

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2023
(Third Semester)

Branch – BIOTECHNOLOGY
PLANT BIOTECHNOLOGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. The inheritance pattern of RAPD is -----.
(i) Dominant (ii) Recessive
(iii) Co-dominant (iv) Random
2. What is an explant?
(i) A part of plant grown under soil
(ii) Any part of a plant taken out and grown in a test tube
(iii) A specific part of a plant grown in a test tube
(iv) Leaves grew under test tube
3. Which of the following plant part is free from the attack of virus?
(i) Stem (ii) Root (iii) Leaves (iv) Meristem
4. Which of the following RNAs are highly conserved?
(i) let-7 (ii) pet-1 (iii) let-1 (iv) pet-7
5. Name the first transgenic virus resistant plant.
(i) Rice (ii) Cotton (iii) Tobacco (iv) Tomato

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

6. a) Analyse the importance of SNP as markers.
(or)
b) List the steps of DNA finger printing technique.
7. a) Explain the principle of artificial seeds.
(or)
b) Determine the factors that influence somatic embryogenesis.
8. a) Discuss the significance of hairy root culture.
(or)
b) Illustrate the structure of Ti plasmid.
9. a) Assess the role of reporter genes in transformed plant cells.
(or)
b) Comment on CRISPR/Cas.

Cont...

10. a) Analyze the genes associated with abiotic stress tolerance.
(or)
b) Outline the mechanism of male sterility in plants.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

11. a) Comment on PCR based molecular markers in plant biotechnology.
(or)
b) Determine how do plants overcome biotic stress.
12. a) Categorise the types of suspension culture in PTC.
(or)
b) Summarize the flowchart of anther culture.
13. a) Elucidate the technique of *Agrobacterium* mediated gene transfer in plants.
(or)
b) Describe the steps of chloroplast transformation.
14. a) Categorise the protein targeting signals.
(or)
b) Appraise genome editing technology and evaluate its applications.
15. a) Write an account on molecular pharming and analyse its future use.
(or)
b) Elucidate the mechanism behind the herbicide resistance in plants.

Z-Z- Z END