C/17/DDE/M.Sc./Part-II/Bot./8

2016

M.Sc. Part–II Examination

BOTANY

PAPER—VIII

Full Marks : 60

Time : 3 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer *Q. No. 1* and any *three* from the rest.

1. Answer any *six* of the following : 2×6

   (a) Define multiple allelism with suitable example.

   (b) Define reciprocal cross.

   (c) Name two factors causing transposition of a DNA sequence.

(d) Define topological domain. Indicate at least two major topological features of nucleic acid.

(e) Differentiate B and Z DNA.

(f) Define 'Maternal inheritance' with suitable example.

(g) What are 'B' chromosomes ?

(h) What is gene targeting ?

(i) Distinguish between dedifferentiation and redifferentiation.

(j) Distinguish between oligogene and polygene.

2. What are cyclines ? Discuss the role of different cycline in regulation of cell cycle. Add a note on different check points evident in a cell cycle. 2+8+6

3. Write short notes on any *two* of the following : 8×2

(a) Maxam and Gilbert's method of DNA sequencing

(b) Nucleosome

(c) Western blotting

(d) Quantitative inheritance.

4. Define somatic hybridization. Illustrate the procedure of embryo culture with suitable sketches. What is anther culture ? Mention the various steps involved in protoplast isolation. Briefly mention the prospects of tissue culture in forestry. 2+5+2+3+4

5. Indicate the major objectives of plant breeding. Describe the mechanism of self-incompatibility with suitable diagrams. Mention the prospects and achievements of transgenic technology in plants. Mention atleast two methods of direct gene transfer in plants. 2+7+5+2

6. What is transcription ? Mention the different parts of transcriptional units. Give schematic account of DNA replication. How does the free linear part of telomere replicate ? 2+4+6+4

———