8. (a) What do you mean by positive and negative operon system ? Explain the process of attenuation in details. **15**

(b) Describe the structure of RNA polymerase of *E.coli.* **5**

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M. Sc. EXAMINATION, May 2019

(First Semester)

(C Scheme) (Re-appear)

BIO-TECHNOLOGY

BT505MSC

Cell and Molecular Biology

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. Explain the G-Protein signaling pathway in details with proper illustrations. How does cAMP act as a second messenger in regulation of cellular metabolism ? **20**

2. (a) Depict and explain the sequence of events for transportation of protein from cytosol into nucleoplasm. **10**

(b) Discuss the mechanism of Na^+/K pump for transportation of ions. **10**

3. Write short notes following : **5×4=20**

(a) Oxidative phosphorylation

(b) Symporter and antiporter

(c) Gel Electrophoresis

(d) Cyclin dependent Kinase (CdK).

Unit II

4. (a) Discuss ultrastructure of Cell Membrane in details. How the cell membrane maintains its stability at lower and higher temperature ? **10**

(b) What type of changes take place in protein before release in golgi body ? Explain with the help of neat diagram. **10**

5. (a) Discuss the repair mechanisms which help to remove pyrimidine dimers. **10**

(b) What is C value paradox ? Write in details the importance of Cot Curve and what information could be drawn from it. **10**

6. Write short notes following : **5×4=20**

(a) Twist and Writhe

(b) B and Z DNA

(c) Theta replication

(d) DNA topoisomerase II.

Unit III

7. Explain the mechanism(s) of intron removal from native *m*RNA molecule. Elaborate with the help of neat diagram. **20**