KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
FOR THE CERTIFICATE IN PROCUREMENT AND SUPPLY CHAIN MANAGEMENT
CPS 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

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

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)
$$4x+2y=5$$
$$5x+5y=10$$

b)   Solve the following equations using Matrix method   (5 Marks)
$$2y+3x=5$$
$$4y+x=10$$

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
$$3x+y=5$$
$$2x-4y=9$$
(5 Marks)

QUESTION FIVE (20 MARKS)

a)   A bag contains 4 white beads and 3 black beads. A man pick 2 at random. Find the probability that:
i)   Both beads are of same colour   (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)