PG/IIIS/BOT-302/18

M.Sc. 3rd Semester Examination, 2018

BOTANY

PAPER – BOT-302

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

(*Plant Physiology*)

[*Marks* : 20]

1. Answer any *two* questions from the following : 2 × 2

   (*a*) What is the difference between orthodox seeds and recalcitrant seeds ?

(*b*) What is meant by phloem loading process ?

(*c*) Mention the major physiological roles of abscisic acid.

(*d*) What is oxygen evolving complex (OEC) ?

2. Answer any *two* of the following : 4 × 2

(*a*) Electron transport chain related to oxygen evolution is photosynthesis.

(*b*) Role of GAs in seed germination.

(*c*) Classification of plants according to photo-periodic response.

(*d*) Cyanide resistant respiration.

3. Answer any *one* of the following : 8 × 1

(*a*) (*i*) Briefly describe the types of coupled cotransporters involved in solute transport in plants.

(*ii*) Enumerate the mechanism of action of $Na^+ - K^+$ pump. 4 + 4

(*b*) Give an account of the physiological and molecular responses in plants against heat stress. 8

UNIT – II

(*Biochemistry*)

[*Marks* : 20]

4. Answer any *two* questions of the following : 2 × 2

(*a*) What is activation energy ?

(*b*) Mention the significance of K_m.

(*c*) What is the difference between uronic acid and aldonic acid ?

(*d*) Give two examples of pseudoalkaloids.

5. Answer any *two* of the following : 4 × 2

(*a*) Allosteric inhibition;

(*b*) Monosaccharide derivatives of biological importance;

(*c*) Redox potentials;

(*d*) Nitrogenase complex.

6. Answer any *one* from the following : 8 × 1

(*a*) (*i*) Briefly describe the process of β-oxidation of fatty acids.

(*ii*) Point out the major chemical bonds involved to constitute protein structure. 5 + 3

(*b*) (*i*) What is the difference between primary and secondary metabolites ?

(*ii*) Describe briefly the biological functions of plant terpenoids and alkaloids as secondary metabolite. 2 + 6
