

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019
(Second Semester)

Branch- BOTANY

CYTOLOGY. GENETICS AND PLANT BREEDING

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

- 1 The role of carbohydrates in cell membrane is
(i) cell adhesion (ii) cell-cell recognition
(iii) transport across membrane (iv) cell storage
- 2 Which of the following is not a function of plastid?
(i) Respiration (ii) Photosynthesis
(iii) Calvin cycle (iv) Protein Synthesis
- 3 Microtubules are made up of
(i) Flagellin (ii) Desmin
(iii) Tubulin (iv) Actin and Myosin
- 4 Meiotic division occurs in
(i) Vegetative cells (ii) Meristematic cells
(iii) Conductive cells (iv) Reproductive cells
- 5 If you suddenly observe linkage between two genes that are present in chromosomes, it is due to
(i) Coupling (ii) Translocation
(iii) Inversion (iv) Non-homologous end joining
- 6 Which plant was first used to study sex determination?
(i) *Rumex* (ii) *Datura*
(iii) *Melandrium* (iv) *Mirabilis*

- 7 Match the following:
(i) X-ray (a) Non-ionising
(ii) PMS (b) Synthetic Mutagen
(iii) Colchicine (c) Natural Mutagen
(iv) UV rays (d) Ionising
- 8 Which of the following will be sterile?
(i) Tetraploid (ii) Triploid
(iii) Diploid (iv) Monoploid
- 9 Bagging is done to
(i) Avoid cross pollination (ii) Avoid self pollination
(iii) Achieve desired pollination (iv) Prevent foreign pollen
- 10 The quickest method of plant breeding is
(i) Mutation breeding (ii) Introduction
(iii) Selection (iv) Hybridization

Cont...

SECTION - B (35 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 7 = 35)

11 a Discuss the biochemical composition of plasma membrane.

OR

b Explain the structure and organisation of Mitochondrion.

12 a Illustrate the various stages of mitosis.

OR

b Evaluate the functions of microtubules and centrioles.

13 a Explain the cytoplasmic inheritance with an example.

OR

b Write notes on tetrad analysis.

14 a State the various types of Mutagens with examples.

OR

b Evaluate the role of polyploidy in Plant Breeding.

15 a Discuss the objectives of Plant Breeding.

OR

b Analyze the importance of hybrid vigor in plant breeding.

SECTION - C (30 Marks!)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

16 Analyse the various models to explain the architecture of Plasma Membrane.

17 Elucidate the significance of special types of chromosomes.

18 How will you explain the linkage and crossing over phenomena?

19 Give details on the procedures of introduction and acclimatization in Plant Breeding.

20 Consolidate the phenomena of Sex determination in plants.

Z-Z-Z

END