B.Sc. (Part-III) (CBCS Pattern) Semester - VI

USBCDST-14 - DSE : Biochemistry-II
Protein Synthesis and Recombinant DNA Technology

P. Pages : 2 **GUG/S/23/13338**

Time : Three Hours * 1 8 8 4 * Max. Marks : 50

Notes : 1. All questions are compulsory and carry equal marks.
2. Draw well labelled diagrams wherever necessary.

1. Explain in detail the following phases of translation. **10**

i) Initiation

ii) Elongation &

iii) Termination

OR

a) What is the role of A & P sites?

b) Draw a well labelled diagram of f-met tRNA.

c) What is proteolytic modification of protein?

d) Write a note on preinitiation complex.

2. Write a detailed note on regulation of tryptophan operon. **10**

OR

a) Draw only the structure of lac operon.

b) Write a short note on DNA binding domains.

c) Explain the transcriptional regulation in λ bacteriophage.

d) What is negative and positive regulation?

3. What are vectors? Discuss the following types of vectors: **10**

i) p^{BR322} ii) Cosmids

iii) P^{UC18}

OR

a) Explain the restriction modification system.

b) What is the use of linkers.

c) With suitable examples discuss the formation of sticky and blunt ends.

d) Write a note on shuttle vectors.

4. Discuss the following selection methods in detail. **10**

i) Selection by use of antibiotic resistance

ii) Blue-Write screening

OR

a) Explain the use of electroporation.

b) Describe the formation of insulin by using rDNA technology.

c) Write a note on herbicide resistance.

d) What are the advantages of cDNA library?

5. Attempt **any ten** of the following.

a) What is charged tRNA? **1**

b) What is the base sequence of shine & Dalgarno sequence? **1**

c) What is the role of EF-G? **1**

d) What is activator? **1**

e) Write the full form of IPTG. **1**

f) What is genetic recombination? **1**

g) What is rDNA technology? **1**

h) Write the use of adaptors? **1**

i) What is the expression vector? **1**

j) Define blotting technique. **1**

k) Enlist any two applications of PCR. **1**

l) Why are type II restriction endonucleases preferred in rDNA technology? **1**

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