

TKN/KS/16 – 5830

Third Semester B. Sc. Examination

BOTANY

Paper : II

(Cell Biology, Plant Breeding and Evolution)

Time : Three Hours]

[Max. Marks : 50

- N. B. : (1) All question are compulsory and carry equal marks.
(2) Illustrate your answers with suitable diagrams and examples.

1. Write on :—

- (a) Ultrastructure and functions of plasma membrane. 5
- (b) Ultra structure of nucleus. 5

OR

Write short notes on :—

- (c) Structure of typical plant cell (diagram only). 2.5
- (d) Structure of cell wall. 2.5
- (e) Structure of endoplasmic reticulum. 2.5
- (f) Functions of endoplasmic reticulum. 2.5

2. Write on :—

- (a) Ultrastructure of chloroplast. 5
- (b) Ultrastructure of mitochondria. 5

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Contd.

OR

Write short notes on :—

(c) Golgi complex.

2.5

(d) Ribosome

2.5

(e) Vacuole

2.5

(f) Peroxisomes.

2.5

3. Write on :—

(a) Morphology of chromosome.

5

(b) Prophase – I of meiosis.

5

OR

Write short notes on :—

(c) Nucleosome model.

2.5

(d) XY-chromosomes in **Melandrium**.

2.5

(e) Karyotype.

2.5

(f) Metaphase in mitosis.

2.5

4. Write on :—

(a) Hybridization technique in plant breeding.

5

(b) Calculate the median and mode of the following data of number of flowers per plant.

22, 23, 20, 26, 23, 24, 23, 20, 23, 22, 24

5

OR

Write short notes on :—

(c) Heterosis.

2.5

- | | |
|---------------------------|-----|
| (d) Neo-Darwinism. | 2.5 |
| (e) Clonal selection. | 2.5 |
| (f) Hardy-Weinberg's law. | 2.5 |

5. Write in **Two** to **Three** lines only (Any **Ten**)
Diagrams are not necessary :—

- (a) Middle lamella
- (b) Cytoplasm
- (c) Nucleoplasm
- (d) Glyoxysome
- (e) P-site
- (f) Chromoplast
- (g) Cell cycle
- (h) Cytokinesis
- (i) Autosomes
- (j) Plant breeding
- (k) Mean
- (l) Pure line selection.

1 x 10