

LEVEL 5

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.

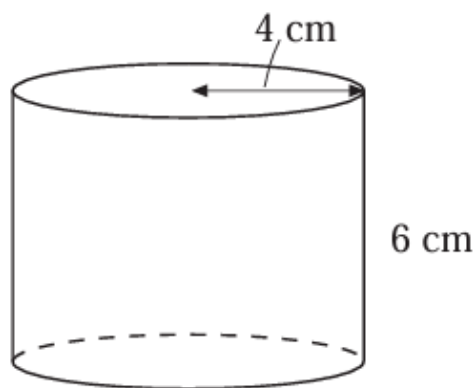
SECTION A (40 MARKS)

Answer ALL the questions in this section.

1. You are given an expression involving basic arithmetic operations. Simplify the following expression: $15 + 6 \times (12 - 4) \div 2$. (3 Marks)
2. In a construction project, 30% of a 5000-litre water tank is used daily. Find the number of litres left after 3 days of continuous use. (3 Marks)
3. Decimal numbers can be converted into fractions. Convert the following decimal into a simplified fraction. 0.875 (2 Marks)
4. Maps often use scales to represent distances. Using the scale of 1:200000. Calculate the actual distance in *km* if the map distance is 12 cm. (4 Marks)
5. Pythagoras' theorem helps in calculating the sides of a right-angled triangle. Find the missing side of the triangle given the hypotenuse of 13 cm and one side of 5 cm. (3 Marks)
6. Circles are normally represented with angles. Classify the following angles: 30° , 120° , 300° as either reflex, acute or obtuse angles of a circle. (3 Marks)
7. Use a ruler and a compass to draw a rhombus given the length of the diagonals are 8 cm and 6 cm respectively. Measure the length of the side (5 Marks)
8. A class was surveyed about their favorite subjects and the following data recorded:
Mathematics – 12 students
Science – 9 students
English – 7 students
History – 5 students
Draw a bar chart representing the data and interpret the results. (4 Marks)
9. An electrician orders 120 meters of cable at *Ksh* 50 per meter. If he negotiates a discount of 12%, calculate the amount he ends up paying (3 Marks)
10. To solve an algebraic equation, you need to isolate the variable. Solve for *x* in the following equation. $5x - 12 = 38$. (3 Marks)
11. You are tasked with painting a rectangular room. The dimensions of the room are 16.75 m by 14.35 m. Estimate the amount of paint required if 1 liter covers 12 square meters. (4 Marks)
12. A Cylindrical shape have a specific formula for calculating volume. Determine the volume of a cylinder with a radius of 4 cm and a height of 9 cm. Use $\pi = 3.14$. (3 Marks)

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

13. A surveyor needs to prepare a floor plan for a new building and must include details about the dimensions and areas of rooms.
- Use the scale of 1:200 to calculate the actual length of a room with 6 cm on the floor plan in metres. (5 Marks)
 - Use the scale from part (a) to find the perimeter of a building with a length of 15 cm, and a width of 10 cm. (5 Marks)
 - Given the following $A = P \left(1 + \frac{r}{n}\right)^{nt}$, using a calculator find the value of A when $P = 5000$, $r = 0.04$, $n = 4$ and $t = 3$. (5 Marks)
 - Construct a regular pentagon with side length of 40mm (5 marks)
14. a) A bakery uses a ratio of 3:5 for sugar to flour in making cakes. If 12 kg of sugar is used, calculate the amount of flour required (3 Marks)
- b) A technician needs to solve several problems using a calculator simplify the following expression: $(36 \div 6) + (9 \times 3) - (12 - 5)$. (4 marks)
- c) Figure 1 shows a closed cylinder of radius 4cm with a height of 6cm. Calculate its volume and the total surface area. (13 Marks)

**Figure 1**

15. A manufacturing company is analyzing their sales data over a six-month period to make informed decisions.
- Distribute the following data into a table and hence construct a line graph from the distribution to represent the following sales: January: 35 units, February: 42 units,

March: 38 units, April: 45 units, May: 41 units, June: 48 units. Label your axes.

(14 Marks)

- (i) Calculate the total sales over the six months
- (ii) The company plans to increase sales by 12% in July. Find how many units they should target for July.

b) A car travels a distance of 240 km in 3 hour. Calculate the speed of the car in km/h to the nearest whole number (3 Marks)

c) State the complimentary angles of 22°, 47°, 62° (3 Marks)

16. Figure 2 below shows the lid of a child's shape sorter box in 2D.

a) Calculate the area of the shaded region (12 Marks)

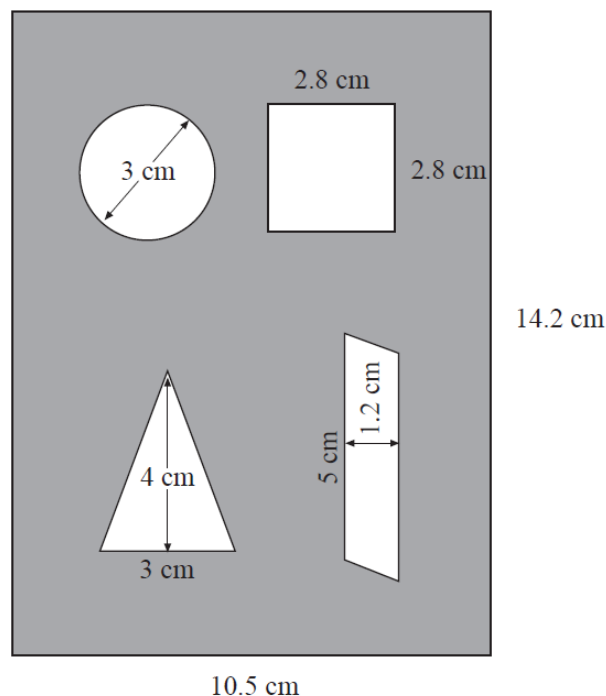


Figure 2

b) The project was estimated to take 240 hours. However, the actual time spent was 210 hours. Calculate the percentage of the estimated time. (3 Marks)

c) An electrician is tasked with calculating the total cost of installing new lights in a warehouse. Each light costs Ksh 30, and the installation cost is Ksh 45 per light.

Calculate the total cost of installing 15 lights. (5 marks)