ACADEMIC YEAR 2023 – 2024

Program	Term	Semester	Paper
FOUNDATION	1	2	MAIN 2

MODULE NAME:	BASIC MATHEMATICS I		
MODULE CODE:	FMTH003	EXAM DATE:	29/04/2024
TEACHER'S NAME:	KHALOUD AL AJMI	DURATION:	2 hrs.

Questions to be answered on:	Allowed requirements	Number of pages
Space provided on the question paper	Pen Pencil (only for drawing)	(Incl. Cover Page): 08

Points of Attention:

- For each question, the maximum earned points are mentioned between brackets at the end of each question.
- Write very clearly! Answers that are not readable are not marked and don't get points!
- Make sure your answers are written to the point.
- All answers must be written **in English**.
- Write all the answers **in blue or black pen only**.
- When finished, submit the question paper, together with the answer scripts and the signed cover page to the invigilator.
- Any cheating/copying may fail the examination.

STUDENT NAME:	
STUDENT ID:	
CLASS:	

FINAL MARKS
40

Number of answer scripts: ……

Invigilator: ……

Student's signature: ……

Time of receipt: ……

Question 1 [10 Marks]

Circle the correct option to fill in the blanks.

Example. 85 is a _____ digit number.			
a 1	**b** 2	**c** 3	**d** 4
1. If $A = [-4,5)$, $B = [3,6]$, and $C = (-\infty, 0)$. Find $A \cup C$.			
a [-4,0)	**b** $(-\infty, 5)$	**c** [-4,7]	**d** [4,5)
2. Use the cummtative property of addition to solve $x + 5 =$ _____.			
a $5+x$	**b** $x + 5$	**c** $x5$	**d** $5x$
3. $0.0071\ kg =$ _____ g			
a 0.000071	**b** 0.0071	**c** 71	**d** 7.1
4. $\frac{13}{5}$ is _____ number .			
a a whole	**b** a rational	**c** a natural	**d** an irrational
5. The degree of the polynomial $x^2 - 3x^4 + 9$ is _____.			
a 9	**b** 4	**c** 3	**d** 5
6. Choose the simplified form of the algebraic expression (2y+4)(2y-4) _____.			
a $9y - 16$	**b** $3y + 4$	**c** $4y^2 - 16$	**d** $y^2 + 16$
7. Choose the correct factors of trinomial $x^2 + 8x + 7$ _____.			
a $(x + 3)(x + 4)$	**b** $(x + 1)(x + 7)$	**c** $(x - 1)(x - 7)$	**d** $(x + 2)(x + 4)$
8. Evaluate the following expression $(\frac{3}{4} - \frac{5}{8})$ _____.			
a $\frac{2}{4}$	**b** $\frac{1}{8}$	**c** $\frac{2}{8}$	**d** $\frac{6}{4}$
9. Solve the following equation $\frac{1}{2}x - 5 = 1$			
A $x = 9$	**b** $x = -8$	**C** $x = 12$	**d** $x = 16$
10. Evaluate the following expression $(27^{\frac{1}{3}})$.			
a 6	**b** 9	**c** 3	**d** 27

Question 2 [7 Marks]

Simplify the following algebraic expression.

a. $(\sqrt{z}+\sqrt{5})(\sqrt{z}-5)$ (3 marks)

b. $(x+2)(x^2+2x+3)$ (4 marks)

Question 3 [5 Marks]

Find the quotient and remainder given below by using synthetic division.

$$\frac{x^3 - 9x^2 + 27x - 31}{x - 3}$$

Question 4 [5 Marks]

Simplify the below rational expression.

$$\frac{x^2+2x-15}{x^2-36} \div \frac{x^2-x-6}{(x+6)(x+2)}$$

Question 5 [4 Marks]

Find the indicated set if if $U = \{1, 2, 3, \dots, 10\}$ $A = \{1,2\ 3, 4, 5, 6, 7\}, B = \{2, 6, 8\}$

$A' \cup B$

Question 6 [4 Marks]

The number of members of a service club increased from 80 to 84. What was the percent of increase?

Question 7 [5 Marks]

Solve the following equation.

$$\frac{2}{5}x - 1 = \frac{3}{15}x + 8$$

Units Conversion Table

$1\ km = 1000\ m$	$1\ m = 100\ cm$
$1\ cm = 10\ mm$	$1\ kg = 1000\ g$
$1\ g = 1000\ mg$	$1\ l = 1000\ ml$
$1\ tonne = 1000kg$	$1\ cm^3 = 1\ ml$
$1\ foot = 12\ inches$	$1\ yard = 3\ feet$
$1\ mile = 1760\ yards$	$1\ gallon = 8\ pints$
$F = \frac{9}{5}\ C + 32$	$C = \frac{5}{9}(F - 32)$

References:

Larson, R. and Hostetler, R. (2007) *Precalculus*. 7th edn. Boston: Houghton Mifflin Company.

Stewart, J., Redlin, L. and Watson, S. (2017) *Precalculus Mathematics for Calculus*. 7th edn. Cengage.