



(*Knowledge for Development*)
KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

MAIN EXAM

DIPLOMA IN BUSSINESS MANAGEMENT

COURSE CODE:DIB102

COURSE TITLE: QUANTITATIVE METHODS

DATE: 20TH MAY, 2022

TIME:9.00AM – 11.00AM

INSTRUCTIONS TO CANDIDATES

1. Answer Question One in Section A and Any other TWO (2) Questions in Section B
2. Question one carries **30**marks and each of the other two questions carry **20** marks each.

TIME: 2 Hours

KIBU observes ZERO tolerance to examination cheating

SECTION A

QUESTION ONE

a) Do the summation of the following matrices

i. $A \begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}$ and $B \begin{pmatrix} 1 & 3 \\ -1 & 2 \end{pmatrix}$

(2 marks)

ii. $A \begin{pmatrix} 1 & 2 \\ -3 & 3 \end{pmatrix}$ and $B \begin{pmatrix} 2 & -1 \\ 2 & 2 \end{pmatrix}$

iii. $A \begin{pmatrix} 1 & 2 & 0 \\ 1 & 4 & 1 \\ 2 & 1 & 4 \end{pmatrix}$

$B \begin{pmatrix} 2 & 1 & 0 \\ 4 & 0 & 1 \\ 1 & 2 & 3 \end{pmatrix}$

(2 marks)

b) Give six qualities of a good average.

(6 marks)

c) Find the mean of the following distribution:

x	25	14	32	20	18
f	7	10	6	7	5

(5 marks)

d) Explain the following terms with the use of Venn diagrams

a. Subset

(2 marks)

b. Union

(2 marks)

c. Intersection

(2 marks)

d. Disjoint

(2 marks)

e) What are the special features of Geometric Mean (2 marks)

f) Solve the equation $8x-6=5x+9$

(3 marks)

(Total 30 marks)

SECTION B

QUESTION TWO

- (a) Calculate G.M. and H.M. for the following data : (5 marks)

Value :	0–10	10–20	20–30	30–40	40–50
Frequency :	8	12	20	6	4

- (b) A bag contains two red sweets and three green sweets. Jacques takes one sweet from the bag, notes its colour, and then eats it. He then takes another sweet from the bag. Draw a tree diagram to show all probabilities. (5 marks)

- (a) A box contains 5 white and 6 red marbles. What is the probability of successfully drawing, in order, a red marble and then a white marble? draw a tree diagram(5 marks)

- (b) A bag contains 3 red, 2 white, and 6 blue marbles. What is the probability of drawing, in order, 2 red, 1 blue, and 2 white marbles? Draw a tree diagram (5 marks)

(Total 20 marks)

QUESTION THREE

- (a) A man travels first 900 kms. Of his journey by train at an average speed of 80 kms. Per hour, next 2,000 kms. By plane at an average speed of 300 kms. Per hour and finally, 20 kms. By Taxi at an average speed of 30 kms. Per hour. What is his average speed for the entire journey? (5 Marks)

- (c) Give some of the properties of standard deviation (5 marks)

- (d) A hen lays eight eggs. Each egg was weighed and recorded as follows:

65g, 55 g, 60 g, 68 g, 52 g, 53 g, 68 g, 56 g.

- i. Calculate the mean: (5 marks)
- ii. Find the standard deviation. (3 marks)

QUESTION FOUR

- a) Explain the Terms used in Equations (8 marks)
- b) Solve for x in the following equation; (12 marks)

$$\frac{8x-9}{8} + \frac{5x-7}{7} = \frac{5x-63}{56}$$

(Total 20 marks)

QUESTION FIVE

- a) Describe the major types of linear equations (10 marks)
- b) Explain the main assumptions of Linear programming (10 marks)
- c)

(Total 20 marks)