(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER

SPECIAL/SUPPLEMENTARY EXAMINATION

FOR THE DEGREEOF BACHELOR OF COMMERCE

COURSE CODE: BCO323

COURSE TITLE: MANAGERIAL STATISTICS

DATE: 22ND NOVEMBER,2022   **TIME :** 8.00AM – 10.00AM

INSTRUCTIONS TO CANDIDATES

1. Answer a total of **three** questions; question **one** and any other **two** questions.
2. Question **one** carries **30 marks** and each of the other two questions carry **20** marks each.

TIME: 2 Hours

KIBU observes ZERO tolerance to examination cheating

QUESTION ONE (COMPULSORY)

a) Find the area under the normal curve of the following. Using the z-table, sketch the graph of each item below.

    a. between $z=0$ and $z=2.25$

    b. to the right of $z=2.64$ (4 marks)

b)   According to a study, the mean salary of workers in a factory is shs. 250 per day with standard deviation of shs.10. Assuming that the distribution of salaries is normally distributed, what is the probability that the workers received a salary between shs.245 and shs.275 per day?   (4 marks)

c) Assuming that there are 500 workers in a certain company, how many of them received a salary between shs.245 and shs.275 per day?   (4 marks)

d) Explain the common features of a normal distribution curve.   (5 marks)

e)   The record of RL Company showed that the mean lifetime of the light bulbs it manufactures is 600 hours with a standard deviation of 210 hours. Assuming that the lifetime of light bulbs is normally distributed, find the probability that:

    A light bulb will have a lifetime between 620 hours and 660 hours (4 marks)

f) List and explain four types of random sampling techniques   (4 Marks)

e) State and explain the basic conditions that must be met in order for chi-square analysis to be applied (5 Marks)

d) Ten students are chosen at random from a population and there scores in finance are found to be 63,66,67,68,69,70,70,71 and 71. Considering the data discuss the suggestion that mean score in financial Management Course in the population is 66 (7 Marks)

QUESTION TWO

Management statistics For a certain joint company, the prices of preference shares (x) and debentures (y) are given below X 73.2 85.8 78.9 75.8 77.2 81.2 83.8 y 97.8 99.2 98.8 98.3 98.3 96.7 97.1 Use the method of rank correlation to determine the relationship between preference prices and debentures prices (15 Marks)

QUESTION THREE

Two independent samples of army and navy recruits are selected and the time in minutes it takes each recruit to complete an obstacle course is recorded as shown in the table.

$\propto = 0.05$ is there any difference in the times it takes the recruits to complete the course? (15 Marks)

Army 15 18 16 17 13 22 24 17 19 21 26 28

Navy 14 9 16 19 10 12 11 8 15 18 15

QUESTION ONE (COMPULSORY)

a) Find the area under the normal curve of the following. Using the z-table, sketch the graph of each item below.

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b)   According to a study, the mean salary of workers in a factory is shs. 250 per day with standard deviation of shs.10. Assuming that the distribution of salaries is normally distributed, what is the probability that the workers received a salary between shs.245 and shs.275 per day?   (4 marks)

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QUESTION FOUR

Two sources of raw materials are under consideration by a company. Both sources seem to have similar characteristics but the company is not sure about their respective uniformity. A sample of 10 lots from source A yields a variance of 225 and a sample of 11 lots from sources B yield a variance of 200. Is it likely that the variance of source A is significantly greater than the variance of sources B at $\propto = 0.01$ (15 Marks)

QUESTION FIVE

A survey of 320 families with 5 children each revealed the following distribution No. of boys 5 4 3 2 1 0 No of girls 0 1 2 3 4 5 No of families 14 56 110 88 40 12 Is this result consistent with the hypothesis that male and female births are equally probable? (15 Marks)