

MSc Sem.-1 Examination

403

Bio-Technology

February-2025

Time : 2-30 Hours]

[Max. Marks : 70

Q.1 Answer the following

Write a detailed note on types of plasmids 14

or

(a) Write a note on specialized transduction 7

(b) Discuss bacterial conjugation 7

Q.2 Answer the following

Explain the structure and life cycle of T7 bacteriophage with its molecular mechanisms 14

or

(a) Describe the process of DNA replication in T4 phage. 7

(b) Explain Ordered tetrad analysis with suitable example 7

Q.3 Answer the following

Describe the organization of eukaryotic chromosome in detail 14

or

(a) Explain molecular mechanism of initiation and elongation of prokaryotic DNA replication 7

(b) Explain activation of amino acids and describe molecular mechanism of initiation of translation. 7

Q.4 Answer the following

2. Write a note on Normal distribution curve and describe its characteristics 14

Or

(P.T.O)

(a) Find the mean, median and mode of the following data set

7

Score	10	9	8	7	6	5
Number of students	7	15	5	5	15	2

(b) Find the correlation of given data and write a comment on it:

7

Temperature (°C)	37	42	47	52	57
Bacterial Growth Rate (OD600nm)	0.6	0.7	0.8	0.4	0.1

Q.5 Answer the following(Any Seven)

14

- (a) What are chemically competent cells?
- (b) What is plasmid segregation
- (c) What is plasmid copy number?
- (d) What is mono-hybrid cross?
- (e) What is Centi-Morgan?
- (f) What do you mean by the term 'Linkage'?
- (g) Describe the importance of Histone-H1.
- (h) Write on linker DNA and its importance
- (i) Mention two differences between mRNA and rRNA
- (j) What is the difference between Standard deviation and Variance
- (k) What is the X scale and Z-scale in normal distribution curve.
- (l) What is ratio scale data