

## M.Sc. Sem.-1 Examination

403

Bio-Technology

January-2024

Time : 2-30 Hours]

[Max. Marks : 70

Q.1 Answer the following

Discuss the modes of gene exchange in Bacteria 14

or

(a) Write a note on artificial transformation in bacteria 7

(b) Write a note on Virulence plasmids 7

Q.2 Answer the following

Explain the structure and life cycle of T4 bacteriophage with its molecular mechanisms. 14

or

(a) Explain the structures of T4 and T7 bacteriophages 7

(b) Explain Ordered tetrad analysis with suitable example 7

Q.3 Answer the following

Define transcription and explain molecular mechanism of transcription in detail. 14

or

(a) Write on the enzymes used in replication of prokaryotic DNA. 7

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

Q.4 Answer the following

Write a note on Measures of Dispersion and provide suitable example 14

or

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(a)

7

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

Temperature (°C)	37	42	47	52	57
Bacterial Growth Rate (OD600nm)	0.9	0.6	0.5	0.2	0.1

(b) Explain the meaning of Data and discuss different types of data sets used in biostatistics with suitable example.

7

Q.5 Answer the following(Any Seven)

14

- (a) What are chemically competent cells?
- (b) What is plasmid incompatibility?
- (c) What are ColE1 plasmids
- (d) What is difference between T-odd and T-even bacteriophages?
- (e) What are sticky ends in T4 genome?
- (f) What is di- hybrid cross?
- (g) Write on non sense codones and its importance
- (h). What do you understand by Ori C
- (i) Write on eukaryotic origin site for replication
- (j) What is the degree of freedom for a 3x4 contingency table?
- (k) For 5 test scores for Calculus are 95, 83, 92, 81, 75. What is the mean?
- (l) For the data 9, 6, 7, 10, 9, 4, 9, 2, 9, 10, 7, 7, 5, 6, 7, calculate Median and Mode

—X—