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School of Biological and Life sciences

Bachelor of Science Honours in Microbiology

Mid Term Examination - Mar 2024

Duration : 90 Minutes

Max Marks : 50

Sem VI - P1UC602T - Biostatistics

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

- 1) How does a representative sample size differ from a non-representative sample size? K2 (2)
- 2) Explain the concept of measures of dispersion in statistics. How do they complement measures of central tendency in providing a comprehensive summary of a dataset? K1 (3)
- 3) To graduate, Linda needs at least a B in biology. She did not do very well on her first three tests; however, she did well on the last four. Here are her scores: 58 67 60 84 93 98 100 Compute the mean and determine if Linda's grade will be a B (80 to 89 average) or a C (70 to 79 average). K2 (4)
- 4) Compare and contrast the range, variance, and standard deviation as measures of dispersion, highlighting their respective strengths and limitations. K2 (6)
- 5) Explore the concept of skewed distributions in biostatistics and explain how the mean, median, and mode respond differently to positively versus negatively skewed data sets, using relevant examples. K3 (6)
- 6) Explain the concept of probability in the context of elementary statistics. Discuss how probability is used to quantify uncertainty and make predictions in various real-world scenarios. Provide examples to illustrate the application of probability in everyday life. K3 (9)
- 7) Define mean. What is the relationship between median, mean and mode? Find the mean of the first 10 odd integers. K4 (8)
- 8) Explain the difference between discrete and continuous random variables in probability theory. Provide examples of each type of random variable and discuss how their values are defined and distributed. K4 (12)

OR

Define a discrete random variable and discuss its key characteristics. Provide examples of situations in which discrete random variables are commonly encountered, and explain how probability distributions are used to describe the probabilities associated with each possible outcome. K4 (12)