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( February )

BIOTECHNOLOGY

( Honours )

( Recombinant DNA Technology )

Marks : 56

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

Answer Question No. **1** which is compulsory and  
any **four** from the rest

1. Write briefly on the following : 2×6=12
- (a) X-gal
  - (b) Chimera
  - (c) Adapters
  - (d) MCS
  - (e) Gene amplification
  - (f) Primase

2. (a) Define genome. What is genomic library? Support your answer with suitable examples. 1+3=4
- (b) Discuss the mechanism of the enzyme which is used to covalently bond foreign DNA to a vector plasmid. 4
- (c) Why are fungi not used as a cloning vector? 3
3. (a) "Some enzymes recognize and clear specific 4 to 8 base pair sequences." What are they called? Discuss their role in rDNA technology. 1+4=5
- (b) Discuss the nomenclature of restriction enzymes with two examples. 6
4. Write on the following : 5½×2=11
- (a) Electroporation
  - (b) Microinjection
5. (a) Define containment facility. Explain their types. 5
- (b) What are cell lines? Write about the application of cell lines in rDNA technology. 1+5=6

( 3 )

6. (a) Describe the role of selectable markers and opine genes in transgenic organism. 5
- (b) What is gene therapy? How is it useful in genetic engineering? 6
7. (a) Describe few host strains of bacteria used in rDNA experiments. 4
- (b) Differentiate between plasmid and cosmid vectors. 4
- (c) Differentiate between blunt and sticky ends. 3
8. (a) Define gene gun. Explain in detail the ballistic method of gene delivery. 6
- (b) Describe the process of insertion of DNA molecule into a vector. 5

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