

Reg. No

Name

23P4019

M. Sc. DEGREE END SEMESTER EXAMINATION : MARCH 2023

SEMESTER 4 : BOTANY

COURSE : 21P4BOTT14 : GENOMICS, PROTEOMICS AND BIOINFORMATICS

(For Regular - 2021 Admission)

Duration : Three Hours

Max. Weights: 30

PART A

Answer any 8 questions

Weight: 1

1. Discuss about the need and applications of ORF finder? (U, CO 5)
 2. Mention any one genome sequencing method and the steps involved in it. (A)
 3. Explain protein microarray. (U, CO 4)
 4. What is meant by knock out mutants? (U, CO 3)
 5. Discuss the types of CADD. (U, CO 4, CO 5)
 6. Briefly describe the two classes of repeat elements in eukaryotic genome. (A, CO 2)
 7. Discuss the different versions of BLAST. (An)
 8. Write a short note on orthologs with examples. (U, CO 4)
 9. Define synteny. Provide its application. (U, CO 4)
 10. Define Phylogeny and its types. (U, CO 4, CO 5)
- (1 x 8 = 8)**

PART B

Answer any 6 questions

Weights: 2

11. Differentiate CHIP-seq from RNA-seq. (A, CO 3)
 12. Explain gene expression analysis using microarray. (U, CO 3)
 13. Write a note on restriction mapping using STS. (U, CO 2)
 14. What are the two approaches used in metagenomics? (U, CO 4)
 15. What is sequence alignment? Add a note on pair wise sequence alignment. (U, CO 4, CO 5)
 16. Differentiate between Forward Phase Arrays (FPA) and Reverse Phase Arrays (RPA). (U, CO 3, CO 4, CO 5)
 17. Explain exome sequencing and its applications. (U)
 18. Distinguish between genetic mapping and physical mapping. (U, CO 1, CO 2)
- (2 x 6 = 12)**

PART C

Answer any 2 questions

Weights: 5

19. Explain the aim and scope of Bioinformatics and give a detailed account on databases. (R, CO 5)
20. Discuss the various techniques employed for sequencing of DNA. (U, CO 1, CO 2)

21. Write an essay on gene identification by comparative genomics. (U, CO 4)
22. Discuss the findings of Human, rice and Arabidopsis genome projects. (An)
(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Compile and explain the history of genomics and the revolution happened in the field	U	18, 20	7
CO 2	Distinguish the ancient and modern techniques to understand the structural features of genome	A	6, 13, 18, 20	10
CO 3	Elaborate the modern principles of functional genomics	An	4, 11, 12, 16	7
CO 4	Simplify the evolutionary studies using the genomics tools and appraise the social and ethical issues with a scientific temper	E	3, 5, 8, 9, 10, 14, 15, 16, 21	16
CO 5	Formulate the genomic studies using the fundamentals of bioinformatics	A	1, 5, 10, 15, 16, 19	12

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;