



ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF, SCIENCE, TECHNOLOGY, AGRIC AND FOOD SYSTEMS DEVELOPMENT

DEPARTMENT OF DIGITAL TECHNOLOGY AND INFORMATION SYSTEMS

EXAMINATION PAPER

COURSE CODE	:	DIS 112
COURSE TITLE	:	Introduction to general Mathematics
SPECIAL REQUIREMENTS	:	None
DURATION	:	3 Hours
LEVEL	:	1.1
DATE	:	2026

08 JUN 2026

INSTRUCTIONS TO CANDIDATES:

1. This paper consists of 2 sections
2. Answer **ALL** Questions in SECTION A and ANY TWO Questions from SECTION B in booklet provided.
3. Start each Question on a new page

There are 5 printed pages on this question paper

SECTION A

Answer **ALL** questions from this section. The section carries **60 marks**

1: Explain the following terms using relevant examples

- (a) Vector
- (b) magnitude
- (c) parallel vectors

[6]

2: Find the lowest common multiple (LCM) of 15, 20 and 25.
[4]

3: Find the highest common factor (HCF) of each pair of the following numbers

- a) 21 and 49
- b) 35 and 45
- c) 18 and 24

[6]

4: Given $60 = 2^2 \times 3 \times 5$ and $84 = 2^2 \times 3 \times 7$

Find

(a) the lowest common multiple (LCM) of 60 and 84.

[3]

(b) the highest common factor (HCF) of 60 and 84.

[3]

5: Give the order of the following matrices

i) $(2 \ 4 \ 5)$

ii)

$$\begin{bmatrix} 1 & 0 \\ 3 & -4 \\ 2 & -1 \end{bmatrix}$$

iii)

$$\begin{bmatrix} 2 & 5 & 2 \\ -3 & 9 & 7 \end{bmatrix}$$

[6]

6: Explain the following terms using relevant examples

- (a) Element
- (b) Set
- (c) Union
- (d) intersection
- (e) Complement of a Set

[10]

7: If

$$A = \begin{bmatrix} 1 & 3 \\ -2 & 8 \end{bmatrix} \quad \text{and} \quad B = \begin{bmatrix} -4 & 6 \\ 0 & 7 \end{bmatrix}$$

Find

- i $A+B$
 - ii $A*B$
 - iii $3A$
 - iv $4(A+B)$
 - v $A-B$
 - vi $2A+3B$
 - vii The determinant of matrix A
 - viii The inverse of matrix A
- [16]

8: Find the lowest common multiple (LCM) of each pair of numbers.

- a) 11 and 24
- b) 14 and 22
- c) 15 and 21

[6]

SECTION B

Choose any **TWO** questions from this section. Each question carries **20 marks**.

9

- a) A rectangle piece of land measures 486 m by 360m. It is marked off exactly into equal square stands. Find the greatest area of a stand in m²
[10]

- b) A certain mass of salt can be divided into equal heaps. Each heap contains either 27g, 45g, 30g or 20g. Find the smallest mass of salt for which this is possible. [10]

10:

- a) Given the following matrices where

$$A = \begin{pmatrix} 3 \\ 2 \end{pmatrix}, \quad B = \begin{pmatrix} 2 & 1 \\ 0 & 1 \end{pmatrix},$$
$$C = (1; 2; 8), \quad D = \begin{pmatrix} 6 & 8 \\ 2 & 14 \end{pmatrix}$$

Find

- i 3A
- ii 4B
- iii -2C
- iv 2D
- v D-3B
- vi AB
- vii B+D

[14]

- b) If

$$A = \begin{pmatrix} 3 & 2 \\ 1 & 4 \end{pmatrix} \text{ and } B = \begin{pmatrix} 2 & -1 \\ 0 & 3 \end{pmatrix}$$

Show that AB is not equal to BA

[6]

11.

a) If

$$p = \begin{pmatrix} 3 \\ 5 \end{pmatrix}, q = \begin{pmatrix} -4 \\ 3 \end{pmatrix}, r = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$$

Find

- i $p+q$
- ii $p+r$
- iii $q+r$
- iv $p=q+r$
- v $|q|$

[11]

b) If

$$p = \begin{pmatrix} 7 \\ -3 \end{pmatrix} \text{ and } q = \begin{pmatrix} -6 \\ 2 \end{pmatrix}$$

Find

- i $p-q$
- ii $p+q$
- iii $q-p$
- iv $|p+q|$
- v $|p-q|$

[9]

*** All the best ***

5/2 PM