Strathmore
UNIVERSITY

STRATHMORE BUSINESS SCHOOL

BACHELOR OF FINANCE SERVICE

END OF SEMESTER EXAMINATION

MAT 1201: INTRODUCTION TO BUSINESS STATISTICS

DATE: 9th December 2024 Time: 2hrs

Instructions

1. This examination consists of **FIVE** questions.
2. Answer Question **ONE (COMPULSORY**) and any other **TWO** questions.
3. Do not write on the question paper.

QUESTION ONE (30 marks)

1. a) Define the following terms as used in business statistics

i) Population (2 marks)

ii) Descriptive statistics (2 marks)

b) i) Discuss nominal and ordinal as scale of measure in statistics (4 marks)

ii) Briefly explain the limitation of statistics (2 marks)

c) The data below relates the number of successful sales made by salesmen employed by a large microcomputer firm in a particular quarter.

Number of sales	0-4	5-9	10-14	15-19	20-24	25-29
No of salesmen	1	14	23	21	15	6

Calculate mean, mean deviation and standard deviation (10 marks)

d) A number of families of a particular type were measured by the number of children they contain to give the following frequency distribution.

No of children	0	1	2	3	4	5 or more
No of families	12	28	22	8	2	2

Use this information to calculate the relative frequency probability that another family of this type will have

i. 2 children (2 marks)

ii. 3 or more (2 marks)

iii. Less than 2 children (2 marks)

e) Discuss two assumptions of simple linear regression (4 marks)

QUESTION TWO (20 marks)

2 a) Discuss three application of statistics in business and finance (6 marks)

b) Discuss three types of statistical measures and vividly give example for each measure (9 marks)

c) Briefly explain primary data and secondary data and give one source for each case. (5 marks)

QUESTION THREE (20 marks)

3a) Discuss the importance of data presentation in business statistics (3 marks)

b) A machine produces the following number of rejects in each successive period of five minutes as follows

16 21 26 24 11 24 17 25 26 13
27 24 26 3 27 23 24 15 22 22
12 22 29 21 18 22 28 25 7 17
22 28 19 23 23 22 3 19 13 31
23 28 24 9 20 33 30 23 20 8

i) Construct a grouped frequency table of data above starting lower class interval (0-4, 5-9…) (3 marks)

ii) Present your results in (i) above in bar chart, histogram and comment on results (8marks)

iii) Find the mode and median (6 marks)

QUESTION FOUR (20 marks)

4.a) The probability of meeting a building contract date is 0.8, the probability of good weather is 0.5 and the probability of meeting the date given good weather is 0.9, Calculate the probability that there was good weather given that the contract date was met? (5 marks)

b) From the past records, the probability that a machine will need correcting adjustments during a day's production run is 0.2. If there are 6 of these machines running on a particular day, find the probability that:

i) No machine need correcting (3 marks)

ii) Exactly two machines needs correcting (3 mark)

ii) Expected machines needs correcting (2 marks)

iii) The standard deviation (2 marks)

c) The daily water usage per person in Thika is normally distributed with a mean of 50 gallons and a standard deviation of 5 gallons. What is the probability that a person from Thika selected at random will use between 55 and 60 gallons per day? (5 marks)

QUESTION FIVE (20 marks)

5 a) Distinguish between independent and dependent variable (2 marks)

b) The number of hours X spent studying for an examination by 8 students, together with the marks Y achieved in the examination, are given in the table below

Time(X)	2	3	4	5	6	7	8	9
Marks (Y)	40	38	54	44	54	58	70	80

i) Make a scatter graph for this data and comment on the relationship between time spent revision and marks achieved. (4 marks)

ii. Calculate regression equation of Y on X and plot it on the same axes (6 marks)

iii. Use your equation in (ii) above to find the marks when time=10 (2 marks)

iv. Compute the Pearson's correlation coefficient between time spent on revision (X) and marks achieved (Y) and comment on the results (6 marks)