

[Time: - 3 Hours]**[Marks: 75]**

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Figures to the right indicate full marks.
 3. Draw neat labelled diagrams wherever necessary.

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|---|-----------|
| 1. Describe the technique of physical mapping of gene. | 15 |
| OR | |
| 1. Describe | |
| a. Southern blotting technique | 8 |
| b. Retrovirus. | 7 |
| 2. Describe gene expression in eukaryotes. | 15 |
| OR | |
| 2. Write notes on:- | |
| a. Increasing protein production and secretion in prokaryotes | 8 |
| b. Isolation of functional promoters | 7 |
| 3. What is DNA microarray? Explain its application in human health care | 15 |
| OR | |
| 3. Write notes on:- | |
| a. Objectives of human genome project | 8 |
| b. Random amplified polymorphic DNA | 7 |
| 4. Describe recombinant DNA technology to prevent animal diseases. | 15 |
| OR | |
| 4. Give an account on | |
| a. Cell adhesion based therapies | 8 |
| b. Regulatory requirements for safety of genetically engineered chymosin. | 7 |
| 5. Write short notes on | |
| a. pBR322 | 5 |
| b. Translation expression vectors | 5 |
| c. Limitation of positional cloning | 5 |
| OR | |
| 5. Write short notes on | |
| a. Gene transfer by electroporation | 5 |
| b. Introduction of DNA into yeast | 5 |
| c. Antibody engineering. | 5 |
