

Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/M.PHARM/SEM-1/MPT-102 (2)/2012-13  
2012**

**BIOGENESIS AND CHEMISTRY OF NATURAL  
PRODUCTS**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

i) Hyoscyamine and its hydrobromide and sulphate salts are the

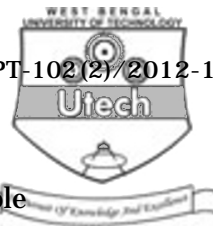
- |                     |                     |
|---------------------|---------------------|
| a) <i>l</i> -isomer | b) <i>d</i> -isomer |
| c) meso             | d) racemic form.    |

ii) Molecular formula of bixin is

- |   |   |
|---|---|
| a) C <sub>25</sub> H <sub>30</sub> O <sub>3</sub> | b) C <sub>25</sub> H <sub>16</sub> O                |
| c) C <sub>25</sub> H <sub>30</sub> O <sub>4</sub> | d) C <sub>25</sub> H <sub>31</sub> O <sub>5</sub> . |



- iii) Nature of oxygen present in camphor is
- a) ether
  - b) hydroxyl
  - c) keto
  - d) both (a) and (b)
  - e) none of these.
- iv) Sulphur bridges gives the protein
- a) primary
  - b) secondary
  - c) tertiary structures
  - d) both of these.
- v)  $\beta$ -ionene ring present in
- a)  $\alpha$ -carotene
  - b)  $\beta$ -carotene
  - c) safranal
  - d) both (a) and (b).
- vi) Which one of the following is carotenoid metabolite ?
- a) Vitamin A
  - b) Vitamin B
  - c) Vitamin D
  - d) Vitamin K.
- vii) Chain B of insulin structure contains
- a) 21 amino acids
  - b) 31 amino acids
  - c) 30 amino acids
  - d) 20 amino acids.
- viii) The camphor is present in
- a) *Cinnamomum camphora*
  - b) *Eugenia caryophylla*
  - c) *Ocimum sanctum*
  - d) both of (b) and (c).
- ix) Lycopene is an active constituent of
- a) tomato
  - b) carrot
  - c) potato
  - d) none of these.



- x) Catharanthine contains ..... ring.
- a) indole    b) imidazole  
c) quinoline    d) quinazoline.
- xi) Tertiary structure of protein relates with
- a) alpha helix                                        b) beta sheets  
c) both (a) and (b)                              d) di-sulphide bond.
- xii) Tryptophan is used as a precursor compound in the biosynthesis of
- a) Vincristine                                        b) Digitoxin  
c) Umbelliferone                                  d) Hecogenin.

**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following.                      3 × 5 = 15

2. Describe the chemistry of ephedrine and reserpine.  $2\frac{1}{2} + 2\frac{1}{2}$
3. What information do you get from the spectroscopic data of mass spectrophotometry, FT-IR, NMR, Elemental Analysis of new compounds ? 1 + 1 + 1 + 2
4. What is the chemical nature of hecogenin ? Draw the structure and write two uses of it.  $1\frac{1}{2} + 1\frac{1}{2} + 2$
5. What is secondary and tertiary structure of protein ? Differentiate them. 2 + 3
6. Describe A and B chain of insulin. What is the source of insulin ?



**GROUP - C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. Write the source of Vitamin A,  $\beta$ -Carotene, artemisinin and taxol. Elucidate the structure of eugenol.  $(5 \times 2) + 5$
8. Draw the structure and chemistry of following compounds :  
Morphine and diosgenin. Give brief outline of biosynthetic pathway of quinine, ephedrine and hyosciamine.  $(3 \times 4) + 3$
9. How do you trace biosynthetic pathway involved in plants for production of secondary metabolites ? Justify your answer with example. What is radio tracer technique ? Describe the method of auto radiography. Mention three radioactive tracers' agents.  $6 + 3 + 4 + 2$
10. What are carotenoids ? Write source and one use of the following each category of drugs :  
Lycopene, Vitamin A,  $\beta$ -carotene, and Bixin.  
What are general methods of degradation of peptides ?  
 $2 + 10 + 3$
11. Write short notes on any *three* of the following :  $3 \times 5$
- a) Competitive feeding
  - b) End group analysis of peptide
  - c) Liquid scintillation counter
  - d) Biosynthesis of Ephedrine.