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3 (Sem 6) BOT M1

2015

BOTANY

(Major)

Theory Paper : M-6.1

(Molecular Biology and Plant Biochemistry)

Full Marks – 60

Time – Three hours

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

1. Fill up the blanks with appropriate word. /Answer
the following questions : $1 \times 7 = 7$

(a) The two strands of the Double Helix of
DNA are held together by base pairing in an
_____ orientation.

(b) The Double Helix of DNA has minor and
_____ grooves.

[Turn over

(c) A protein like a DNA molecule is a linear unbranched _____ .

(d) Which of the following statement is false ?

Somatic cells are those that :

(i) Contain a diploid set of chromosome

(ii) Lack mitochondria

(iii) Give rise to gametes

(iv) Make up majority of human calls.

(e) Two scientists Watson and Crick were responsible for discovering which of the following :

(i) Ribosome is the site for protein synthesis

(ii) RNA is transcribed from DNA

(iii) Small nuclear RNA

(iv) DNA's double helical structure.

(f) Give answer as true or false :

Every cell maintains characteristic number of chromosomes.

(g) Give answer as true or false :

Specific enzymes are responsible for Histone modification.

2. Describe the following briefly : $2 \times 4 = 8$

(a) Exons and Introns

(b) Hydrogen bonds

(c) Genomes

(d) Frame shift mutation.

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

(a) Role of messenger RNA in protein synthesis

(b) Enzymes as biocatalyst

(c) Monosaccharides

(d) Translation in prokaryotes.

4. Answer any *three* of the following : $10 \times 3 = 30$

(a) Nucleic acids convey genetic information.
— Discuss.

- (b) A note on structure and organization of genes.
- (c) Define mutation and explain point-mutation transition.
- (d) Transcription and translation in prokaryotes.