QP Code: RJ22MSC051 | Reg. No | | | | | | | | | | | AR 22

GIET UNIVERSITY, GUNUPUR – 765022

M. Sc (Second Semester) Regular Examinations, July – 2023

22BTPC201 – Genetic Engineering (Biotechnology)

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART – A **(2 x 10 = 20 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Give the process of naming of restriction enzymes with example.	CO1	K3
b. What is nick translation? Write its use.	CO1	K1
c. How can you avoid re-circularization of DNA digested by restriction enzymes?	CO1	K2
d. Emphasize the use of south-western hybridization.	CO1	K3
e. Write the use of Ti and Ri vectors.	CO2	K1
f. Illustrate the role of affinity tag sequences in expression vector?.	CO2	K3
g. Four numbers of templates DNA were taken for PCR amplification for 6 cycles with 90% efficiency. Calculate the number of expected PCR products.	CO2	K3
h. Write the importance of reverse transcriptase in r-DNA Technology.	CO3	K1
i. What is two hybrid assays? Write its importance.	CO3	K1
j. Define the transgenic organism with suitable examples.	CO4	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ANY FIVE*** questions	Marks	CO #	Blooms Level
2. a. Discuss various methods of labelling of DNA with proper diagram.	7	CO1	K2
b. Differentiate between linkers and adapters with proper diagram.	3	CO1	K2
3.a. What is blotting? Explain the steps of northern blotting with its use.	6	CO1	K1
b. Write notes on colony hybridization with diagram.	4	CO1	K1
4. a. Explain the mechanism of cloning using λ-phage DNA as cloning vector.	6	CO2	K1
b. Discuss the methods of purification recombinant protein using HIS-Tag.	4	CO2	K2
5.a. Illustrate the mechanism of expression of recombinant protein in Baculovirus expression system.	5	CO2	K3
b. Diagrammatically explain the principle and steps of PCR.	5	CO3	K3
6. a. Explain the principle and steps of Chemical degradation method of sequencing.	5	CO3	K1
b. Illustrate the mechanism of c-DNA synthesis with proper diagram.	5	CO3	K3
7.a. Discuss briefly about the methods of transformation of recombinant DNA to host cells.	7	CO3	K2
b. Write notes on phage display.	3	CO4	K1
8. a. Explain in details about the process of gene knockout technology.	5	CO4	K1
b. Discuss the approaches used in gene therapy with suitable diagram.	5	CO4	K2

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