Riara School of Business

Nurturing business innovators

MAY-AUGUST 2023 TRIMESTER

EXAMINATION FOR DEGREE IN BACHELOR OF BUSINESS ADMINISTRATION

EVENING PROGRAMME

RFN 103: STATISTICS FOR DECISION MAKING AND ANALYSIS

DATE: AUGUST 2023 TIME: 2 HOURS

SPECIAL INSTRUCTIONS

1. Write your REGISTRATION NO. Clearly on the answer booklet(s).
2. Answer Question One and ANY other TWO questions.
3. Questions in all sections should be answered in answer booklet(s)
4. PLEASE start the answer to EACH question on a NEW PAGE.
5. For the questions, write the number of the question on the answer booklet(s) in the order you answered.
6. Write on both sides of each leaf and indicate number of each question at the top of each page.
7. Write the answers in a paragraph form unless stated otherwise.
8. Marks allocated to each question are shown at the end of the question.
9. All rough work must be done on the answer booklet and crossed through!
10. Use supplementary pages only when you have exhausted those in this book.
11. Fasten the supplementary pages to the inside back cover of this booklet.

QUESTION ONE: COMPULSORY (30 MARKS)

a) Differentiate between the following:

i). Descriptive statistics and inferential statistics **(2 Marks)**

ii). Statistic and parameter **(2 Marks)**

iii). Population and Sample **(2 Marks)**

iv). Quantitative and Qualitative data **(2 Marks)**

b) AIDS data indicating the number of months a patient with lives after taking a new antibody drug are as follows 34, 34, 35, 37,3, 4, 8, 8, 10, 11, 12, 16, 44, 44, 47,16, 17, 17, 18, 21, 22, 22, 27, 27, 29, 13, 14, 15, 15,29, 31, 32, 33, 33, 34, 24, 24, 25, 26, 26, 34, 35, 37, 40.

Calculate the mean and the median. **(4 Marks)**

c) Determine the mode in the data presented on question 1 (c) above **(2 Marks)**

d) A study is done to determine the average tuition amount paid by undergraduate students per semester. Each student in the following samples is asked how much tuition he or she paid for the semester. Required identify the type of sampling in each case.

i). A sample of 100 undergraduate students is taken by organizing the students' names by classification (freshman, sophomore, junior, or senior), and then selecting 25 students from each. **(2 Marks)**

ii). A random number generator is used to select a student from the alphabetical listing of all undergraduate students in the semester. Starting with that student, every 50th student is chosen until 75 students are included in the sample. **(2 Marks)**

iii). A completely random method is used to select 75 students. Each undergraduate student in the semester has the same probability of being chosen at any stage of the sampling process. **(2 Marks)**

iv). The freshman, sophomore, junior, and senior years are numbered one, two, three, and four, respectively. A random number generator is used to pick two of those years. All students in those two years are in the sample. **(2 Marks)**

v). An administrative assistant is asked to stand in front of the library one Wednesday and to ask the first 100 undergraduate students he encounters what they paid for tuition for the semester. The 100 students are the sample. **(2 Marks)**

e) Explain **SIX** uses of statistics in the day-to-day society. **(6 Marks)**

QUESTION TWO

a. The following table outlines hypothetical numbers of new hires at a large organization over a ten-year period.

Year	Number of new hires
1	266
2	231
3	223
4	262
5	260
6	230
7	191
8	182
9	165
10	153

Required:

i. Find the range. **(2 Marks)**

ii. Calculate the interquartile range. **(2 Marks)**

iii. Calculate the five-number summary. **(2 Marks)**

iv. Draw a box and whisker plot for this data. **(4 Marks)**

b. Distinguish **THREE** probability sampling techniques **(4 Marks)**

c. According to Gutfeel Research, over 60% of small and medium-sized Enterprises are family owned. A survey asked the chief executives (CEOs) of family-owned businesses how they became the CEO. Responses were that the CEO either inherited the business, built the business, or was hired by the family-owned business. A sample of 30 CEOs of family-owned businesses provided the following data on how each became the CEO.

Built	Built	Built	Inherited	Inherited
Built	Inherited	Built	Inherited	Built
Built	Built	Built	Hired	Hired
Hired	Inherited	Inherited	inherited	Built
Built	Built	Built	Hired	Built
Inherited	Hired	Inherited	Built	Hired

What percentage of CEOs of family-owned businesses became the CEO because:

i. they built the business **(2 Marks)**

ii. they inherited the business **(2 Marks)**

iii. they hired the business **(2 Marks)**

iv. What is the primary reason a person became the CEO of a family-owned business **(2 Marks)**

QUESTION THREE

(a) Highlight **FOUR** measures of dispersion **(4 Marks)**

(b) Explain **THREE** uses of a range **(6 Marks)**

(c) A firm administers a test to sales trainees before they go into the field. The management of the firm is interested in determining the relationship between the test scores and the sales made by the trainees at the end of one year in the field. The following data were collected for 10 sales personnel who have been in the field for one year.

Salesperson Number	1	2	3	4	5	6	7	8	9	10
Test Score	2.6	3.7	2.4	4.5	2.6	5.0	2.8	3.0	4.0	3.4
Number of units sold	95	140	85	180	100	195	115	136	175	150

(i) Find the least squares regression line by identifying the appropriate dependent and independent variable **(8 Marks)**

(ii) Use the least square regression line to predict the number of units that would be sold by a trainee who got 2.5 in the test score **(2 Marks)**

QUESTION FOUR

a. Distinguish the following terms in statistical analysis.

i. Correlation analysis and regression analysis **(2 Marks)**
ii. Coefficient of correlation and coefficient of determination **(2 Marks)**

b. Consider the raw data below on IQ scores for 50 students in a local private primary school

112	100	127	120	134	118	105	110	109	112	110	118	117
116	118	122	114	114	105	109	107	112	114	115	118	117
118	122	106	110	116	108	110	121	113	120	119	111	104
120	111	113	120	117	105	110	118	112	114	114.		

Required:

i. Construct a frequency distribution of the data above **(8 Marks)**
ii. Calculate the mean, Mode and Median of the above data **(6 Marks)**
iii. Calculate the data range **(2 Marks)**