

**LEVEL 6**

**Demonstrate Numeracy Skills**

**Nov/Dec 2024**



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

**WRITTEN ASSESSMENT**

**Time: 3 HOURS**

**INSTRUCTIONS TO CANDIDATE**

1. Marks for each question are indicated in the brackets.
2. The paper consists of **TWO** sections: **A** and **B**.
3. Candidates are provided with a separate answer booklet
4. **DO NOT** write on this question paper.

**This paper consists of FOUR (4) printed pages  
Candidates should check the question paper to ascertain that all pages are  
printed as indicated and that no questions are missing.**

**SECTION A (40 MARKS)**

*Answer ALL the questions in this section.*

1. If the ratio of workers to machines is 5: 3 and there are 45 workers, how many machines are there. (3 Marks)
2. Calculate the actual distance between two points 5 cm apart on a map with a scale of 1:1000. (3 Marks)
3. A regular cylinder has a radius of 3 cm and a height of 10 cm. Calculate its volume. (3 Marks)
4. Calculate the square root of 256 and express the answer as a power of 2. (2 Marks)
5. Convert 0.875 into a fraction and express it as a percentage (3 Marks)
6. State the number of sides of a hexagon and calculate the sum of its internal angles. (3 Marks)
7. Evaluate:  $-3^2 + 6 - (-4)$  (3 Marks)
8. A warehouse has a rectangular floor plan, and you are asked to calculate the area. If the dimensions of the floor are 15 m by 8 m, calculate its area in square meters. (3 Marks)
9. You are required to assess the accuracy of a workplace calculation. Calculate  $49.6 \times 5.02$  then round off the answer to the nearest whole number. (2 Marks)
10. Convert 35% into its simplest fractional form. (2 Marks)
11. The ratio of boys to girls in a class is 3:5. If there are 24 boys, how many more girls are there than boys (3 Marks)
12. A factory produces 250 units in 5 hours. Calculate the rate of production per hour (2 Marks)
13. Convert 250 centimeters into meters. (2 Marks)
14. Solve the equation:  $5x - 4 = 16$  (3 Marks)
15. Find the volume of a cube with side length of 3 cm. (3 Marks)

**SECTION B (60 MARKS)***Answer Any THREE Questions in This Section*

16. A car travels a distance of 240 km in 4 hours.
- Calculate its average speed in meters per second correct to 2dp (5 Marks)
  - If the car maintains the same speed for 6 hours, determine the distance covered (3 Marks)
  - Prepare a table to show the relationship between time and distance covered with the constant speed of 60 km/h. Take the starting time to be 0 and the maximum distance covered to be 360 km. Draw a line graph showing the relationship. (12 Marks)
17. a) Differentiate between stratified sampling and cluster sampling, giving examples. (4 Marks)
- b) Given the following frequency distribution, calculate the cumulative frequency: (4 Marks)

Table 1

Class Interval	Frequency	Cumulative Frequency
50 – 60	5	
60 – 70	8	
70 – 80	12	
80 – 90	10	

- Draw a bar chart representing the data in part (b). (5 Marks)
  - A survey was conducted to determine the number of vehicles passing through a toll station in one hour. Construct a Pie chart showing proportions for the following: Cars (45), Trucks (15), and Buses (10). Calculate the percentage of vehicles that were trucks (7 Marks)
18. a) Calculate the perimeter of a triangle with sides measuring 5 cm, 12 cm, and 13 cm. (2 Marks)
- b) A rectangular plot of land measures 50 meters by 30 meters. (8 Marks)
- Calculate the area of the plot in square meters
  - If the second rectangular plot is 40% larger than the first, calculate the area of the second plot.
  - If a fence is placed around the original plot, calculate the perimeter of the plot.

- c) A company uses a rate of 6.5% per annum to calculate interest on its savings. If the company deposits *Ksh* 50,000 for 2 years, determine the total amount of interest accrued. (5 Marks)
- d) Calculate the value of  $x$  from the equation  $4x^2 - 16 = 0$ . (5 Marks)
19. a) Draw and label a right-angled triangle where the lengths of two sides are 5 cm and 12 cm. (5 Marks)
- b) Evaluate  $(3^2 + 4^2)^{\frac{1}{2}}$ . Express your answer as a simplified root. (5 Marks)
- c) If a box has dimensions 10 cm by 5 cm by 2 cm, calculate its volume and convert the result to cubic meters. (5 Marks)
- d) Using a scientific calculator, evaluate  $7! \div 4! \times 3!$  (5 Marks)