

B.Sc. Semester - 2 (NEP-2020) Examination**JUNE – 2024****MIC: Basic Computer & Biostatistics (Multidisciplinary Course)****Time: 2:00 Hours****Marks: 50****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

- Que:1 (1) What are the fundamental components of a computer system? Define the role of CPU in computer system? (05)
- (2) Describe the five generations of computers and highlight the key technological advancements in each generation. (05)
- OR
- Que:1 (1) Compare and contrast the basic features and functionalities of Windows and Unix operating systems. (05)
- (2) Give examples of hardware components in a computer system. Differentiate between hardware and software. (05)
- Que:2 (1) Describe the concept of sampling distribution. How does sample size affect the shape of the sampling distribution? (05)
- (2) Describe the concept of sampling errors. What are the common causes of sampling errors, and how can they impact statistical analysis? (05)
- OR
- Que:2 (1) Define the terms 'sample' and 'population' in the context of statistics. Highlight the differences between them with examples (05)
- (2) Define non-parametric statistics. How do non-parametric tests differ from parametric tests in terms of assumptions? (05)
- Que:3 (1) What are measures of dispersion? Describe how standard deviation and variance are calculated and interpreted in a dataset. (05)
- (2) Discuss the method of regression analysis. How does it differ from correlation, and what are its applications in statistical analysis? (05)
- OR
- Que:3 (1) Define probability in the context of statistics. Differentiate between discrete and continuous random variables, providing examples of each. (05)
- (2) What is curve fitting in statistics? Describe the process and its significance in data analysis. (05)
- Que:4 (1) Define the concepts of hypothesis testing, level of significance, and degrees of freedom. Why are these concepts crucial in statistical tests? (05)
- (2) Describe the procedure and applications of large sample tests based on normal distribution. When is it appropriate to use these tests? (05)
- OR
- Que:4 (1) Differentiate between the t-test, Z-test, and F-test. Provide examples of scenarios where each test would be appropriately applied. (05)
- (2) Discuss the Chi-square test. What are its uses, and how is it applied in testing for independence and goodness of fit? (05)
- Que:5 (1) Convert the following binary number to decimal and hexadecimal: 10110110 (05)
- (2) What is censoring in statistical analysis? Explain the different types of censoring that can occur in a dataset (05)
- OR
- Que:5 (1) Explain the concept of correlation. How is the correlation coefficient calculated, and what does it signify about the relationship between two variables? (05)
- (2) What is Distribution-Free Test? Explain its importance in biological sciences? (05)
