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Unit–IV

4. (A) What are ribozymes ? **2**

(B) How can expression of a gene can be augmented ? **2**

(C) How is gene silencing is achieved by mi-RNA ? **4**

Or

Write a short note on application of CRISPR/ Cas-9 technology.

(D) Write a note on protein engineering. **12**

Or

What is Tet on and Tet off system for deoxycyclin inducible gene expression ?

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Roll No. ..... **Total No. of Sections : 4**

Total No. of Printed Pages : 4

Code No. : B03/208

III Semester Examination

M.Sc.

BIOTECHNOLOGY

Paper II

[Genetic Engineering]

Time : Three Hours] [Maximum Marks : 80

[Min. Passing Marks : 16

Note : *Part A and B of each question in each unit consists of Very Short Answer Type Questions which are to be answered in one or two sentences. Part C (Short Answer Type) of each question will be answered 200-250 words. Part D (Long Answer Type) of each question should be answered within the word limit 400-450.*

Unit–I

1. (A) Write the function of RNase P. **2**

(B) Differentiated between sticky end and blunt DNA of the DNA. **2**

(C) Write about various types of ligases and their properties. **4**

Or

Explain the process of analysis of bands of nucleic acid in electrophoresis.

(D) Write in detail about various kinds of restriction modification enzymes, their nomenclature, properties and uses. **12**

Or

Describe various in situ hybridisation techniques the probes used and their application.

Unit–II

2. (A) Write about the properties of an ideal cloning vector. **2**

(B) What is gene gun ? **2**

(C) Differentiate between various expression and cloning vectors. **4**

Or

What is alpha complementation ?

(D) Discuss various cloning vectors based on plasmid and bacteriophages. **12**

Or

Discuss various methods of screening of a recombinant.

Unit–III

3. (A) Write the applications of genomic library. **2**

(B) What are STS ? **2**

(C) What is star activity of a restriction enzyme ? Distinguish between type II and IIs restriction enzymes. **4**

Or

Compare AFLP, RAPD and RFLP.

(D) What is PCR ? Explain detailed mechanism of inverse PCR, nested PCR and quantitative PCR. **12**

Or

Explain the steps involves in generation of a genomic library.