QP Code: RN22BTECH227 | Reg. No | | | | | | | | | | | AR 22

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Fifth Semester - Regular) Examinations, November – 2024

22BBTPC35001 – Genetic Engineering and r-DNA Technology

(Biotechnology)

Time: 3 hrs | Maximum: 70 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Write down the functions of Ligase in r-DNA technology.	CO1	K1
b. Differentiate between isoschizomers and neoschizomers with examples.	CO2	K1
c. How to avoid re-circularization of a DNA digested with restriction enzyme?	CO3	K2
d. Emphasize the applications of DNA foot printing,	CO4	K1
e. Define gene knockout. Give an example of a knockout organism.	CO3	K1

PART – B **(15 x 4 = 60 Marks)**

Answer ***All*** the questions	Marks	CO #	Blooms Level
2. a. Write the functions and reaction mechanism of Polynucleotide kinas and Alkaline phosphatase.	7	CO1	K2
b. Explain the cloning mechanism by using Bacteriophage vector.	8	CO1	K2
(OR)			
c. Discuss the mechanism of cloning using YAC vector.	7	CO1	K2
d. Explain the steps of isolation and purification of DNA.	8	CO1	K2
3.a. Explain the process of preparation cDNA and construction of cDNA library.	8	CO2	K2
b. Write the mechanism and importance of three hybrid system with diagram	7	CO2	K2
(OR)			
c. Illustrate the method of preparation of DNA chips.	7	CO2	K2
d. Discuss how RT-PCR is important for detection of gene expression.	8	CO2	K2
4.a. Explain the principle and techniques of Maxam and Gilbert's method.	8	CO3	K2
b. Discuss briefly about any two methods of screening of recombinants.	7	CO3	K3
(OR)			
c. Discuss the strategies used to expression of heterologous gene in prokaryotic cells.	8	CO3	K3
d. Define Ribozyme? Classify and explain the types with applications	7	CO3	K1
5.a. Write the types, strategies and advantages of gene therapy.	8	CO4	K1
b. Define site directed mutagenesis. Explain the process of mutagenesis using M13 DNA.	7	CO4	K2
(OR)			
c. Dicuss on molecular marker. Explain the principle and techniques of RFLP	8	CO4	K2
d. How 16S rRNA sequencing is used for genome analysis? Explain.	7	CO4	K2

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