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University Examinations 2023/2024

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF COMMERCE

BFC 3153: BUSINESS CALCULATION I

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE (30 MARKS)

- a) Statistics plays an important role in all fields of life. Discuss? (5 marks)
- b) The following are grades presented to you for analysis

Grade	Frequency
50-59	7
60-69	81
70-79	192
80-89	312
90-99	218
100-109	82
110-119	18

Required:

- i. Determine the mode from the table (5 marks)

- ii. On a graph paper draw an ogive, and trace the median (5 marks)
- iii. Prove your answer above(ii) by formula (3 marks)
- c) Explain the uses of range as a measure of Dispersion (4 marks)
- d) Calculate the standard deviation from the following distribution (5 marks)

x	12	13	14	15	16	17	18	19	20
y	4	11	30	21	15	8	5	4	2

- e) Discuss the importance of mean as a measure of central tendency (3 marks)

QUESTION TWO (20 MARKS)

- a) Discuss skewness using appropriate diagrams (6 marks)
- b) In a choral music competition, a contestants were awarded marks in percentage using a music grid by two assessors. The results obtained were given as shown in the table below

Contestants	1 st assessor	2 nd assessor
A	72	76
B	82	80
C	79	78
D	70	73
E	67	70
F	81	85
G	78	69
H	75	83
I	65	68

- Calculate the rank correlation coefficient (8 marks)
- c) Enumerate the uses of index numbers in any economy (6 marks)

QUESTION THREE (20 MARKS)

A business is interested in establishing the relationship between the number of hits(measured by the number of visitors that have used the main menu) and the amount spent in website promotion (in sh.000)

The table below gives the figures for the last six months

Month	Website hits	Website promotion (ksh.000)
1	25	1.0
2	24	1.2
3	56	1.6
4	54	1.4
5	55	1.2
6	58	1.8

Required:

- Illustrate using a graph, the number of website hits against the amount spent in website promotion. Comment on the relationship (5 marks)
- Calculate the correlation coefficient and interpret (10 marks)
- Determine the regression line of website promotion on website hirt (5 marks)

QUESTION FOUR (20 MARKS)

The sales manager of Muza limited has obtained the following data on the values of a random sample of 100 outstanding sales invoices of the company

Value (sh.000)	Number of outstanding sales (invoices)
0 < 100	20

100 < 200	18
200 < 300	22
300 < 400	15
400 < 500	9
500 < 600	8
600 < 700	4
700 < 800	2
800 < 900	1

Required:

- i. Determine the range of the distribution (2 marks)
- ii. Use the above data to calculate the coefficient of variation (14 marks)
- iii. Importance of measures of Dispersion (6 marks)

QUESTION FIVE (20 MARKS)

- a) Distinguish between regression analysis and correlation analysis (5 marks)
- b) The actual advertising cost of the enterprise over a seven-year period is given as follows

Year	1	2	3	4	5	6	7
Advertising cost (sh.000)	32	47	65	92	132	190	275

Required:

- i. The advertising cost function of the enterprise, using the normal equation (10 marks)
- ii. The advertising cost of the enterprise in year 8 and year 12? (5 marks)