

PC-497  
(534) M.Sc. CHEMISTRY (FOURTH SEMESTER)  
Examination JUNE 2020  
Compulsory/Optional  
Group -B  
Paper - IV  
CHEMISTRY OF NATURAL PRODUCT

Time:- Three Hours ]

Maximum Marks : 80  
Minimum Passing Marks: 29

नोट : दोनों खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं।

Note: Answer From Both the Section as Directed. The Figures in the right-hand margin indicate marks.

**Section -A**

1. Answer any ten following questions: -

**2X10 = 20**

- (a) What is isoprene unit? Write its structure.
- (b) Give structure formula of two monocyclic monoterpenoid of your syllabus.
- (c) What are the products obtained when guanine is oxidised with chromic acid write equation.
- (d) What kind of nucleus is present in morphine what is the common name of diacetyl derivative of morphine.
- (e) At which carbon atoms the two angular methyl groups in cholesterol are located.
- (f) Why is the synthesis of cholesterol difficult? Give reason.
- (g) Write the structural formula of following.  
(i) Oestrons (ii) Progesteron
- (h) Give name and structure of one Isoblavons
- (i) What are the products obtained when histidine chloride is fused with 10% Ba (OH)<sub>2</sub> in the atmosphere of H<sub>2</sub>. Give equation. Type equation here.
- (j) Write the structure of chlorophylls. What is the difference in structure of chlorophyll a and b?
- (k) Write the basic skeleton or structural unit of anthocyanidins.
- (l) Write the structure of  $\gamma$  - carotens

**Section -B**

Answer the following long answer type questions:-

**12x5 = 60**

2. Discuss structure of  $\alpha$  -terpineol

**Or**

What is the isoprene rule Elucidate the structure of citral.

3. Explain following degradation methods

- (i) Hoffman exhaustive methylation method
- (ii) Van Braun's degradation method.

**Or**

Describe degradative and synthetic evidences in establishing the constitution of Niwitive.

4. Discuss following in the structure of cholesterol.

- (i) Position of hydroxyl group and double bond.
- (ii) Nature and position of the side chain

**Or**

Write the steps of synthesis of following hormones from cholestert

- (i) Testosterone (ii) Progesterone.

5. Discuss acetate pathway and shikimic acid pathway for biosynthesis of flavonoids .

**Or**

What are flavonols. Discuss the structure of guereetin and give any two methods of for its synthesis

6. Describe structure and synthesis of haemoglobin.

**OR**

Discuss the structure of  $\beta$ - carotene and comment on its relation with vitamin A.