



Kasarani Campus
Off Thika Road
Tel. 2042692 / 3
P.O. Box 49274, 00100
NAIROBI
Westlands Campus
Pamstech House
Woodvale Grove
Tel. 4442212
Fax: 4444175

KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
FOR THE CERTIFICATE IN BUSINESS ADMINISTRATION
CBM 017- BUSINESS CALCULATIONS AND STATISTICS

Date: 2ND AUGUST 2022

Time: 8:30AM – 10:30AM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) State 3 qualities of a good average. (3 Marks)
- b) Differentiate between primary and secondary data (2 Marks)
- c) Amos got the following marks in 6 subjects, 50, 45, 78, 92, 80. Find his average marks. (3 Marks)
- d) Find out the median from the data given below (5 Marks)

Marks	0-10	10-20	20-30	30-40	40-50
Students	5	16	8	14	7

- e) Given the following matrices

$$A = \begin{bmatrix} 3 & 8 \\ 2 & -4 \end{bmatrix} \quad B = \begin{bmatrix} 2 & 3 \\ 5 & 6 \end{bmatrix} \quad C = \begin{bmatrix} 6 & -5 \\ 7 & 8 \end{bmatrix}$$

Calculate:

- i) $A+B$ (2 Marks)
- ii) $B+C$ (2 Marks)
- iii) BA (3 Marks)
- f) Solve the following equation, $4x^2 - 4x - 3 = 0$ (3 Marks)
- g) A bag containing 4 green and 4 blue balls a man picks 2 at random. What is the probability of picking 2 blue balls? (3 Marks)
- h) Solve the following equation by substitution (4 Marks)

$$3x + 2y = 14$$

$$2x + 4y = 10$$

QUESTION TWO (20 MARKS)

- a) Outline five the advantages of mean. (5 Marks)
- b) The table below shows the masses of 49 people.

Mass (kg)	0-5	5-10	10-15	15-20	20-25	25-30
No. of people	5	12	10	8	6	7

Draw a cumulative frequency curve for the above data. (5 Marks)

Use the graph to estimate;

- i) The median mass (2 Marks)
- ii) The number of people whose mass lies between 70.5 kg and 75.5 kg. (2 Marks)

- c) Calculate Q_3, D_5 , from the following data;

Marks	30-40	40-50	50-60	60-70	70-80	80-90
F	2	4	3	7	11	8

(6 Marks)

QUESTION THREE (20 MARKS)

- a) The following data indicates the number of marks student got in a business statistic examination

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	7	12	10	8	5	16

Calculate the;

- i) Geometric mean (4 Marks)
 ii) Median (4 Marks)
 iii) Mode (2 Marks)
- b) Compute;
 i) Standard deviation (5 Marks)
 ii) Harmonic mean (3 Marks)
- c) List two advantages of median as a measure of central tendency. (2 Marks)

QUESTION FOUR (20 MARKS)

- a) Solve by Substitution method (5 Marks)

$$\begin{aligned} 4x+2y &= 5 \\ 5x+5y &= 10 \end{aligned}$$

- b) Solve the following equations using Matrix method (5 Marks)

$$\begin{aligned} 2y+3x &= 5 \\ 4y+x &= 10 \end{aligned}$$

- c) Calculate the median from the following data (5 Marks)

Class interval	Frequency
40-50	2
50-60	9
60-70	6
70-80	12
80-90	5
90-100	8

- d) Solve by elimination method (5 Marks)

$$\begin{aligned} 3x+y &= 5 \\ 2x-4y &= 9 \end{aligned}$$

QUESTION FIVE (20 MARKS)

- a) A bag contains 4 white beads and 3 black beads. A man picks 2 at random. Find the probability that:

- i) Both beads are of same color. (5 Marks)
 ii) One white and one black (4 Marks)

- b) Given two matrices A and B

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 4 \\ 5 & 2 \end{bmatrix} \quad B = \begin{bmatrix} 5 & 3 & 8 \\ 1 & 6 & 2 \end{bmatrix}$$

Determine the following;

- i) Transpose of A (3 Marks)
 ii) BA (4 Marks)
 iii) $B^T + A$ (4 Marks)