

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 (MCQ's.) :

(i) All are membrane bound organelles except :

(a) Lysosomes

(b) Peroxisomes

(c) Ribosomes

(d) Sphaerosomes

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- (ii) Nucleus was discovered by :
 (a) Schwann (b) Brown
 (c) Koch (d) Leeuwenhock
- (iii) The organelle where glycoxylate cycle operates :
 (a) Peroxisomes (b) Nucleus
 (c) Golgibodies (d) Glyxisome
- (iv) Chemical substance present in the middle lamella is :
 (a) Pectin (b) Matrix
 (c) Hemicellulose (d) Lignins
- (v) Terminalization is related to :
 (a) Diakinesis (b) Meiosis
 (c) Mitosis (d) Cytokinesis
- (vi) $2n-2$ genetic constitution represents :
 (a) Tetrasomy (b) Nullisomy
 (c) Disomy (d) Trisomy

(B) Fill in the blanks :

- (vii) Structural elements of chloroplast are known as
- (viii) Two major functions of DNA are and
- (ix) The discontinuous strand formed during replication is known as fragment.
- (x) A nutritionally wild type organism which does not require any additional growth supplements is
- (xi) DNA replication occurs during phase.
- (xii) The pairing of non-homologous chromosome is termed as

1×12=12

Unit-I

2. (a) Describe the structure and function of Nucleus. 33
 (b) Give function of endoplasmic reticulum. 33
3. Write notes on any two of the following : 33
 (a) Mitochondrion
 (b) Ribosomes
 (c) Golgi apparatus

Unit-II

4. (a) Explain physical structure of chromosome. 42
 (b) Lampbrush chromosome. 42
5. Explain any two of the following : 33
 (a) Role of polyploidy in crop improvement
 (b) Translocation
 (c) Duplication

Unit-III

6. Write notes on any two of the following :

(a) Nucleosome

(b) Prophase-I of Meiosis

(c) Experiment to prove semiconservative replication of DNA.

3,3

7. Differentiate any three of the following :

(i) Pachytene and Diplotene

(ii) Meiosis-I and Meiosis-II

(iii) Leading strand and Lagging strand

(iv) Purines and Pyrimidines

2×3=6

Unit-IV

8. Attempt any two of the following :

(i) Genetic code

(ii) t-RNA

(iii) Transcription

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9. What are inducible and repressible operon systems ? Discuss repressible (Tryptophan) operon system in detail.

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