



Riara School of Business

Nurturing business innovators

JANUARY – APRIL 2023 TRIMESTER

EXAMINATION FOR CERTIFICATE IN BUSINESS MANAGEMENT

DAY PROGRAMME

RCM 007: DESCRIPTIVE BUSINESS STATISTICS

DATE:
HOURS

TIME: 2

INSTRUCTIONS

- i) Answer question one and any other two**
 - ii) Marks allocated to each question are shown at the end of the question**
 - iii) Arrange your work neatly and indicate the questions answered in the Examination booklet**
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QUESTION ONE: COMPULSORY (30 MARKS)

- a) Differentiate between the following:
 - i). Descriptive statistics and inferential statistics **(4 Marks)**
 - ii). Statistic and parameter **(4 Marks)**
- b) An insurance company is interested in the mean health costs each year of its clients, so that it can determine the costs of health insurance. From this statement, identify the population, the sample, the parameter, the statistic, the variable, and the data. **(6 Marks)**
- c) You go to the supermarket and purchase three cans of soup (19 ounces tomato bisque, 14.1 ounces lentil, and 19 ounces Italian wedding), two packages of nuts (walnuts and peanuts), four different kinds of vegetable (broccoli, cauliflower, spinach, and carrots), and two desserts (16 ounces pistachio ice cream and 32 ounces chocolate chip cookies).

Identify data sets that are quantitative discrete, quantitative continuous, and qualitative (categorical). **(8 Marks)**

- d) AIDS data indicating the number of months a patient with AIDS lives after taking a new antibody drug are as follows (smallest to largest): 3, 4, 8, 8, 10, 11, 12, 13, 14, 15, 15, 16, 16, 17, 17, 18, 21, 22, 22, 24, 24, 25, 26, 26, 27, 27, 29, 29, 31, 32, 33, 33, 34, 34, 35, 37, 40, 44, 44, 47. Calculate the mean and the median. **(4 Marks)**
- e) Statistics exam scores for 20 students are 50, 53, 59, 59, 63, 63, 72, 72, 72, 72, 72, 76, 78, 81, 83, 84, 84, 84, 90, 93. Determine the mode. **(4 Marks)**

QUESTION TWO

- a) Sixty adults with gum disease were asked the number of times per week they used to floss before their diagnosis. The incomplete results are shown in table 1.

Table 1

# flossing per week	Frequency	Relative frequency	Cumulative relative frequency
0	27	0.4500	
1	18		
3			0.9333
6	3	0.0500	
7	1	0.0167	

- i). Fill in the blanks in table 1. **(7 Marks)**
- ii). Determine the percentage of adults who flossed six times per week. **(2 Marks)**
- iii). Calculate the percentage of adults who flossed at most three times per week. **(2 Marks)**
- b) Table 2 shows a frequency table displaying the results of a statistics test. Evaluate the best estimate of the class mean. **(9 Marks)**

Table 2

Grade interval	Number of students
50–56.5	1
56.5–62.5	0
62.5–68.5	4
68.5–74.5	4
74.5–80.5	2
80.5–86.5	3
86.5–92.5	4
92.5–98.5	1

QUESTION THREE

- a) Distinguish between sampling and non-sampling errors. **(4 Marks)**
- b) Briefly describe the following sampling techniques:
- i). Cluster sampling **(2 Marks)**
 - ii). Systematic sampling **(2 Marks)**
 - iii). Convenience sampling **(2 Marks)**
- c) 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. 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)**

QUESTION FOUR

- a) Using the data set shown in table 3, construct a histogram. **(10 Marks)**

Table 3

Number of hours my classmates spent playing video games on weekends				
9.95	10	2.25	16.75	0
19.5	22.5	7.5	15	12.75
5.5	11	10	20.75	17.5
23	21.9	24	23.75	18
20	15	22.9	18.8	20.5

- b) The data set shows U.S. Presidents' ages at inauguration. Use the data set in table 4 to construct a frequency polygon. **(10 Marks)**

Table 4

Age at inauguration	Frequency
41.5–46.5	4
46.5–51.5	11
51.5–56.5	14
56.5–61.5	9
61.5–66.5	4
66.5–71.5	2

END OF EXAM