

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Fourth Semester)

Branch – **BIOCHEMISTRY**

**RECOMBINANT DNA TECHNOLOGY**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

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

- 1 Identify the enzyme responsible for making a DNA copy from RNA  
(i) DNA polymerase (ii) RNA polymerase  
(iii) Reverse transcriptase (iv) Ligase
- 2 Choose the rop segment that codes for pBR322  
(i) Resistance protein (ii) Cloning site  
(iii) Protein for translation (iv) Protein for replication
- 3 What are the collection of genomic library?  
(i) Recombinants (ii) Genes  
(iii) Proteins (iv) Vectors
- 4 Name the enzyme used in Maxam – Gilbert method for <sup>32</sup>P labelling of DNA at 3'end  
(i) Polynucleotide kinase (ii) Alkaline phosphatase  
(iii) Exonuclease (iv) Terminal nucleotidyl transferase
- 5 Which of the following process is initiated by the promoter ?  
(i) Transcription (ii) Translation  
(iii) Replication (iv) Apoptosis

**SECTION - B (15 Marks)**

Answer ALL Questions

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

- 6 a. Describe the importance of Gene cloning.  
OR  
b. Explain the preparation of Phage DNA.
- 7 a. Describe the role of YRP yeast vector.  
OR  
b. Analyze the Lambda phage.
- 8 a. Outline the types and applications of Probes.  
OR  
b. Explain the Southern Blotting technique.
- 9 a. Sketch the Sanger Nicolson sequencing method in brief.  
OR  
b. Outline the HART.
- 10 a. Bring out the role of fusion proteins.  
OR  
b. Show the types and uses of Interferons.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

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

- 11 a. Analyze the Genetic engineering tools- Restriction enzymes and its significance.  
OR  
b. Discuss the methods of DNA ligation.
- 12 a. Differentiate the Binary and Shuttle Vectors.  
OR  
b. Examine the introduction of phage DNA and identification of recombinant phage.
- 13 a. Summarise the Construction of Genomic library.  
OR  
b. Distinguish the technique and applications of RFLP.
- 14 a. Discuss the applications of Genetic Finger printing.  
OR  
b. Summarise the basic technique and applications of PCR.
- 15 a. Examine the production of recombinant TPA.  
OR  
b. Analyze the hazards and ethical issues in Genetic engineering.

Z-Z-Z

END