



Fifth Semester B.E./B.Tech. Degree Examination, June/July 2025

**Genomics, Proteomics and Bioinformatics**

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M: Marks, L: Bloom's level, C: Course outcomes.

		<b>Module – 1</b>			
Q.1	a.	Write a note on polymorphism. Add a note on early sequencing efforts.	10	L1	CO1
	b.	Discuss about Maxam and Gilbert DNA sequencing methods with a note sketch.	10	L1	CO1
<b>OR</b>					
Q.2	a.	With a neat sketch explain Sanger method of DNA sequencing. Add a note on shotgun method.	10	L1	CO1
	b.	Explain Transcriptomics (RNA) sequencing and Genome annotation in detail.	10	L1	CO1
<b>Module – 2</b>					
Q.3	a.	Describe general architecture of prokaryotic and eukaryotic genome with a neat sketch.	10	L1	CO1
	b.	Briefly discuss about single Nucleotide Polymorphism (SNP) in detail.	10	L1	CO1
<b>OR</b>					
Q.4	a.	Write a note on genome projects of drosophila and Arabidopsis thaliana.	10	L1	CO1
	b.	Explain RFLP and RAPD in detail.	10	L1	CO1
<b>Module – 3</b>					
Q.5	a.	Discuss about Two –dimensional PAGE for Prokon analysis with a neat sketch.	10	L2	CO2
	b.	Write a note on protein – protein interaction detectron by yeast two hybrid systems.	10	L2	CO2
<b>OR</b>					
Q.6	a.	Explain edman protein sequencing with a note sketch.	10	L1	CO2
	b.	How phage antibodies are used as tools for proteomics / phase display. With a neat sketch.	10	L2	CO2
<b>Module – 4</b>					
Q.7	a.	Discuss about various bioinformatics resources in detail.	10	L1	CO3
	b.	Explain three methods involved in Multiple Sequences Alignment (MSA) in detail.	10	L1	CO3
<b>OR</b>					
Q.8	a.	Write a note on phylogenetic tree. Explain tree building and tree evaluation briefly.	10	L1	CO3
	b.	Discuss about GenBank Flat file (GFF) format and FASTA format with an example.	10	L1	CO3
<b>Module – 5</b>					
Q.9	a.	Explain detecting functional sites in promos and predictions of transcription factor binding sites.	10	L1	CO3
	b.	Discuss about protein identity based on composition add a note on STRIDE and software.	10	L1	CO3
<b>OR</b>					
Q.10	a.	Write a note on restriction mapping with laboratory method. Add a note on utilities.	10	L1	CO3
	b.	Give a detailed note on 3D structure / molecular modeling in drug discovery.	10	L1	CO1

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