

First Semester MD/MS Ayurveda Supplementary Examinations
November 2025
Biostatistics
(2024 Scheme)

Time: 3 hrs

Max marks: 100

- Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space
- Answer all parts of a single question together • Leave sufficient space between answers.
- Simple calculator shall only be permitted

Application based question**(20)**

1. A clinical researcher is studying the effectiveness of a new drug to prevent surgical wound infection. In a clinical trial, 30 out of 150 patients treated with the drug developed an infection.
- Define probability in the context of this clinical study and calculate the probability that a patient develops an infection while on the new drug.
 - What is the probability that out of 4 randomly selected patients, exactly 2 developed an infection.
 - Identify and justify the probability distribution used in this scenario.
 - Calculate the probability that none of the 4 selected patients developed an infection.
 - Explain two real-world situations in healthcare where such type of distribution is applicable.

(3+5+3+4+5)**Short answer questions****(8x5=40)**

- Differentiate between Pearson and Spearman correlation coefficients.
- State and explain the laws of probability.
- Explain the concept of level of significance and power of a test.
- Explain the assumptions, interpretations and applications of Z-test in clinical research.
- Differentiate between Kruskal-Wallis and Friedmann's tests.
- Write a note on vital statistics and its applications.
- Define linear regression and its applications.
- What is an unpaired t-test. Mention its assumptions, formula, and explain with an example.

Long answer questions**(4x10=40)**

- Elaborate the use of mortality statistics in assessing public health interventions. How does cause-specific mortality data guide policy makers.
- Discuss the role of data classification and graphical presentation in ensuring accurate interpretation of biomedical data.
- Explain the assumptions, uses and interpretations of an F test with suitable example.
- Discuss the basics of non-parametric methods and their implications in biomedical research. Differentiate between parametric and non-parametric tests with their utility. Explain the applications of Chi-square test in detail.
