

**VIT[®]**

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act 1956)

School of Bio Sciences and Technology**Fall Semester 2024- 2025****Continuous Assessment Test – I****Programme Name & Branch: M.Sc., Integrated Biotechnology****Course Name & code: Genetic Engineering (TBIT203L)****Class Number (s): 1191 & 4124****Slot : D1 & TD1****Faculty Name (s): Dr. S. Asha Devi & Dr. Kanagavel Deepankumar****Exam Duration: 90 Min.****Maximum Marks: 50****Answer ALL the questions (10X5=50 Marks)**

Q.No.	Questions
1.	Classify restriction endonucleases and comment on the practical reasons why Type-II enzymes are used in cloning.
2.	A plasmid DNA (5kb) is cleaved with restriction enzymes <i>Hind</i> III and <i>Sam</i> I individually and then with combination of these two enzymes. Fragments size with <i>Hind</i> III cut: 4.5 kb, 0.5 kb, Fragments size with <i>Sam</i> I cut: 3.0 kb, 2.0 kb Fragments size with both <i>Hind</i> III and <i>Sam</i> I cut: 2.5 kb, 0.5 kb and 2.0 kb. Using these information construct a restriction map of the plasmid DNA.
3.	Differentiate T4 and <i>E coli</i> DNA ligases and mention their role in recombinant DNA technology.
4.	Compare the recombinant selection procedure between pBR322 and pUC vectors.
5.	Distinguish between YAC and BAC.