

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2023  
(Third Semester)

Branch – BIOCHEMISTRY

MOLECULAR BIOTECHNOLOGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 From which organism was the first restriction enzyme isolated?  
(i) *Escherichia coli* (ii) *Salmonella typhimurium*  
(iii) *Bacillus cereus* (iv) *Staphylococcus aureus*
- 2 Which DNA is restricted to making a genomic library?  
(i) Genomic (ii) Plasmid (iii) Phage (iv) Plant
- 3 Transgenic animals have \_\_\_\_\_.  
(i) foreign protein (ii) foreign gene  
(iii) foreign lipid (iv) foreign amino acid
- 4 Plant viruses are \_\_\_\_\_ vectors.  
(i) Integrative (ii) Replacement (iii) Episomal (iv) Artificial
- 5 A person with the hereditary disease can be cured with the help of \_\_\_\_\_.  
(i) gene therapy (ii) cloning (iii) dialysis (iv) chemotherapy

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a. Differentiate between the homopolymers and linkers.  
OR  
b. Sketch the yeast vectors.
- 7 a. Discuss the invitro mutagenesis of cloned DNA product.  
OR  
b. Illustrate the plaque lift hybridization.
- 8 a. Explain the transgenic livestock and animal farming.  
OR  
b. Organize the concepts of gene knock out methods.
- 9 a. Analyze the biolistics and electroporation.  
OR  
b. State the IPR and patenting.
- 10 a. Discuss the embryonic stem cell.  
OR  
b. Criticize the advantages and disadvantages of stem cells.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a. Analyze the types of restriction enzymes.  
OR  
b. Assess the viral vectors.
- 12 a. Interpret the hybrid released translation.  
OR  
b. Develop the colony hybridization.
- 13 a. Assess the DNA/calcium phosphate co-precipitation method.  
OR  
b. Construct the method developed for transgenic mice.
- 14 a. Interpret the gene transformation through agrobacterium tumefaciens in plants.  
OR  
b. Analyze the biosafety of GM food.
- 15 a. Develop the ex-vivo method of somatic cell gene therapy.  
OR  
b. Construct the implications of neural stem cells in Parkinson's disease.

Z-Z-Z

END