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# GIET UNIVERSITY, GUNUPUR – 765022

Ph.D. (Second Semester) Examinations, April – 2024

## PPEBTS2014 - Genetic Engineering

(Biotechnology)

Time: 3 hrs

Maximum: 70 Marks

The figures in the right-hand margin indicate marks.

### Answer ANY FIVE Questions

(14 x 5 = 70 Marks)

	Marks
1.a. Describe the mechanism of packaging of Eukaryotic chromosome.	7
b. Illustrate the different steps of Transcription process.	7
2.a. Describe the translation process in Prokaryotes.	7
b. Explain molecular mechanism of antisense molecules formation and functions.	7
3.a. Explain different types Transposable elements and their significance.	7
b. What are ribozymes? Classify it and write the working principle of ribozymes.	7
4.a. Explain Chain termination method of DNA sequencing.	7
b. Write notes on	7
(i) Ligase	
(ii) S1 nuclease	
(iii) Terminal deoxynucleotidyl transferase.	
5.a. What is Nucleic Acid Amplification? Discuss the principle and steps of PCR.	7
b. Explain the process of restriction Mapping of DNA Fragments and Map Construction	7
6.a. How will you perform site-directed Mutagenesis? Is it helpful for Protein Engineering? Justify your answer.	7
b. Give an account of the cloning of a target gene into a vector.	7
7.a. Explain different strategies of gene delivery.	7
b. What do you mean by Southern Blot? Explain its principle and steps.	7
8.a. Explain the process of expression and purification of tag-protein.	7
b. Discuss in details about the Gene Knockout Technologies.	7

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