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 : $10 \times 1 = 10$

i) Hyoscyamine and its hydrobromide and sulphate salts are the

a) *l*-isomer b) d-isomer

c) meso d) racemic form.

ii) Molecular formula of bixin is

a) $C_{25}H_{30}O_3$ b) $C_{25}H_{16}O$

c) $C_{25}H_{30}O_4$ d) $C_{25}H_{31}O_5$.

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) β-ionene ring present in

a) α-carotene b) β-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 structutre 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. $3 \times 5 = 15$

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 × 15 = 45

7. Write the source of Vitamin *A*, β-Carotene, artemisinin and taxol. Elucidate the structure of eugenol. (5 × 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 × 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*, β-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 × 5

    a) Competitive feeding

    b) End group analysis of peptide

    c) Liquid scintillation counter

    d) Biosynthesis of Ephedrine.