(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

MAIN EXAMINATIONS

FOR THE DEGREE

OF
BACHELOR OF COMMERCE /SCIENCE ACCOUNTING

COURSE CODE: BCB 318

COURSE Title: managerial Statistics

DATE: WEDNESDAY, 12TH APRIL 2023   **TIME:** 3:00 – 5:00PM

INSTRUCTIONS TO CANDIDATES
1. ANSWER QUESTION **ONE** AND ANY **OTHER TWO** QUESTIONS
2. DO NOT WRITE ANYTHING ON THE QUESTION PAPER

TIME: 2HOURS

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

QUESTION ONE COMPULSORY (30 MARKS)

a) "Suppose you are asked to conduct a survey on the smoking habits of the Masinde Muliro University of science and Technology Lecturers. How will you proceed? (5 marks)

b) A manufacturer of Bic pens has determined from experience that 4 percent of the pens he produces are defective. If a random sample of 400 pens is examined what is the probability that the proportion defective is between 0.025 and 0.048? (5 marks)

c) MMUST ambulance service claims that it takes, on average 8.9 minutes to reach its destination in emergency calls. To check on this claim, the agency which licenses ambulance services has then timed on 50 emergency calls, getting a mean of 9.3 minutes with a standard deviation of 1.8 minutes. At the level of significance of 0.05, does this constitute evidence that the figure claimed is too low? (5 marks)

d) The following table gives the number of good and bad loaves of bread produced by each of three shifts at Kakamega supa loaf bakery:

Shift	Good	Bad
Day	900	130
Evening	700	170
Night	400	200

Is there any association between the shift and the quality of loaves produced? (10 marks)

e) Bata shoe factory Limuru branch is producing 50,000 pairs of shoes daily. From a sample of 500 pairs, 2% were found to be of sub-standard quality. Estimate the number of pairs that can be reasonably expected to be spoiled in the daily production and assign limits of 95% level of confidence. (5 marks)

QUESTION TWO 20 MARKS

a) Describe the procedure followed in testing of hypothesis (5 marks)

b) Two laboratories A and B carry out independent estimates of fat content in ice cream made by a firm. A sample is taken from each batch, halved, and the separated halves sent to the two laboratories. The fat content obtained by the laboratories is recorded below:

Batch No	1	2	3	4	5	6	7	8	9	10
Lab A	7	8	7	3	8	6	9	4	7	8
Lab B	9	8	8	4	7	7	9	6	6	6

(the fat contents are given in grams) is there a significant difference between the mean fat content obtained by the two laboratories A and B? (15 marks)

QUESTION THREE 20 MARKS

a) A manufacturer of watches has determined from experience that 3% of the watches he produces are defective. If a random sample of 300 watches is examined, what is the probability that the proportion defective is between 0.02 and 0.035 (5 marks)

b) The number of smartphones sold by three salespersons over a three month period is given below. Using a significance level at 5% test for independence of salespersons and type of smartphone. What is your conclusion? (15 marks)

Salesperson	Samsung	Oppo	Apple
Ruto	14	12	4
Amolo	21	16	8
Waiguru	15	5	10

QUESTION FOUR (20 MARKS)

a) Compute the values for a control chart for C, i.e number of defective s from the following data pertaining to the number of imperfections in 20 pieces of cloth equal length in a certain make of polyester and infer whether the process is in a state of control.

2, 3, 5, 8, 12, 2, 3, 4, 6, 5, 6, 10, 4, 6, 5, 7, 4, 9, 7, 3. (5 marks)

b) A company appoints four salesmen A, B, C and D and observes their sales in three seasons; summer winter and monsoon. The figures in millions are given in the following table:

SEASON	A	B	C	D
Summer	36	36	21	35
Winter	28	29	31	32
Monsoon	26	28	29	29

Carry out a two way analysis of variance of salesmen performance and seasons.

(15 marks)