M.Sc. 3rd Semester Examination, 2012

BOTANY

PAPER – BOT- 301(Unit - I & II)

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

[*Marks* : 20]

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

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

(*a*) Cite two examples of day neutral plants.

(*b*) What is 'Leghaemoglobin' ?

(*c*) Write down the full form of DCMU.

(*d*) Name two germination inhibitors of seeds.

(*e*) What is 'Kranz anatomy' ?

(*f*) What is your concept on energy currency in plant system ?

(*g*) Name the first stable compounds of the dark reaction of C_3 and C_4 photosynthesis respectively.

(*h*) Distinguish between innate and induced dormancy of seeds.

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

(*i*) Oxidative phosphorylation

(*ii*) Critical day length

(*iii*) Nitrification and denitrification

(*iv*) Hill reaction.

3. (*a*) What is *z*-scheme ? Briefly describe the pathway of noncyclic photophosphorylation.

(*b*) Enumerate the major differences between cyclic and noncyclic phosphorylation.

(*c*) Compare C_3 and C_4 plants is terms of crop productivity. (1 + 4) + 2 + 3

4. (*a*) Give an account on practical applications of auxin in agri-horticulture.

(*b*) Mention the advantages and disadvantages of seed dormancy.

(*c*) Mention any two artificial methods of breaking seed dormancy. 4 + 4 + 2

UNIT – II

[*Marks* : 20]

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

5. Answer any *five* of the following : 1 × 5

(*a*) What are Isozymes ?

(*b*) Name two aromatic amino acids.

(*c*) What is a coenzyme ?

(*d*) Define turn over number of an enzyme.

(*e*) What are phytochelations ?

(*f*) Structurally represent the formation of a peptide bond between two participating amino acids.

(*g*) What are polysaccharides ? Give an example.

(*h*) Give an example of noncompetitive inhibition.

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

(*i*) Constitutive and inducible enzymes

(*ii*) Conjugated protein

(*iii*) Effect of substrate concentration on enzyme activity

(*iv*) Koshland's induced fit theory.

7. (*a*) What is meant by enzyme kinetics ? Deduce Michaelis-Menten equation of enzyme kinetics involving a single substrate. What is the significance of K_m ?

(*b*) Give an account on feedback inhibition. (1 + 5 + 1) + 3

8. (*a*) Mention the types of amino acids on the basis of R-group.

(*b*) What do you understand by three dimensional conformation of proteins ?

(*c*) Differentiate between tertiary and quaternary structure of proteins.

(*d*) Name two non-protein amino acids. 4 + 2 + 2 + 2