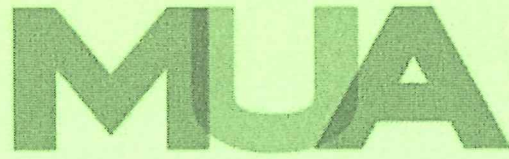The
Management
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DIPLOMA UNIVERSITY EXAMINATION

SCHOOL OF MANAGEMENT AND LEADERSHIP

DIPLOMA COMMON UNIT

DCU 103:   BASIC BUSINESS STATISTICS

DATE: *11th April 2019*

DURATION: 2 HOURS

MAXIMUM MARKS: 70

INSTRUCTIONS

1. Write your registration number on the booklet.
2. **DO NOT** write in this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **FOUR** questions.
6. Question **ONE** carries **30 MARKS** and the rest carry **10 MARKS** each.
7. **Write all your answers in the examination answer booklet provided.**

QUESTION ONE

a) Differentiate between the following terms:

i. Primary and secondary data   (2 marks)

ii. Qualitative and quantitative variables   (2 marks)

b) Present the data below in frequency distribution: (4 marks)

107, 103, 95, 112, 95, 102, 116, 116, 98, 106, 125, 125, 97, 115, 104, 104, 122, 106, 117, 100, 124, 115, 108, 98, 111, 107, 115, 118, 108, 110, 122

c) Explain three Decision theory models   (6 marks)

d) Explain the meaning of probability   (1 mark)

e) Construct the chain base index numbers from the following data.   (3 marks)

Year	2002	2003	2004	2005	2006	2007
Price (Shs)	120	125	140	150	135	160

f) What compound rate of interest will be required to produce Ksh. 5,000 after five years with an initial investment of Ksh. 4,000   (3 marks)

g) A firm has analyzed their operating conditions, prices and costs and have developed the following functions: Revenue £ $(R) = 400Q - 4Q^2$ and Cost £ $(C) = Q^2 + 10Q + 30$

Where Q is the number of units sold. The firm wishes to maximize profit and wishes to know:

    i. Quantity to be sold to maximize total profit   (3 marks)

    ii. Total revenue at maximum profit?   (1 mark)

iii.	Total cost at maximum profit?	(2 marks)
iv.	Amount of profit?	(2 marks)

h) Explain the meaning of forecasting in Business Management?   (1 mark)

QUESTION TWO

The following prices and quantities reflect the average weekly consumption patterns of a certain family for the years 2017 and 2018

ITEM	Year 2017		Year 2018	
	Price (P_0)	Quantity (Q_0)	Price (P_1)	Quantity (Q_1)
Oranges (Kg)	15	2	25	1
Milk (Litres)	30	2	35	2
Bread (Loafs)	30	3	40	3
Eggs (Dozens)	50	1	65	1

Required:

(i)	Price relatives for each item	(4 marks)
(ii)	Laspeyres price index	(3 marks)
(iii)	Paasche price index	(3 marks)

QUESTION THREE

i) Explain the meaning of Decision Theory   (2 marks)

ii) State **two** limitations of Decision Theory   (2 marks)

iii) Explain **three** Decision situations a Decision maker should take care of in the first step of Decision Theory   (6 marks)

QUESTION FOUR

Using the data below, determine the median using the methods below:

IQ (class interval)	No of residence (F)	Cumulative Frequency
0 – 20	6	6
20 – 40	18	24
40 – 60	32	56
60 – 80	48	104
80 – 100	27	131
100 – 120	13	144
120 – 140	2	146

     i.   Graphical method   **(6 marks)**

     ii.   The formula method   **(4 marks)**

QUESTION FIVE

a) How long will it take for a given sum to treble itself:

     i.   At 15% simple interest   **(3 marks)**

     ii.   At 15% compound interest   **(3 marks)**

b) Given the revenue function below:

    $R = 400X - 4X^2$ Determine whether the turning point is maximum or minimum

                                                                 (4 marks)

QUESTION SIX

Solve the following simultaneous equations using matrix algebra

     i. $2x + 3y = 13$ **(4 marks)**

           $3x + 2y = 12$

     ii. $4x + 2y + 3z = 4$ **(6 marks)**

           $5x + 6y + 1z = 2$

           $2x + 3y = -1$