related to each other.
  - (f) How will you Convert dehydroepiandrosterone to testosterone.
  - (g) Show structural relationship between Quercetin and cyanidin chloride.
  - (h) What products are obtained by the thermal degradation of Bixin. Give there structures.
  - (i) Sketch the structural formula of chlorophyll-a and chlorophyll-b.
  - (j) How retinol can be converted into  $\beta$  carotene.
  - (k) What is Diels Hydrocarbon.

Section-B

- Answer the following long questions:- 12x5=60
2. Elucidate the structure of citral and give its synthesis, discuss isomerization of citral. OR
- (a)  $\alpha$  -Terpineol on oxidation gives terpenylic acid and terebic acid. Give structure and synthesis of two acids.
  - (b) How will you prove that p-menthane skeleton present in menthol molecule.
3. Give structure of Quinine and established by its synthesis. OR
- (a) Discuss Analytical and degradative evidences in support of structure of coniine.
  - (b) Give Biosynthesis of Nicotene.
4. (a) What are steroids. How will you convert cholesterol into  $5\beta$  -cholic acid.  
(b) Prove that the side chain in cholesterol molecule is built up by eight carbon atoms and it terminate in an isopropyl group. OR
- (a) What is aldosterone, Illustrate its structure and synthesis.
  - (b) How steroids related to Diels hydrocarbon give a method for the synthesis of Diels hydrocarbon.
5. How Anthocyanin extracted from flowers. Describe the structure elucidation of cyanine chloride. OR
- (a) Discuss the degradative and synthetic methods to establish the structure of pelargonin chloride.
  - (b) Write note on Shikimic acid path way.

6. (a) What is porphyrin, mesoporphyrine on oxidation with chromic acid gives two products (A) and (B) what is the structure of (A) and (B) and give synthesis of both the products.  
(b) Prove that  $\beta$  carotene has a symmetrical structure.

OR

Discuss the structure of Haemin.