

**Level 5**

**Demonstrate Numeracy Skills**

**November/December 2023**



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

**WRITTEN ASSESSMENT**

**Time: 3 Hours**

**INSTRUCTIONS TO CANDIDATES**

1. This paper has **THREE** sections **A, B** and **C**
2. You are provided with a separate answer booklet.
3. Marks for each question are as indicated
4. Do not write on the question paper.

**This paper consists of EIGHT (8) printed pages**  
**Candidates should check the question paper to ascertain that all the pages are printed as**  
**indicated and that no questions are missing**

**SECTION A: 20 MARKS**

*Answer all the questions in this section.*

*Each question carries one Mark*

1. In a grazing field the ratio of goats to sheep is 4:3, sheep to cows 5:2 and cows to donkeys is 3:2. Determine the ratio of goats to donkeys.
  - A. 1:2
  - B. 1:1
  - C. 2:1
  - D. 5:1
2. A rectangular garden is enclosed by 320 metres of fencing. If the length of the field is 6 metres more than its width, find its length, in metres.
  - A. 80
  - B. 83
  - C. 77
  - D. 157
3. A Lorry travels at a speed of 60 Kilometers per hour. Find the distance travelled in 2.5 hours.
  - A. 120km
  - B. 150km
  - C. 125km
  - D. 140km
4. Solve the equation  $2^{3x-1} = 256$ .
  - A. 128
  - B. -3
  - C. 3
  - D. 8
5. In statistics, a bar graph represents
  - A. Continuous data
  - B. Discrete data

- C. Categorical data
  - D. Ordinal data
6. In a map, the distance between two towns A and B is 20cm. Using a scale of 1cm to represent 10km, find the actual distance between the two towns.
- A. 10Km
  - B. 2Km
  - C. 20Km
  - D. 200Km
7. The following formulae was used to scale the performance of two items in the market. Given that  $x$  was awarded value of 3,  $\frac{1}{5}y^2 + 5 = 5x$ . Find the corresponding value of  $y$ .
- A. 5
  - B. 3
  - C. -5
  - D. -3
8. Baraka enterprise packed 15 cartons each containing 20 bottles of juice. The amount of juice in each bottle was 250ml. Find the total amount of juice, in litres, packed by the company.
- A. 75
  - B. 75000
  - C. 7500
  - D. 150
9. When an isosceles triangle is rotated about its line of symmetry, which three dimensional figure will be formed?
- A. Cone
  - B. Cube
  - C. Cylinder
  - D. Triangular prism
10. Evaluate  $0.003 - 0.0018 - 0.01 + 0.42$ .
- A. 0.4122

- B. 0.4112
- C. 0.4212
- D. 0.41

11. Find the value of  $24 \div 3 + 4 \times 5 - 8 \div 4 \times 10 + 1$ .

- A. 7
- B. 28
- C. 21
- D. 9

12. A rectangle has a length of 8 cm and a width of 5 cm, determine its perimeter.

- A. 13
- B. 40
- C. 26
- D. 20

13. Muna is to be paid sh. 12500 for working 25 days in an ostrich farm. How much money was he paid after working for 22 days?

- A. Sh. 1500
- B. Sh. 11000
- C. Sh. 12000
- D. Sh. 12500

14. Evaluate  $\frac{7}{9}$  of  $\left(\frac{3}{4} - \frac{1}{3}\right) + \frac{2}{5}(10 \div -2)$  and express your answer in 3 decimal form

- A. -1.676
- B. 1.676
- C. -1.675
- D. 1.675

15. The area of a sector whose radius is 7cm is  $23.1\text{cm}^2$ . Find the angle subtended at the center.

- A. 154
- B. 54
- C. 27

- D. 108
16. A dairy farmer buys animal feeds in sacks of 80kg, 60kg, and 40kg. Find the largest quantity of feed that can be packed out of these sacks without any feed being left over.
- A. 40
  - B. 15
  - C. 20
  - D. 450
17. In a bar graph, what does the height of a bar represent?
- A. Frequency or count
  - B. Time
  - C. Percentage
  - D. Magnitude
18. Find the mode of the following data: 12,8,21,12,4,11,18,13,20,19,21,12 and 11.
- A. 12
  - B. 13
  - C. 12.5
  - D. 15.5
19. Find the surface area of a cubic open tank sides 7metres.
- A.  $245 \text{ m}^2$
  - B.  $49 \text{ m}^2$
  - C.  $28 \text{ m}^2$
  - D.  $294 \text{ m}^2$
20. Find the next number in the pattern 12, 10, 6, 0, -8.
- A. -16
  - B. 2
  - C. 10
  - D. -1

**SECTION B (40 MARKS)**

*Answer all the questions in this section*

21. A shopkeeper bought 7 trays of eggs at K.sh 400 per tray. On the way to the kiosk 40 eggs broke. The remaining were sold for Kshs.16 each. Determine his percentage loss. (4 Marks)
22. Arrange the following fractions in descending order.  
 $\frac{3}{2}, \frac{7}{5}, \frac{9}{10}, \frac{11}{15}, \frac{3}{7}$  (3 Marks)
23. A numeracy learning guide has 97 sheets of paper, front cover and back cover. Each sheet of paper has a mass of 6 grams while front and back cover in total weigh 15 g. Find the mass of the book in kilograms. (3 Marks)
24. Given that the mean of the numbers 18, 20, 15, x, 24 and 12 is 17, determine the value of x. (3 Marks)
25. Three light signals A, B and C go on at intervals of 45 seconds, 75 seconds and 30 seconds respectively. They first signaled at 9 pm. Determine the time that will elapse before the signal go on again simultaneously. (5 Marks)
26. A piece of land of area 4800 m<sup>2</sup> and perimeter 280 m. Find the dimensions of the land in cm. (5 Marks)
27. Using a ruler and a pair of compass only, construct a triangle ABC with sides AB= 5cm, AC=5cm and angle BAC= 60°. (5 Marks)
28. The sum of the interior angles of a polygon is 1980°. determine the number of sides of the polygon. (3 Marks)
29. A straight line passes through the points P (-4, 2) and Q(2, 7). determine the equation of the perpendicular line through Q. (4 Marks)
30. A candidate scored 60% in numeracy, 70% in metal work, 80% in employability skills, 75% in digital literacy, and 55% in applied science. Represent the score in a pie chart. (5 Marks)

**SECTION C (40 MARKS)**

*Answer any TWO questions in this section*

31. (a) A student takes a train for two-thirds of his journey, a bus for seven eighths of the remainder, and walks the rest of the journey. Given that the bus journey is 3 kilometers longer than the walking part, the total distance covered by the student is? (7 Marks)

(b) A school watchman started walking due East from a dormitory 100m South of a bore-hole. He walked to the school library from which the bearing of the bore-hole is  $315^\circ$ . He then walked on a bearing of  $030^\circ$  to the water tank. From the water tank he went west to the bore-hole.

(i) Using a scale of 1cm to represent 20m, construct a diagram to show the positions of the tank, borehole, dormitory and library. (5 Marks)

(ii) Find the distance and bearing of the bore-hole from the water tank. (4 Marks)

(iii) Calculate the total distance covered by the boy. (4Marks)

**Table 1**

Salary	20 - 25	25 - 30	30 -35	35 -40	40 - 45	45 - 50	50 - 55
Number of technicians	3	10	11	22	11	8	5

32. Table 1 above shows the salaries in thousands of shillings of 70 technicians sampled from different Institutions of higher learning.

Determine the:

(i) Mean salary. (5 Marks)

(ii) Median salary. (5 Marks)

(iii) Mode. (5 Marks)

(iv) Standard deviation. (5 Marks)

33. (a) A segment is bounded by a cord of length 14 cm and an arc of radius 25 cm. Find:

(i). Its area. (5 Marks)

(ii). Perimeter of the segment. (5 Marks)

(b) A solid is made up by joining a cone of radius 14cm to a cylinder of the same radius. The slant height of the cone is 25 cm and the height of the cylindrical part is 28 cm. Determine the volume of the solid in litres correct to 4 decimal places. (10 Marks)

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