Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U6D01

B.E./B.Tech. DEGREE EXAMINATION, NOV 2025

Sixth Semester

Biotechnology

21UBT601 GENETIC ENGINEERING

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1.	Define the principle of RFLP and its markers	CO1- U
2.	Explain about the Homo polymeric tailing	CO1- U
3.	Differentiate between genomic and CDNA libraries	CO2- App
4.	What is a cloning vector?	CO1- U
5.	Compare Single and multiple point mutations	CO2- App
6.	How can PCR product be cloned into a vector?	CO1- U
7.	What are the general characteristics of a vector?	CO1- U
8.	Define cloning in biotechnology	CO1- U
9.	What are the limitations of MLPA?	CO1- U
10.	Is CRISPR a diagnostic tool?	CO1- U

PART – B (5 x 16= 80 Marks)

11.	(a)	How does the RFLPS contribute to genetic mapping?	CO1 - U	(16)
		Or		
	(b)	Explain about the Gene cloning and the cloning vector and its characteristics in detail.	CO1 - U	(16)
12.	(a)	Discuss in detail about the screening of DNA libraries using nucleic acid probes and antisera probes used for hybridization	CO2 - App	(16)
		Or		
	(b)	Clarify chromosomal walking and its methodologies, as well as its applications, benefits, and drawbacks.	CO2 - App	(16)

13.	(a)	Describe in detail about various types of mutations	CO1 - U	(16)
		Or		
	(b)	Write short notes on the following (i) Hot start PCR (ii) Nested PCR (iii) Real time PCR (iv) Inverse PCR	CO1 - U	(16)
14.	(a)	What is the process involved in molecular cloning and explain about cloning vectors in detail?	CO1 - U	(16)
		Or		
	(b)	Explain the bacterial, yeast, insect and mammalian expression systems	CO1 - U	(16)
15.	(a)	This transgenic crop is a crop whose genes are altered by manipulation and it is the only permitted GM crop in India, in which the soil is obtained by hybridization of two foreign genes with the bacterium" *Bacillus thuringiensis*"	CO1 - U	(16)
		Or		
	(b)	Explain in detail about the concepts and applications of Interpret transcriptional and post transcriptional gene silencing phenomena.	CO1 - U	(16)