

M.Sc Sem-3 Examination**503****Biochemistry****Time : 2-30 Hours]****November-2024****[Max. Marks : 70****Instructions:** All questions in Sections I & II carry equal marks

Illustrate your answers with neat diagrams wherever necessary.

Question 1 Write the following

- (i) What are measures of central tendency? (7 Marks)
- (ii) Give the difference between descriptive and inferential statistics. (7 Marks)

OR

- (i) Write the difference between parametric and non-parametric tests. (7 Marks)
- (ii) In a hypothetical condition, if my data does not fit in normal distribution and I want to compare the mean difference between the control and the sample groups, which statistical test can I apply? Explain the test in detail. (7 Marks)

Question 2 Write the following

- (i) Write short notes on various interpretation techniques in research. (7 Marks)
- (ii) Write a short note on protein information resource (PIR). (7 Marks)

OR

- (i) What are the various steps in report writing? Explain in detail. (7 Marks)
- (ii) Write short notes on the research hypothesis and its types (7 Marks)

Question 3 Write the following

- (i) Write a note on Specimen preparation for Electron Microscopy and Staining (7 Marks)
- (ii) Explain the principle and working of the Dark Field Microscope. Add its applications (7 Marks)

OR

- (i) Describe the principle and instrumentation of the Differential Interference Contrast Microscope. Add its applications (7 Marks)
- (ii) Discuss the principle and technique of scanning transmission electron microscopes. Add its applications. (7 Marks)

Question 4 Write the following

- (i) Explain the significance of aeration and agitation in fermentation technology. (7 Marks)
Discuss the equipment used for aeration and agitation.
- (ii) Explain the isolation of industrial important microorganisms (7 Marks)

OR

- (i) Explain the filtration as a method for separation of fermentation product (7 Marks) from fermented broth
- (ii) What is Screening? Explain the Primary screening of antibiotic-producing (7 Marks) bacteria

Question 5 Attempt any seven out of twelve

(14 Marks)

- (i) What is the quartile range?
- (ii) What are the different measures used to check the normal distribution of the data?
- (iii) Write the name of different statistical software.
- (iv) What is the false positive error?
- (v) What are the different objectives of research?
- (vi) What are the types of research?
- (vii) What are some common bioinformatics tools and software?
- (viii) What are biological databases, and what types exist?
- (ix) Enlist the Types of Eyepieces used in Light Microscope
- (x) Enlist axial Optical aberration in Microscope
- (xi) Explain the working and use of Baffles.
- (xii) Give three fermented food product produced by fermentation