

M.Sc. (Chemistry) (NEP Pattern) Semester-III  
**STPG03CHE02 - Special Paper-II : Organic Chemistry**

P. Pages : 2

Time : Three Hours.



**GUG/S/25/15961**

Max. Marks : 80

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1. a) Give the synthesis and structure determination of vitamin A. 8  
b) Discuss the synthesis and structure of Hemoglobin. 8

**OR**

- c) Discuss the general methods of structure determination of terpenoids along with isoprene rule. 4  
d) Write the synthesis of chlorophyll. 4  
e) Give the biosynthesis of citral. 4  
f) Discuss the biosynthesis of Geraniol. 4
2. a) Give the synthesis and stereochemistry of nicotine. 8  
b) Classify the prostaglandins. Discuss synthesis of PGE<sub>2</sub>. 8

**OR**

- c) Write short note on PGF 2 $\alpha$ . 4  
d) Describe the biosynthesis of reserpine. 4  
e) Discuss the synthesis of morphine. 4  
f) Discuss the role of alkaloids in plants. 4
3. a) Discuss structure determination and synthesis of cholesterol. 8  
b) Discuss the following. 8  
i) Synthesis of quercetin  
ii) Acetate pathway of biosynthesis of flavonoids.

**OR**

- c) Discuss the synthesis of myricetin. 4  
d) Write notes on synthesis of bile Acids. 4  
e) Describe the Shikimic acid pathway for biosynthesis of flavonoids. 4  
f) Discuss the synthesis of cyanidin. 4

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| <b>4.</b> | a) Outline method used for structure determination in maltose sugar. | <b>8</b> |
|           | b) What are proteins? Discuss solid phase peptide synthesis.         | <b>8</b> |
| <b>OR</b> |  |          |
|           | c) What are carbohydrates? Give its classification.                  | <b>4</b> |
|           | d) How is the structure of sucrose molecule is determined?           | <b>4</b> |
|           | e) Explain the Strecker synthesis.                                   | <b>4</b> |
|           | f) Explain the secondary structure of protein.                       | <b>4</b> |
| <b>5.</b> | a) Give the structure of farnesol.                                   | <b>2</b> |
|           | b) Discuss the structure and function of Vitamin – H.                | <b>2</b> |
|           | c) Give the occurrence of prostaglandins.                            | <b>2</b> |
|           | d) Write a note on atropine.   | <b>2</b> |
|           | e) Give structure determination of butein.                           | <b>2</b> |
|           | f) Explain Dial's hydrocarbon of steroids.                           | <b>2</b> |
|           | g) Explain deoxy sugar with suitable examples.                       | <b>2</b> |
|           | h) Discuss optical resolution in amino acids.                        | <b>2</b> |

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