

M.Sc. Semester-I (C.B.C.S. Scheme) Examination

BOTANY

(Cell Biology, Cytology and Genetics)

Paper-I

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) All questions are compulsory and carry equal marks.

(2) Illustrate your answer with suitable examples and diagrams.

1. Describe :

- (a) Ribosomal units and its function. 5
- (b) Selective permeability of cell membrane. 5
- (c) Principles of confocal microscope. 6

OR

- (d) Function of smooth endoplasmic reticulum. 5
- (e) Endocytosis and formation of lysosomes. 5
- (f) Principles of flow cytometry. 6

2. Explain in detail the mechanism of signal transduction. 16

OR

- (g) Programme Cell Death. 8
- (h) Secretary pathways of leader polypeptide. 8

3. Explain :

- (i) Karyotype Evolution. 5
- (j) Histone proteins. 5
- (k) Consequence of inversion and translocation of chromosome. 6

OR

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|---|----|
| (l) Telomeres. | 5 |
| (m) Polytene chromosome. | 5 |
| (n) Nucleosome and DNA packaging. | 6 |
| 4. Describe : | |
| (o) Organization of Chloroplast genome. | 5 |
| (p) Spontaneous and induced mutations. | 5 |
| (q) Cytoplasmic male sterility. | 6 |
| OR | |
| (r) Transposition mechanism. | 5 |
| (s) Mutagenic alkylating agents. | 5 |
| (t) Cytoplasmic male sterility. | 6 |
| 5. Explain in detail with suitable examples the post translation control of gene regulation in prokaryotes. | 16 |
| OR | |
| (u) Mechanism of RNA editing. | 8 |
| (v) Nitrogen fixing genes. | 8 |