

BOTANY PAPER-B

(Cell Biology)

Time : Three Hours

Max. Marks : 36

Note : (i) Attempt *five* questions in all, selecting *one* question from each Unit.

(ii) Question No. 1 is compulsory.

1. Choose the correct answer (M.C.Qs.) :

(i) The smallest organelle in a cell is :

(a) Lysosome

(b) Peroxisome

(c) Ribosome

(d) Sphaerosome

(ii) Mitosis is found in :

(a) Lower animals

(b) Higher animals

(c) All plants

(d) All living organism

- (iii) The replacement of purine and pyrimidine or vice-versa is called :
- (a) Transition (b) Translocation
(c) Transcription (d) Transversion
- (iv) In which phase metacentric chromosomes appears 'V' shape ?
- (a) S-phase (b) Anaphase
(c) Metaphase (d) M-phase
- (v) Terminalization is related to :
- (a) diakinesis (b) mitosis
(c) cytokinesis (d) telophase
- (vi) Lignification is a characteristic feature of :
- (a) Primary cell wall (b) Secondary cell wall
(c) Middle lamella (d) Bacterial cell wall

Fill in the blanks :

- (vii) Nucleolus is attached to chromatin inregion.
- (viii) $2n-2$ genetic constitution represents
- (ix) In plants, golgi apparatus is also called factory.
- (x) A nucleotide is made of, and a nitrogen base.
- (xi) A repeat duplication in a chromosome is termed as duplication.
- (xii) PS-I is located in part of grana. 1×5=5

Unit-I

2. (a) Describe the structure and function of plant cell wall.
(b) Heterochromatin 3,3
3. Write notes on any *two* of the following :
- (a) Chloroplast
(b) Golgi apparatus
(c) Nucleus 3,3

Unit-II

4. (a) Role of allopolyploidy in plant breeding.
(b) Aneuploidy and its types. 3,3
5. What are Chromosomal Alterations ? Briefly discuss Inversions, its types and importance. 2,4

Unit-III

6. (a) Explain semi-conservative replication of DNA with the help of an experiment.
(b) Differentiate Meiosis-I and Meiosis-II. 3,3
7. Write notes on any *two* of the following :
- (a) Synaptonemal complex
(b) Watson and Crick model of DNA
(c) Structure of nucleosome. 3,3

Unit-IV

8. Discuss any *two* of the following :

- (i) Genetic code
- (ii) Transcription
- (iii) *t*-RNA

3,3

9. (i) What are inducible and repressible operon systems ?

- (ii) What is protein synthesis ?

3,3