Registration Number:

Date & Session:

ST. JOSEPH'S COLLEGE, BENGALURU -27
B.Sc. (BIOTECHNOLOGY) – V SEMESTER
SEMESTER EXAMINATION: OCTOBER 2023
(Examination conducted in December 2023)

BT5123 –Genetic Engineering and Bioinformatics

Time: 2 Hours **Max Marks: 60**

This paper contains ONE printed page and THREE parts

PART-A

Answer any TEN of the following: **10 X 2= 20 marks**

1. How are klenow fragments obtained? What is their mode of action?
2. What is the role of alkaline phosphatase in GE?
3. What are the disadvantages of microinjection technique in DNA transformation experiments?
4. What are adapters and linkers?
5. Explain the mode of action of polynucleotide kinases.
6. What is a cosmid?
7. What is blue and white screening?
8. What is a boot strap value?
9. What is RAPD?
10. What is Linear gap score and affine gap score?
11. What is PDB?
12. What is a rooted and an unrooted tree?

PART-B

Answer any FOUR of the following: **4 X 5 = 20 marks**

13. Explain insertional vectors. How are they advantages?
14. What would be the ethical debates that would arise If the transgenic fish was to be let into the wild?
15. Discuss the agrobacterium genes and its role in transformation.
16. How does CLUSTAL algorithm work for performing multiple sequence alignment?
17. Write about protein docking with an example.
18. Write five applications of NGS.

PART-C

Answer any TWO of the following: **2 x 10 = 20 marks**

19. Explain the construct and selection process of any two bacterial vector systems.
20. Discuss the general construct and advantages of eukaryotic vector systems.
21. Perform Needleman Wunsch based alignment for the following sequences.

    X - ATTCGTA

    Y - TCGA