

The
Management
University
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DIPLOMA UNIVERSITY EXAMINATIONS
SCHOOL OF MANAGEMENT AND LEADERSHIP
DIPLOMA COMMON UNIT

DCU 103: BASIC BUSINESS STATISTICS

DATE: 5TH AUGUST 2026

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) State and explain any four limitations of statistics

(4 Marks)

b) A box contain 3 red, 5 black and 4 yellow balls. Two balls are drawn randomly without replacement. Find the probability of picking;

i) Two red balls

(2 Marks)

ii) At least one yellow ball

(3 Marks)

c) The data given below represents the usage per day in minutes for Spotify for a particular person.

5, 10, 12, 7, 20, 13, 30, 25, 20, 50, 30, 24, 57, 63, 24, 30, 55, 10, 40, 64, 45, 18, 20, 11

Prepare a frequency distribution table for the above data grouping the values in exclusive form with class interval of 10

(5 Marks)

d) Differentiate between primary data and secondary data **(4 Marks)**

e) Given the matrices below:

$$A = \begin{pmatrix} 3 & 4 & 3 \\ 5 & 3 & 4 \\ 3 & 6 & 5 \end{pmatrix}$$

$$B = \begin{pmatrix} 4 & 1 & 2 \\ 2 & 1 & 8 \\ 8 & 4 & 5 \end{pmatrix}$$

Find

i)

A^T

(2 Marks)

ii) B^T

(2 Marks)

(4 Marks)

- f) How long will it take for a sum of money to double itself at 10% compound interest?

(4 Marks)**QUESTION TWO**

- a) Construct the chain base index numbers from the following data.

(4 Marks)

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

- b) Giving examples in each case, define the following terms as used in probability

- i) Null event

(2 Marks)

- ii) Mutually exclusive events

(2 Marks)

- iii) Sample space

(2 Marks)**QUESTION THREE**

- a) Solve the following system of simultaneous equations using Cramer's rule

(6 Marks)

$$x_1 + 2x_2 + 4x_3 = 4$$

$$2x_1 + x_3 = 3$$

$$3x_2 + x_3 = 2$$

- b) Solve the simultaneous equations below using matrix algebra method

$$2x + 3y = 13$$

(4 Marks)

$$3x + 2y = 12$$

QUESTION FOUR

Jaden asked 80 customers which drinks they liked from tea, coffee and milk.

7 people liked all three

10 liked tea only

14 liked coffee only

9 liked milk only

20 liked tea and coffee

31 liked tea

27 liked milk

- (a) Represent the above information in a Venn diagram **(6**

Marks)

- (b) How many people liked none of them? **(2**

Marks)

- (c) How many people liked coffee and milk only but not tea? **(2**

Marks)

QUESTION FIVE

In a social survey in which the main purpose was to establish the intelligence quotient (IQ) of resident in a given area, the following results were obtained as tabulated below

IQ	No. of residents
1 - 20	6
21 - 40	18
41 - 60	32
61 - 80	48
81 - 100	27
101 - 120	13
121 - 140	2

Evaluate the following measures from the data;

- a) Mean (4 Marks)
- b) Mode (2 Marks)
- c) Quartile 3 (2 Marks)
- d) Decile 6 (2 Marks)

QUESTION SIX

- a) Determine the nature of the turning point of the curve $y=3x^2+16x-1$ (4 Marks)
- b) Giving relevant examples, describe any 3 applications of calculus in business

(6 Marks)

BASIC BUSINESS STATISTICS FORMULAE

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Simple interest formula

$$S = P (1 + r n)$$

Compound interest

$$S = P (1 + r)^n$$

$$\text{Median} = L + i/f (M-C)$$

$$\text{Mean } \bar{x} = \frac{\sum fx}{\sum f}$$

$$\text{Mode} = L + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right) \times c$$