

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: U6D01

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

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 CO1 - U (16)
(i) Hot start PCR
(ii) Nested PCR
(iii) Real time PCR
(iv) Inverse PCR
14. (a) What is the process involved in molecular cloning and explain CO1 - U (16)
about cloning vectors in detail?
Or
- (b) Explain the bacterial, yeast, insect and mammalian expression CO1 - U (16)
systems
15. (a) This transgenic crop is a crop whose genes are altered by CO1 - U (16)
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*”
Or
- (b) Explain in detail about the concepts and applications of Interpret CO1 - U (16)
transcriptional and post transcriptional gene silencing
phenomena.