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073204T4PLM**PLUMBING LEVEL 4****CON/OS/PL/CC/ 01/ 4****Apply Engineering Mathematics****July /August 2025**

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**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

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Time: 2 HOURS

INSTRUCTIONS TO CANDIDATE

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1. This paper consists of two sections; **A** and **B**2. Answer **ALL** the questions in section **A** and **B**

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3. Marks for each question are as indicated in the brackets

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4. You are provided with a separate answer booklet to answer the questions

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5. Do not write in this question paper

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This paper consists of FOUR (4) printed pages**Candidates should check the question paper to ascertain that all pages**

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that no questions are missing

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SECTION A (10 MARKS)**Answer All Questions in this Section. Each question carries one mark**

1. How many (1) Kilometre?

A. 1,000,000.

B. 10,000.

C. 100,000.

D. 1,000.

2. Which one of the following is the correct descending order of the following numbers?

23,16,20,25,70,61,59,20,112,99.

A. 112,99,70,61,59,25,23,20,20,16.

B. 16,20,20,23,25,59,61,70,99,112.

C. 59,61,70,99,112,16,20,20,23,25.

D. 70, 99, 59, 61, 112, 16, 20,20,23,25.

3. Which one of the following is the correct formula of calculating the volume of a cone?

A. $2\pi^2r$.B. $\frac{1}{3}\pi r^2h$.C. Dh .D. $\frac{1}{3}\pi^2h$.4. Solve the following equation $(2-3) \times 4 + 8$.

A. 6.

B. 10.

C. 22.

D. 4.

5. Which one of the following is a linear equation?

A. $X^3 + y = 4$.B. $4x^3 - 2x^2 + 7 = 0$.C. $Y^4 + x^3 = 1$.D. $2x - 2 = -1$.

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6. Which one of the following is not a method of solving simultaneous equation?

A. Elimination method.

B. Substitution method.

C. By matrices.

D. Equation method.

7. What is the size of the interior angle of a regular hexagon?

A. 60°

B. 80°

C. 120°

D. 30°

8. Evaluate $1009\text{cm} - 356\text{cm} - 742\text{cm} + 94\text{cm}$.

A. 200cm.

B. -183cm.

C. -83cm.

D. 100cm.

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9. Simplify: $(x - 4)(x + 5)$

A. $x^2 + 5x - 20$.

B. $x^2 - 4x - 20$.

C. $x^2 - x - 20$.

D. $x^2 + x - 20$.

10. Identify mode in the following numbers 0,2,9,8,11,20,8,7,2,10,2

A. 8

B. 20.

C. 2.

D. 0.

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SECTION B (40 MARKS)**Answer ALL questions in this section.**

11. You are a plumber been given a task to perform pipe laying at the school compound of distance of 1.3km. Given that the length of the pipe is 4m.

Calculate the number of pipes you are going to lay. (3Marks)

12. Solve the following: $5x+3y+z-3x-4y+6z$. (4Marks)

13. Multiply the following: $(3x-2)(2x-5)$. (3Marks)

14. Solve the following equation for the values of x and y. (5Marks)

$$2x - y = 6.$$

$$x + y = 6.$$

15. Find the median, mean and mode of the following sequence of numbers of the data collected from the class score in mathematics. (5Marks)

29,28,21,23,25,26,31,26,32,27

16. A water tank is in the shape of a rectangular prism having length 2m, breath 75 cm and height of 50 cm. determine the capacity of the tank in m^3 . (3Marks)

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17. Convert $1.5 m^3$ in cubic centimetres. (3Marks)

18. Solve for the value of x in the following equation $2\log x - \log(x-1) = \log(x-2)$. (3Marks)

19. Calculate the area of a rectangle whose length and width are 30cm and 17cm respectively. (3Marks)

20. If A $\begin{pmatrix} 2 & 3 \\ 1 & -4 \end{pmatrix}$ and B $\begin{pmatrix} -5 & 7 \\ -3 & 4 \end{pmatrix}$ (4Marks)

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21. Solve for x in the following equation (4Marks)

$$2x+6-3x+\frac{1}{4}x=0$$

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