

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

P. Pages : 2

Time : Three Hours



**GUG/W/24/13338**

Max. Marks : 50

- Notes :
1. All questions are compulsory.
  2. All questions carry equal marks.

**1. Discuss in detail formation of pre-initiation complex. 10**

**OR**

- a) Discuss the structure of tRNA molecule. **2½**
- b) Write a note on ribosome structure. **2½**
- c) Discuss post translational modification of proteins. **2½**
- d) Discuss rho dependent termination of protein synthesis. **2½**

**2. Describe in detail of lac operon. 10**

**OR**

- a) Briefly describe the trp operon. **2½**
- b) What is positive regulation? Describe with example. **2½**
- c) Discuss transcriptional regulation in  $\lambda$  bacteriophage. **2½**
- d) Write a note on regulation by genetic recombination. **2½**

**3. What is Vector? Discuss in detail pBR322 and pUC18 plasmids. 10**

**OR**

- a) What is restriction-modification system? **2½**
- b) Discuss homopolymer tail joining. **2½**
- c) Write a note on Lambda insertion and replacement vectors. **2½**
- d) Give characteristics of an ideal vector. **2½**

4. Discuss in details following methods of transformation 10
- i) Calcium-phosphate precipitation    ii) Electroporation

**OR**

- a) Write a note on blue-white screening. 2½
- b) Discuss the screening by western blotting. 2½
- c) Write a note on genomic library. 2½
- d) Give the application of PCR. 2½
5. Attempt **any ten** of the following:
- a) What is meaning of EF-Tu? 1
- b) Give the role of RF1. 1
- c) What is meaning of charging of t-RNA? 1
- d) What is repressor? 1
- e) What is promoter? 1
- f) Give one example of DNA binding domain. 1
- g) What is meaning of sticky end? 1
- h) What is adaptor? 1
- i) What is cosmid? 1
- j) What is recombinant vaccine? 1
- k) In Bt. Cotton, Bt. stands for ----- 1
- l) What is gene therapy? 1

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