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Fifth Semester B.E. Degree Examination, June/July 2024 Genomics and Proteomics

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is polymorphism? Explain different types of polymorphism with suitable example. (10 Marks)
- b. Explain Sanger's dideoxy method for DNA sequencing. (10 Marks)

OR

- 2 a. Explain with principle any one method of Next Generation Sequencing [NGS]. (10 Marks)
- b. Give a brief note on the databases and tools used for genome studies. (10 Marks)

Module-2

- 3 a. Define SNP's. Outline their types and importance. (10 Marks)
- b. Explain the functional genomics study of C.elegans. (10 Marks)

OR

- 4 a. Define genotyping. Outline the types of genotyping tools with its applications. (10 Marks)
- b. Explain in detail the genome of E. coli based on its genome project. (10 Marks)

Module-3

- 5 a. Explain in detail on mechanics of RNA silencing. (08 Marks)
- b. Describe in detail about genome organization with in chloroplast. (06 Marks)
- c. Explain - C - value of genome. (06 Marks)

OR

- 6 a. Discuss in detail about general architecture of prokaryotic and eukaryotic genome. (08 Marks)
- b. Illustrate on Gene editing-CRISPR -Cas 9. (06 Marks)
- c. Write a short note on regulation of transcription. (06 Marks)

Module-4

- 7 a. What are genetic and physical maps in genome mapping? Explain how RFLP can be used as a molecular marker in mapping. (10 Marks)
- b. Write short note on i) Micro-array in functional genomics ii) Transposon tagging. (10 Marks)

OR

- 8 a. Describe FISH as a means of physical mapping approach. (10 Marks)
- b. Discuss about : i) DD - RT PCR ii) Microsatellite as molecular Marqker. (10 Marks)

Module-5

- 9 a. Illustrate the principle and methodology of MALDI-TOF MS with its applications in proteomics. (10 Marks)
- b. Briefly explain the concept of 2D-PAGE for proteome analysis. (10 Marks)

OR

- 10 a. Explain the types of Protein chip with a note on assay fabrication, labeling and detection techniques. (10 Marks)
- b. Outline the concept of two hybrid interaction screens. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.