Level 5

Demonstrate Numeracy Skills Level 5

March/April 2024

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

CANDIDATE WRITTEN ASSESSMENT

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **THREE** sections **A, B** and **C**.

2. Answer **ALL** questions in sections **A**, **B** and **TWO** questions in section **C** in the answer booklet provided.

3. Marks for each question are indicated in brackets.

4. You should have a non-programmable calculator.

5. Do not write on this question paper.

6. Answer the questions in **English.**

This paper consists of Ten (10) printed pages.

Candidate 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** questions in this section.*

1. Find the next number in the sequence 4, 6, 10, 16, 24, … (1 Mark)

    A. 30

    B. 26

    C. 34

    D. 25

2. Express the recurring decimal $0.\dot{5}$ as a fraction (1 Mark)

    A. $\frac{5}{10}$

    B. $\frac{5}{9}$

    C. $\frac{55}{100}$

    D. $\frac{9}{5}$

3. Determine the area of the sheet in Figure 1 to 2 decimal places. *Take* $\pi = \frac{22}{7}$
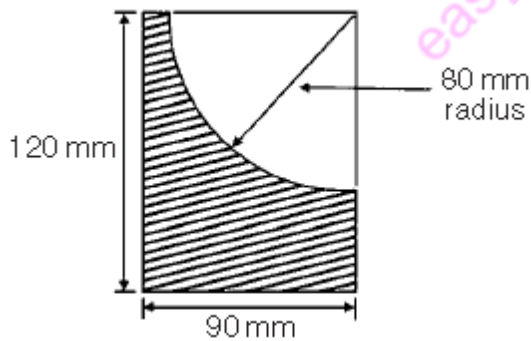
    (1 Mark)

80 mm radius

120 mm

90 mm

   Figure 1

    A. $5771.43mm^2$

    B. $5771.34mm^2$

    C. $577.13mm^2$

    D. $7571.43mm^2$

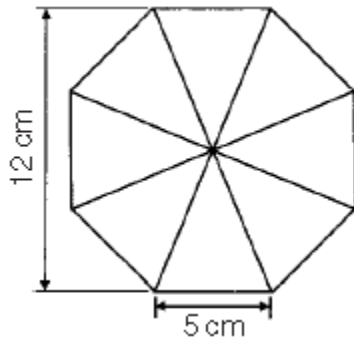4. Find the area of the octagon in Figure 2. (1 Mark)

Figure 2

A. 1200

B. 12

C. 15

D. 120

5. Determine the value of $73 + 35 \div (11 - 4)$ (1 Mark)

A. 108

B. 78

C. 70

D. 87

6. A shopkeeper packed 20 crates of soda each containing 24 bottles. The amount in each bottle was 330 ml. Find the total capacity in litres. (1 Mark)

A. 1584

B. 15.84

C. 158.4

D. 1584000

7. Find the value of x in the equation. (1 Mark)

$6x + 1 = 2x + 9$

A. 2

B. 0.2

C. 4

D. 6

8. The slope of a linear speed-time graph represents. (1 Mark)

    A. Variable acceleration

    B. Constant acceleration

    C. Velocity

    D. Distance

9. Table 1 shows the number of people visiting a post office for six days.

Table 1

Day	Mon	Tue	Wed	Thurs.	Fri	Sat
Number of people	50	x	60	y	80	90

If x is more than y by 30 and the total number of people were 390, find the values of x and y. (1 Mark)

    A. $x=71, y=40$

    B. $x=70, y=41$

    C. $x=70, y=14$

    D. $x=70, y=40$

10. The pictogram in Figure 3 shows hours spent by a student revising for an examination. How many hours did he spent in revising that week? (1 Mark)
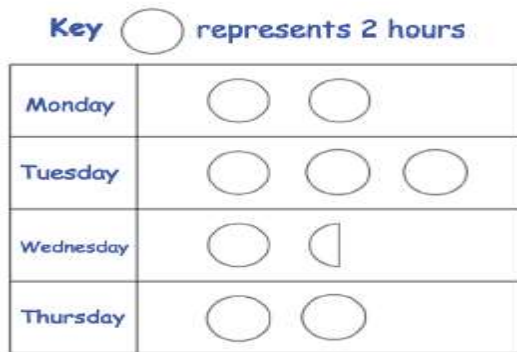

Figure 3

    A. 17

    B. 9

    C. 71

    D. 8.5

11. A sugar Company sold 9 tons of sugar in 90kg bags. How many bags were sold? (1Mark)

    A. 10

    B. 100

    C. 99

    D. 81

12. When a rectangle is rotated on its line of symmetry, which figure does it form? (1 Mark)

    A. Cube

    B. Rectangular pyramid

    C. Sphere

    D. Cylinder

13. Table 2 shows the number of students admitted in two schools.

    Table 2

School	School A	School B
Boys	300	400
Girls	350	460

    How many students in School B exceeded School A? (1Mark)

    A. 100

    B. 110

    C. 50

    D. 210

14. Evaluate: $\frac{7}{6} of \left(3\frac{1}{2} - 2\frac{1}{4}\right) + \frac{1}{8}$ and round off your answer to 3 decimal places. (1Mark)

    A. 1.583

    B. 15.83

    C. 1583

    D. 158.3

15. A sector has an area of $23.1cm^2$ and subtends an angle of 54° at the center of a circle. Find the radius of the circle. (1 Mark)

    A. 7m

    B. 7cm

    C. 0.7cm

    D. 70cm

16. On a geographical map, the distance between two towns A and B is 10cm. Using a scale of 1cm to represent 1Km. Find the actual distance between the two towns. (1 Mark)

    A. 100km

    B. 10km

    C. 1000km

    D. 200km

17. A craftsman recorded the following measurements 5m, 0.5m, 50cm, 0.5cm. Find the total measurement in centimeters. (1 Mark)

    A. 60.05cm

    B. 600.5m

    C. 56cm

    D. 600.5cm

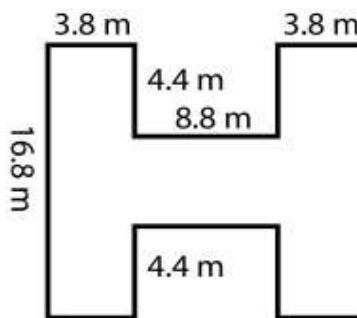18. Figure 4 shows the work piece of a workshop. Find the perimeter of the work piece.

(1 Mark)

Figure 4

    A. 80

    B. 83

    C. 84

    D. 82

19. A rectangular playing ground is enclosed by 340 metres of fencing wire. If the length of the field is 10 metres more than its width, find its width. (1Mark)

    A. 80m

    B. 90m

    C. 100m

    D. 80cm

20. Table 3 shows the charges for wiring activities in a workshop.

Table 3

Activity	Charges per hour in Ksh.
Cables stripping	200
Wiring	400
Workshop cleanliness	150

Calculate the total amount of money paid to a technician who works for 1 ½ hours in each activity. (1Mark)

    A. Ksh.750

    B. Ksh.1050

    C. Ksh.105

    D. Ksh.1500

SECTION B: [40 MARKS]

*Answer **all** the questions in this section*

21. Find the base diameter of a circular cone whose vertical height is 10cm and the volume is 88cm^3. (4 Marks)

22. Three signals flash at intervals of 30 minutes, 60 minutes and 80 minutes. If they flash simultaneously at 7.30 a.m., at what time will they next flash together. (4 Marks)

23. A line passes through the points A (1,2) and B (4, 8), Find the equation of a line perpendicular to line AB and passing through point C (8,0). (5 Marks)

24. In figure 5, find angles a, b and c given that AB is a tangent and O is the center of the circle. (4Marks)
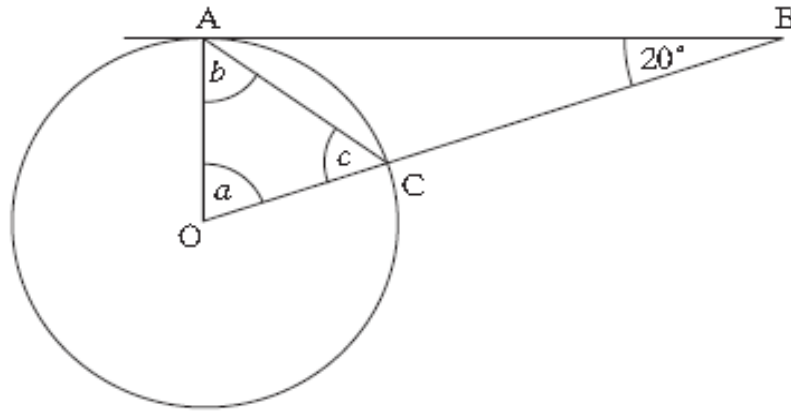
Figure 5

25. A candidate scored 60% in English, 80% in Electricity, 50% in History, 70% in Physics and 40% in Biology. Represent the scores in a pie chart. (5 Marks)

26. Table 4 represents a relationship between two variables x and y.

Table 4

x	1	2	3	4	5	6
y	3.1	4.9	7.2	9	10	13

   a) Draw the line of best fit on a graph. (3Marks)

   b) Use the graph to find the y intercept. (1Mark)

27. The sum of interior angles of a regular polygon is 720°. Find the size of the exterior angle. (3Marks)

28. Using compass and ruler only, construct a triangle such that AB= 4cm, BC = 6cm and angle ABC = 75^0. Measure the length of AC. (4 Marks)

29. Evaluate: (3 Marks

$$23 - 4(2 \times 7) + \frac{(144 \div 4)}{(14\text{-}8)}$$

30. A student scored the following marks in eight subjects 50, 60, 90, 65, 75, 80, 85,70. Determine the:

   a) Median mark. (2 Marks)

b) Mean mark. (2 Marks)

SECTION C (40 MARKS)

*Answer any **two** questions in this section.*

31. The marks scored by candidates in an exam are shown in table 5.

    Table 5

Marks	Candidates
1-20	20
21-40	30
41-60	50
61-80	45
81-100	35
101-120	10

a) State the modal class; (1 Mark)

b) How many candidates scored above 40 marks: (2 Marks)

c) Find the median of the distribution: (4 Mark)

d) Find the mean mark of the data; (4 Marks)

e) Determine the standard deviation; (4 Marks)

f) Construct a histogram of frequency against the actual class boundaries. (5 Marks)

32. (a) The lens formula is given by $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$, evaluate the value of v when f =5 and

   u =6. (5 Marks)

(b) Sammy left a point O and walked at a speed of 6.5km/hr on a bearing of $070°$. At the same time, a cyclist left point O on a bearing of $130°$ travelling at constant speed.

   i) Using a scale of 1cm to represent 10m, construct a diagram to show the position of Sammy and the cyclist after 5hrs. (7 Marks)

   ii) Find the average speed and bearing of the cyclist after 5hrs if they are 80km apart with Sammy. (8 Marks)

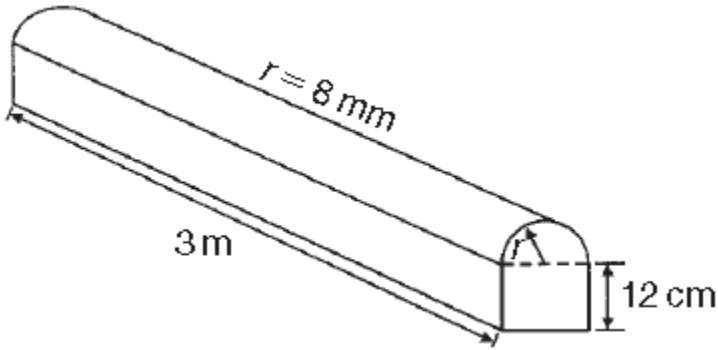33. a) Figure 6 shows a wooden section a box. Calculate:

Figure 6

      i)   Volume of the box in cubic metres.   (4 Marks)

      ii) Total surface area.   (5 Marks)

  b) Figure 7 shows a boiler consisting of a cylindrical section of height 8m and diameter 6m. On one end it is surmounted by a hemispherical section of diameter 6m and on the other end, a conical section of height 4m and diameter 6m. Calculate the:

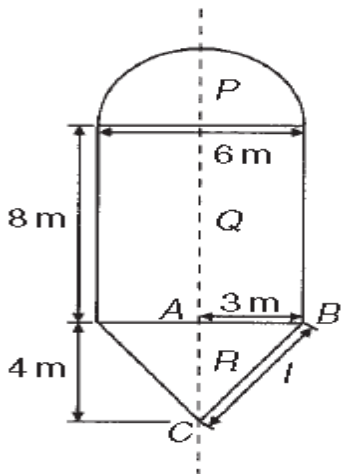   i)   Volume of the boiler.   (5 Marks)

  Figure 7

ii) Total surface area.   (6 Marks)

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