

**B.TECH DEGREE EXAMINATIONS: NOV/DEC 2014**

(Regulation 2009)

Fifth Semester

**BIOTECHNOLOGY**

BTY112: Genetic Engineering

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

- Identify the enzyme that degrade DNA molecules by breaking phosphodiester bonds that link the nucleotides
  - Nuclease
  - Protease
  - Alkaline phosphatase
  - Polynucleotide kinase
- Select the chemical used in competent cell preparation for transformation.
  - Ammonium sulphate
  - Calcium chloride
  - Sodium chloride
  - Ethidium bromide
- Which among the following vector system contains a opine region?
  - Lambda phage
  - pUC19
  - BAC
  - Ti
- Choose among the following vector system that contains telomeric region.
  - TMV
  - ARS
  - YAC
  - pET
- Identify the optimum temperature used for primer extension in PCR.
  - 72 degree Celsius
  - 40 degree Celsius
  - 95 degree Celsius
  - 80 degree Celsius
- Which among the following is not a radio isotope used as a probe?
  - $^{32}\text{P}$
  - $^{35}\text{S}$



- b) (i) Compare the types DNA modifying enzymes used in rDNA technology. (8)
- (ii) Explain the microinjection method of gene transfer. (6)
22. a) (i) Elaborate the manipulations involved in the construction of pBR322 cloning vector. (8)
- (ii) List out the basic properties of a cloning vector. (6)
- (OR)**
- b) (i) Discuss the types of yeast vectors. (8)
- (ii) Distinguish between BAC and YAC vectors. (6)
23. a) (i) Illustrate the construction method of genomic DNA library. (8)
- (ii) Construct the basic colony hybridization method of library screening. (6)
- (OR)**
- b) (i) Relate the hairpin model of construction of cDNA library. (8)
- (ii) Apply immunoaffinity method for the purification of recombinant protein. (6)
24. a) (i) Summarize the steps of Southern blotting. (8)
- (ii) Identify the application of Southern blotting techniques. (6)
- (OR)**
- b) (i) Demonstrate the Maxam-Gilbert method of DNA sequencing. (8)
- (ii) Interpret the applications of RAPD in rDNA research. (6)
25. a) Evaluate the role of GMOs in medicine.
- (OR)**
- b) Elaborate the gene knock-out technique used in rDNA research.

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