

012A - Botany Paper-I (Cell Biology, Genetics and Biotechnology)

P. Pages : 2

GUG/S/23/11992

Time : Three Hours



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 note on-

- a) Explain the process of Mitosis with respect to plant in detail. **5**
- b) Describe process of Replication of DNA. **5**

OR

Write short notes on-

- c) Ultrastructure of E.R. **2½**
- d) Plasma membrane **2½**
- e) Prophase - I in Meiosis. **2½**
- f) Steps of plant tissue culture. **2½**

2. Write note on-

- a) Mendel's law of Independent Assortment. **5**
- b) Supplementary genes (9:3:4) **5**

OR

Write short notes on-

- c) Test cross and Back cross **2½**
- d) Incomplete Dominance. **2½**
- e) Mitochondrial DNA. **2½**
- f) function of Plastid DNA. **2½**

3. Write note on-

- a) Define linkage and explain types of linkage. **5**
- b) Application of Induced mutation in crop improvement. **5**

OR

Write short notes on-

- c) Copy choice theory. 2½
- d) significance of Polyploidy. 2½
- e) Trisomy. 2½
- f) Inversion. 2½

4. Write note on-

- a) Write an essay on tools and techniques of recombinant DNA Technology. 5
- b) Write an essay on cDNA library. 5

OR

Write short notes on-

- c) Cloning vector - Plasmid PBR322. 2½
- d) Transcription. 2½
- e) Jumping gene. 2½
- f) Lac-Operon concept. 2½

5. Write **any ten** questions in one or two lines only (Diagrams are not necessary) 10

- a) Cell wall
- b) Vacuole
- c) Totipotency
- d) Monohybrid
- e) Inheritance
- f) 9:7
- g) Crossing over
- h) Monosomy
- i) Deletion
- j) Agrobacterium
- k) Ligases
- l) Termination codon
