2022

(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

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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