COURSE CODE:18B11BI412   MAX. MARKS: 25
COURSE NAME: Genetic Engineering and Genomics
COURSE CREDITS: 03   MAX. TIME: 1 Hour 30 Min

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q.1

a. Cohesive end ligation is specific but blunt end ligation is not. Justify the statement.
b. How can recircularization of vectors be prevented during recombinant DNA construction?
c. Explain the mechanism of DNA ligation? Figure out the differences between T4 and *E. coli* ligases.

[2+2+4 = 8] CO II

Q.2

a. What are linkers and adapters?

b. Show with help of labeled diagrams the use of linkers and adapters to join DNA fragments? What are limitations of linkers?

[2+4 = 6] CO III

Q.3

a. How would you interpret if a plasmid being specified as i) Resistance plasmid ii) Virulence plasmid
b. You are given a DNA fragment with 5' overhangs. Mention any two methods to convert into a blunt end fragment.
c. Why a vector should have i) relaxed control of replication ii) Markers genes iii) Promoter and ribosomal binding sites

[2+2+3 = 7] CO II

Q.4

Why do PCR products require special methods for cloning? Enlist different possible solutions to the problem and describe TA cloning? How is TOPO TA cloning different from TA cloning?

[4] CO II