

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023  
(Fourth Semester)

Branch – APPLIED MICROBIOLOGY

**PRINCIPLES OF GENETIC ENGINEERING, APPLIED BIOTECHNOLOGY  
AND IPR**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 EcoRI in which R stand for  
(i) Restriction type (ii) plasmid type  
(iii) Strain type (iv) nuclease type
- 2 Over expression of recombinant protein achieved by cloned the target sequence under strong  
(i) operator (ii) inducer  
(iii) promoter (iv) repressor
- 3 The PCR type used in DNA finger printing is  
(i) Real time PCR (ii) Nested PCR  
(iii) Arbitrary PCR (iv) Quantitative PCR
- 4 The cat reporter expressed the protein  
(i) Luciferase (ii) Beta-lactamase  
(iii) IPTG (iv) Chloramphenicol acyltransferase
- 5 Transgenic animals can be designed to study the change in  
(i) serum (ii) urine  
(iii) gene (iv) saliva

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Explain the working mechanism of ligase.  
OR  
b Narrate the procedure for recombinant selection.
- 7 a Write about Western blotting and its applications.  
OR  
b Given the details of reporter genes and their uses.
- 8 a Illustrate the steps involved DNA sequencing by Sanger's method.  
OR  
b What is RAPD? Explain it with finger printing.
- 9 a Write various methods involved in production of insecticide resistant transgenic plants.  
OR  
b Discuss about biopolymer production and its improvement by GMOs.

Cont...

- 10 a Give the details of gene therapy method and uses.  
OR  
b What is patent? Explain about gene patents and life forms.

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a What is genetic engineering? Discuss some areas of benefit from genetic engineering.  
OR  
b What are restrictions enzymes? What is their role in rDNA technology?
- 12 a How are Insulin produced through rDNA technology?  
OR  
b Discuss about DNA finger printing and its applications in forensic.
- 13 a Explain the concepts of PCR and Its applications.  
OR  
b Summarize the preparation of YAC genomic library.
- 14 a Highlights the uses of stem cells in animal gene transfer techniques.  
OR  
b How are the insecticide resistant developed in recombinant plants? Explain.
- 15 a Explain genetic linkage and gene mapping with suitable example.  
OR  
b Discuss about GMOs regulating bodies and their functions for release of GHOs.

Z-Z-Z

END