

2014

(6th Semester)

BOTANY

ELEVENTH PAPER

**(Plant Metabolism, Biochemistry
and Thermodynamics)**

Full Marks : 55

Time : 2 hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

*The figures in the margin indicate full marks
for the questions*

1. What is nitrogen metabolism? Give an account on biological nitrogen fixation. $2+5=7$

Or

Write notes on the following : $3\frac{1}{2}\times 2=7$

(a) Synthesis of cellulose

(b) Synthesis of starch

2. What are enzymes? Briefly discuss the mechanism of enzyme action. 1+6=7

Or

Give brief accounts of the following : 3½×2=7

(a) Secondary structure of proteins

(b) Isozymes

3. Write accounts on biosynthesis of the following : 3½×2=7

(a) Gibberellins

(b) Ethylene

Or

Write notes on modes of action of the following : 3½×2=7

(a) Cytokinins

(b) Abscisic acid

4. Give an account on cyclic and non-cyclic electron transport. 7

Or

Write brief notes on the following : 3½×2=7

(a) Chemo-osmotic theory of ATP synthesis

(b) Pentose phosphate pathway

(3)

5. What is thermodynamics? Describe the laws of thermodynamics. $2+5=7$

Or

Write notes on the following : $3\frac{1}{2}\times 2=7$

(a) Concept of internal energy

(b) Enthalpy change

2 0 1 4

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(PART : A—OBJECTIVE)

(Marks : 20)

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SECTION—A

(Marks : 5)

1. Put a Tick (✓) mark against the correct answer in the brackets provided : 1×5=5

(a) Purine/Pyrimidine bases, together with pentose sugar forms

- (i) nucleotides ()
- (ii) ribose sugars ()
- (iii) nucleosides ()
- (iv) deoxyribose sugars ()

(2)

(b) Protein synthesis takes place in

(i) ribosome ()

(ii) mitochondria ()

(iii) Golgi body ()

(iv) cytoplasm ()

(c) The only plant hormone which occurs in the form of gas is

(i) ethylene ()

(ii) auxin ()

(iii) gibberellin ()

(iv) cytokinin ()

VI/BOT (xi)/575

(d) All energy absorbing pigments except chlorophyll are called

(i) essential pigments ()

(ii) accessory pigments ()

(iii) subsidiary pigments ()

(iv) secondary pigments ()

(e) Adiabatic process is

(i) one in which heat is gained nor lost by the system ()

(ii) one in which heat is transferred out of the system ()

(iii) one in which heat goes into the system ()

(iv) one in which heat is displaced to the surroundings ()

SECTION—B

(Marks : 15)

2. Write notes on the following :

3×5=15

(a) Enzymes involved in DNA replication

(8)

(b) Transcription

(6)

(c) Allosteric enzyme

VI/BOT (xi)/575

(d) Photosynthetic apparatus

(7)

(8)

(e) Leghaemoglobin

14G—300/575

VI/BOT (xi)