21000774

M Sc DEGREE (CSS) EXAMINATION, JULY 2021

Fourth Semester

Faculty of Science

M Sc BOTANY

Elective - BY800403 - GENOMICS, TRANSCRIPTOMICS, PROTEOMICS AND BIOINFORMATICS

2019 Admission Onwards

65D642AB

Time: 3 Hours   Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What is genome mapping? Mention the different types of genome mapping.

2. Explain the terms: a) crossing over and b) coincidence.

3. Briefly explain STS mapping.

4. What is 454 sequencing?

5. Compare orthologs and paralogs.

6. Mention the principle of protein microarray.

7. Briefly describe how a new sequence can be submitted to a database.

8. What is gap penalty?

9. What is GOR method? What is its advantage?

10. How will you identify a coding region in Prokaryotes?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Give an account of the various biochemical markers used in genetic mapping.

12. Comment on the types of vectors employed in the shotgun approach.

13. Discuss the methods used for functional annotation.

14. What are the applications of protein profiling?

15. Explain how sequences can be analysed to determine how similar they are.

16. Give a comparative account of Ab initio and homology method of protein modeling.

17. Describe the bioinformatics tools employed in drug designing.

18. Discuss the ethical and social concerns on the public availability of sequence data.

(6×2=12 weightage)

Part C (Essay Type Questions)

Answer any two questions.

Weight 5 each.

19. Briefly describe and compare the methods used in RFLP, RAPD and AFLP and their applications.

20. " Human genome was a milestone in understanding the genetics of Humans" – Comment.

21. Give a detailed account of sequencing and analysis of the transcriptome.

22. Comment on the role of bioinformatics in tracing the evolutionary relationship between different organisms.

(2×5=10 weightage)