JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- FEB-2023

COURSE CODE (CREDITS): 18B11BI412 (3) MAX. MARKS: 15

COURSE NAME: GENETIC ENGINEERING AND GENOMICS

COURSE INSTRUCTORS: DR. JATA SHANKAR

MAX. TIME: 1 Hour

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

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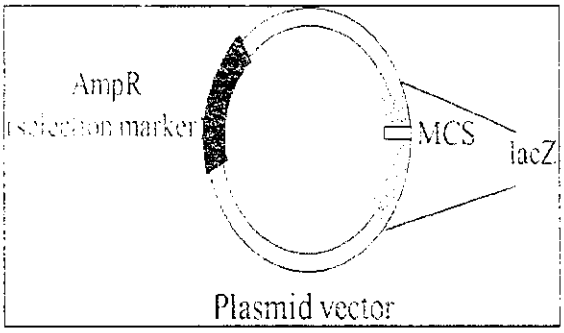
1. Restriction endonuclease recognizes specific region of the nucleotide sequences; what are the different type of restriction endonulceases and their key features? [3 marks] CO I

2. pBR322 is a cloning vector; what is the size of the vector, when and who constructed it, and how many copies pBR322 a bacterial host cell can accommodate. Also, draw the structure of pBR322? [3 marks] CO II

3. pUC8 vector is a insertional inactivation cloning vector, describe the mechanism of screening of the transformed and recombinant pUC8 vector into a host cells? [3 marks] CO II



4. Bacteriophages, or phages as they are commonly known, are viruses that specifically infect bacteria. Phages are very simple in structure, consisting merely of a DNA (or occasionally ribonucleic acid (RNA)) molecule carrying a number of genes, including several for replication of the phage, surrounded by a protective coat or capsid made up of protein molecules. Describe the genetic map of wild type bacteriophage λ cloning vector indicating clusters functional related genes? [3 marks] CO II

5. Short notes on the following: [1 marks each] CO I

a. Humulin

b. Ligase

c. Kinase and phosphatase