

B.Sc. S.Y. (CBCS Pattern) Semester-IV
012A - Botany Paper-I - Cell Biology, Genetics and Biotechnology

P. Pages : 2

Time : Three Hours



GUG/S/25/11992

Max. Marks : 50

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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw well labeled diagrams wherever necessary.

1. Write on

- | | |
|-----------------------------------|----------|
| a) Double helix structure of DNA. | 5 |
| b) Meiosis-I in Plant Cell. | 5 |

OR

Write short notes on:

- | | |
|-----------------------------------|-----------|
| c) Mitochondria | 2½ |
| d) Cell Wall. | 2½ |
| e) Nucleus | 2½ |
| f) Steps of Plant Tissue Culture. | 2½ |

2. Write on.

- | | |
|-----------------------------------|----------|
| a) Complementary Genes. | 5 |
| b) Law of Independent Assortment. | 5 |

OR

Write short notes on:

- | | |
|-------------------------------|-----------|
| c) Law of Segregation. | 2½ |
| d) Incomplete Dominance. | 2½ |
| e) Back Cross and Test Cross. | 2½ |
| f) Plastid DNA. | 2½ |

3. Write on

- | | |
|------------------------------------|----------|
| a) Chromosomal aberration. | 5 |
| b) Explain Mutation and its types. | 5 |

OR

Write short notes on:

- c) Complete Linkage. 2½
- d) Breakage and Reunion Theory. 2½
- e) Deletion and Deficiency. 2½
- f) Application polyploidy in Crop improvement. 2½

4. Write on

- a) Transcription 5
- b) Genomic and c-DNA libraries . 5

OR

Write short notes on:

- c) Restriction Enzymes and Ligases. 2½
- d) pBR322 2½
- e) Ac/Ds elements in Maize 2½
- f) Lac-Operon concept 2½

5. Write **any ten** in two or three lines only (diagrams are not necessary) **1x10
=10**

- a) Tonoplast
- b) Nucleoside
- c) Totipotency
- d) Recessive allele
- e) Phenotype
- f) Dominant Character
- g) Chiasma
- h) Colchicine
- i) Physical mutagens
- j) Agrobacterium
- k) Genetic Code
- l) Recombinant DNA Technology.
