

M.Sc Sem.-2 Examination

P - 408

Biotechnology

June 2022

Time : 2-00 Hours]

[Max. Marks : 50

Instructions:

All questions in Section-I carry equal marks. Attempt any **THREE** questions in section 1

All questions in Section-II are **compulsory** and each carries **1 mark**

Section-I

- | | | | |
|-----|----|--|---|
| Q-1 | A. | Explain the generalized model of operon and how operon serves to regulate gene regulation. | 7 |
| | B. | Explain negative control of Lac operon. | 7 |
| Q-2 | A. | Explain the lysogenic induction of Lambda phage and discuss in detail the functionality of Lambda repressor protein. | 7 |
| | B. | Describe the lytic induction of Lambda phage and discuss in detail the functionality of cro protein. | 7 |
| Q-3 | A. | Explain ligases and ligation. | 7 |
| | B. | Write about the linkers and adapters. | 7 |
| Q-4 | A. | Explain cDNA library preparation | 7 |
| | B. | Discuss Sanger Coulson method for DNA sequencing. | 7 |
| Q-5 | A. | Explain pUC18 as vector. | 7 |
| | B. | Enlist the types of vectors and discuss cosmid as vectors. | 7 |
| Q-6 | A. | Write a note on reporter genes and their functions. | 7 |
| | B. | Explain colony hybridization technique. | 7 |
| Q-7 | A. | Write a short note on 'Southern hybridization'. | 7 |
| | B. | Define an array and discuss various types of microarrays. | 7 |
| Q-8 | A. | Discuss DNA finger printing and its applications. | 7 |
| | B. | Write a short note on 'RAPD and RFLP'. | 7 |

Section-II

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|------|----|--|---|
| Q- 9 | 1. | What is the difference between lactose and allolactose? | 1 |
| | 2. | Which region of lambda protein has DNA binding property? | 1 |
| | 3. | _____ is the recognition sequences of <i>Bam</i> HI. | 1 |
| | 4. | Write any two properties of cDNA library. | 1 |
| | 5. | _____ and _____ are the marker genes present in pBR322. | 1 |
| | 6. | Write any three properties of a good vector. | 1 |
| | 7. | What are the advantages of DNA chips? | 1 |
| | 8. | _____ is used for radioactive labelling of probes. | 1 |