



EMBU UNIVERSITY COLLEGE

(A CONSTITUENT COLLEGE OF THE UNIVERSITY OF NAIROBI)

FIRST SEMESTER EXAMINATIONS 2014/2015

**SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
AGRICULTURE**

AEB 203: STATISTICS 1

DATE: DECEMBER 16, 2014

TIME: 08:00 – 10:00AM

INSTRUCTIONS:

Answer Question ONE and ANY Other TWO Questions

QUESTION ONE (6 MARKS EACH)

- Distinguish between the branches of statistics.
- Explain the application of descriptive and inferential statistics in data analysis.
- Discuss briefly the scales of measurements in research.
- Explain the merits and demerits of participant observation as a method of data collection in survey research.
- Given the following data of scores by students in a course assessment test in Agriculture, construct a frequency distribution table.

22	21	15	25	14	19	21	20
26	20	13	24	15	21	24	19
16	19	16	18	23	13	16	18
18	18	17	19	26	15	18	19
24	23	19	21	28	16	23	21
20	21	22	13	18	18	26	14

QUESTION TWO (20 MARKS)

Suppose we are interested in a population of 20 industrial units of the same size, all of which are experiencing excessive labour turnover problems. The past records show that the mean of the distribution of annual turnover is 320 employees, with a standard deviation of 75 employees. A sample of 5 of these industrial units is taken at random, giving a mean annual turnover of 300 employees. Test the hypothesis that the sample mean is consistent with the population mean.

QUESTION THREE (20 MARKS)

- a) Explain the concept of the Central Limit Theorem.
- b) Given the following data of weights (kg), compute the measures of central tendency and attach the 95 and 99% confidence limits to the mean.

8.6	6.5	8.5	13.7	7.4	7.6	10.1	10.5	6.3	8.4
11.2	8.5	2.5	7.6	12.4	7.6	8.9	6.5	6.8	6.4

QUESTION FOUR (20 MARKS)

- a) State the main data frequency distribution models.
- b) In a sample of 20 sampling units ($n = 20$), the arithmetic mean is 3 and each sampling unit contain a maximum of 4 individuals ($k = 4$). Compute the expected frequencies.

QUESTION FIVE (20 MARKS)

Discuss the non-probability sampling designs appropriate for agricultural research.

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