M.Sc. 3rd Semester Examination, 2013

BOTANY

PAPER— BOT - 301

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

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

Illustrate the answers wherever necessary

UNIT – I

Answer Q. Nos. 1 & 2 and any one from the rest

1. Answer any *five* questions :   1 × 5

   (*i*) What are antenna pigments ?

   (*ii*) What is CO_2 compensation point ?

   (*iii*) Distinguish between short day plants and day neutral plants.

(*Turn Over*)

(iv) Write down the full form of DCPIP.

(v) Why is scarification technique done ?

(vi) Define antiauxins ?

(vii) What is meant by climacteric respiration ?

(viii) What is ACC ?

2. Write short notes on any *two* : $2\frac{1}{2} \times 2$

   (i) Mechanism of action of ABA

   (ii) Dual role of Rubisco

   (iii) Classification of plants on the basis of CDL

   (iv) Metabolic changes during seed germination.

3. (a) Schematically represent the pathway of photorespiration and glycolate metabolism.

   (b) What are gibberellins ? Write down various physiological roles of gibberellins in plants.

   $5 + 5$

4. (a) Write an explanatory note on CAM plants and the significance of CAM.

(*b*) What is phytochrome ? How does phytochrome mediate the photomorphogenetic response ? 5 + 5

UNIT – II

Answer Q. Nos. 5 & 6 and any one from the rest

5. Answer any *five* questions : 1 × 5

   (*i*) What are chaperonins ?

   (*ii*) What is differential sedimentation ?

   (*iii*) What are HSPs ?

   (*iv*) Define inducible enzymes ?

   (*v*) Name two nonprotein amino acids.

   (*vi*) What is turn over number of an enzyme ?

   (*vii*) Expand the abbreviation HPTLC.

   (*viii*)What is zwitterion ?

6. Write short notes on any *two* of the following :

   (*i*) Secondary structure of proteins $2\frac{1}{2} \times 2$

(**4**)

(*ii*) Essential amino acids

(*iii*)Competitive inhibition

(*iv*)Michaelis-Menten constant(Km)

7. (*a*) Give an outline classification of enzymes and enumerate their general properties.

    (*b*) "All the enzymes are proteins, but all the proteins are not enzymes" — Justify. 4 + 3 + 3

8. Write notes on any *two* of the following :   5 × 2

    (*i*) Gel-electrophoresis

    (*ii*) Spectrophotometry

    (*iii*)TLC

    (*iv*) β-oxidation of fatty acids.