22BTP207

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(Second Semester)

Branch – **BIOTECHNOLOGY**

GENETIC ENGINEERING

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 Methylation at which of the following bases is possible within the following oligonucleotides?
i) GAATTC ii) GCGC iii) AGGTTC iv) AAGCTT

2 Simian Virus 40 (SV40) is an example of _____
i) Caulimovirus ii) Polyomavirus
iii) Plant virus iv) Retrovirus

3 Genomic library construction is concerned with _____
i) Gene isolation ii) Protein production
iii) Antibiotics iv) Regeneration

4 Which type of DNA cleavage is done in the Maxam Gilbert method?
i) Edge ii) Interstitial
iii) Base-specific iv) Gene-specific

5 The enzyme that catalyzes the transposition of an IS element is called _____
i) Transposase ii) Integrase
iii) Transcriptase iv) Polymerase

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 (a) Describe the type 2 restriction enzymes.
OR
(b) Write short notes on Linkers and adapters.

7 (a) Explain shuttle vectors.
OR
(b) Explain Bacterial Artificial Chromosomes(BAC).

8 (a) Describe on the expression vectors.
OR
(b) Describe the Construction of a genomic library.

9 (a) Write down the application of PCR in Forensics science.
OR
(b) Give detailed account on Chemical Cleavage Method DNA Sequencing.

10 (a) Discuss the significance of MicroRNA.
OR
(b) Elaborate on the techniques in modern biotechnology.

Cont...

SECTION -C (30 Marks)

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

11. (a) Describe DNA methylation process.

OR

(b) Briefly explain the importance of enzymes used in genetic engineering .

12. (a) Write detailed notes on pBR322.

OR

(b) Describe SV40 Virus based Vectors.

13. (a) Briefly explain gene transfer methods.

OR

(b) Describe the Hopping Libraries.

14. (a) Give details notes on RNA sequencing experimental methods.

OR

(b) Explain types and functions of PCR.

15. (a) What is gene silencing? explain its types.

OR

(b) Describe the process of insulin prodution by recombinant DNA technology.

Z-Z-Z END