

**GIET UNIVERSITY, GUNUPUR – 765022**

Ph.D. (Second Semester) Examinations, November – 2023

**PPEBT2014 – 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. Discuss in detail about the methods of excision repair.	7
b. Discuss on Prokaryotic DNA replication.	7
2.a. What do you mean by antisense? Explain molecular mechanism of antisense molecules formation and functions?	7
b. Discuss the role of transcription factors in eukaryotic transcription.	7
3.a. Explain Type I, Type II and Type II Restriction enzymes with examples.	7
b. Write notes on : (a) Ligases (b) s1 nuclease, (c) terminal deoxynucleotides.	7
4.a. What do you mean by cDNA? Explain different steps associated with synthesis of cDNA and library preparations?	7
b. Give an account of the cloning of a target gene into a vector.	7
5.a. What is genomic DNA library? Explain the steps of construction of genomic DNA library with suitable diagram.	7
b. Explain the basic steps and applications of protein engineering.	7
6.a. How will you perform Reporter assays? Explain with an example.	7
b. Explain the expression and purification of tag-protein.	7
7 a. Discuss the strategies of expression of heterologous gene in bacteria.	7
b. Write down the process of purification of recombinant protein.	7
8 a. Write note on 5' capping and polyadenylation process to primary transcript.	7
b. Describe different steps of Transcription.	7

---End of Paper---