18BOP05

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2022
(Second Semester)

Branch – **BOTANY**

CYTOLOGY, GENETICS AND PLANT BREEDING

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1. Which organelle is responsible for the degradation of worn-out cells?
   (i) Vacuoles (ii) Endoplasmic Reticulum
   (iii) Golgi apparatus (iv) Lysosome

2. Microtubules are made up of by which protein?
   (i) Durable protein (ii) Myosin
   (iii)Tubulin (iv) Actin

3. Extra nuclear inheritance commonly occur in
   (i) Nucleus (ii) Cytoplasmic Organelles
   (iii) Ribosomes (iv) Cell membrane

4. Polyploidy is induced through
   (i) Irradiation (ii) Mutagenic chemicals
   (iii) Ethylene (iv) Colchicine

5. An applied branch of genetics is
   (i) Anatomy (ii) Morphology
   (iii) Plant breeding (iv) Physiology

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a. Explain the structure and functions of the Golgi apparatus.
OR
b. Discuss the structure and functions of the endoplasmic reticulum .

7 a. Write a note on the architecture of microtubules.
OR
b. Illustrate the structure of the nucleus.

8 a. Write a short note about the linkage.
OR
b. Briefly evaluate the sex determination in plants.

9 a. Explain the following:
i). Transition ii). Transversion iii). Deletion
OR
b. Discuss objectives of plant breeding.

10 a. Briefly explain Heterosis add its applications.
OR
b. What is Hybridization? add a note on types of hybridization.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a. Explain the ultra-structure and functions of Chloroplast.

OR

b. Evaluate the Fluid mosaic model of Plasma membrane add its Functions.

12 a. Give a detailed note on special types of chromosomes.

OR

b. Explain in detail about the meiosis –I.

13 a. Briefly explain the sex-linked gene with an example.

OR

b. Evaluate the cytoplasmic inheritance in *Mirabilis jalapa.*

14 a. Write an essay on Mutagens.

OR

b. State the role of polyploidy in plant breeding.

15 a. Enumerate the process of Mass and Clonal selections.

OR

b. Briefly explain the various emasculation techniques.

Z-Z-Z END