ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
B.Sc. BIOTECHNOLOGY- VSEM
END SEMESTER EXAM: NOV 2020
BT 5218: GENETIC ENGENEERING AND BIOINFORMATICS

Time: 2.5 Hrs   Max Marks: 70

Note The question paper has three parts and one printed page

I. **Answer any Ten of the following**   10x2=20
1. List any two databases and the names of organizations managing them.
2. What is local alignment?
3. How would you retrieve this data: to confirm the presence of the number of exons on a coding sequence?
4. How does sonication achieve DNA transformation?
5. What is the mode of action of S1 nucleases?
6. What are adapters in R-DNA Technology?
7. State any two ethical issues associated with a pharmaceutical Rec DNA product.
8. How is a fiber mediated DNA transfer achieved?
9. State the advantages of Lambda vectors.
10. What are YAC vectors?
11. What are the advantages of obtaining phylogenetic trees for sequence data?
12. How is the wild type of M13 different to a vector construct that is used for Rec DNA technology?

II. **Answer any Five of the following**   5x6=30
13. What is protein homology modelling?
14. What are the advantages of obtaining a Rec DNA product from a eukaryotic cell?
15. Explain the synthesis of C-DNA?
16. What is replica plating? How is it useful in selection?
17. Discuss the Human genome project. What are its outcomes?
18. List the contribution of Margaret Dayhoff to Bioinformatics.
19. Discuss the role of agrobacterium in Rec-DNA transformation.

III. **Answer the following**   2x10=20
20. a. Discuss the construct and advantages of bacterial vectors.
OR
b. Explain the principle and process involved PCR. Add a note on its application.

21. a. Describe three potential application of Bioinformatics in Biotechnology.
OR
b. Construct all possible representations of the restriction map of the plasmid described below after the double digestion. The plasmid is of a size 30 kb. On treating with Bam H I the researcher got a single band size of 30kb. On treatment with Eco RI, 3 bands of size 12kb,8kb and 10 kb were seen. A combination of both enzymes gave the band sizes of 6kb, 8kb and 10kb.

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