2019

BOTANY

(Major)

Paper : 6.1

(Molecular Biology and Plant Biochemistry)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Fill in the blanks with appropriate words : 1×7=7

(a) The theory of inheritance was proposed by _____ in 1941.

(b) Left handed helical coiling of DNA molecules is characteristic of _____.

(c) Conversion of nitrate to ammonia is a _____ process.

(d) Cloned DNA sequence can be physically mapped by _____.

(e) _____ is the smallest unit of DNA capable of recombination.

(f) Carbohydrates are _____ of substances that yield such compounds on hydrolysis.

(g) Nomenclature of enzymes are done by the _____.

2. Define the following in brief : 2×4=8

(a) Selfish genes

(b) Nucleotides and nucleosides

(c) Pleiotrophic mutation

(d) Stereoisomerism in carbohydrates

3. Write short notes on any *three* of the following : 5×3=15

(a) Tautomerisation

(b) Genetic code

(c) Structural organization of nitrogenase enzyme

(d) Pribnow box

(e) Nitrate reductase

4. Answer any *three* of the following : 10×3=30

(a) What is promoter gene? Explain the mechanism involved in the positive control system for the regulation of gene activity in *E. coli* lac operon. 2+8=10

(b) Explain briefly the point-mutation. Describe the meiotic behaviour of frame-shift mutation. 2+8=10

(c) What are amino acids? Give an account of synthesis of amino acids in plants. 2+8=10

(d) What are the family of D-ketoses? Explain briefly the physical and chemical properties of mono-saccharides. 2+8=10

(e) What is leader sequence or Shine-Dalgarno (SD) sequence? Describe the differences between transcription and translation. 2+8=10

★ ★ ★