



AMREF INTERNATIONAL TRAINING CENTER

Qualification Code :
Qualification : LEVEL 5
Unit Code :
Unit of Competency : Demonstrate Numeracy Skills

WRITTEN ASSESSMENT

TIME 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. You have **THREE** hours to answer all the questions.
2. Marks for each question are indicated in the brackets.
3. The paper consists of **TWO** sections: A and B.
4. Do not write on the question paper.
5. A separate answer booklet will be provided.
6. Use of Scientific calculators is allowed.

This paper consists of five (5) printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated.

SECTION A: [40 MARKS]*Attempt all questions in these sections*

1. Safi wholesalers 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. (3 Marks)
2. On 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. (3 Marks)
3. Find longitude difference between two towns which are (30° N, 70° W) and (30° N, 30° E) (3 Marks)
4. A rectangular field is enclosed by 320 feet of fencing. If the length of the field is 6 feet more than its width, what is its length, in feet? (3 Marks)
5. Evaluate $\frac{5}{6}$ of $\left(4\frac{1}{3} - 3\frac{5}{6}\right)$ without using a calculator (3 Marks)
 $\frac{5}{12} \times \frac{3}{25} + 1\frac{5}{9} \div 2\frac{1}{3}$
6. A profit of Kshs. 38,000 was to be shared by Alice, John and Eva in the ratio 3:7:9. Find how much each got. (3 Marks)
7. Pupils from the cycling club cycled along the south coast. The table below shows the time they cycled each day and the average speed. Determine the day they cycle the longest distance (4 Marks)

Day	Time (hours)	Average Speed (in kilometers per hour)
Monday	5	16
Tuesday	6	14
Wednesday	4.5	18
Thursday	5.5	22
Friday	6.5	20

8. A floor measuring 45m by 20m is to be covered with square tiles of side 15cm each. Calculate the number of such tiles required. (3 Marks)
9. A candidate scored 60% in math, 70% in metal work, 80% in business studies, 75% in ICT, and 55% in applied science. Represent the score in a pie chart. (3 Marks)

10. Jane sold her car to Mike and made a profit of 20%. After two years, Mike sold the car to Tedd at Sh.324, 000, making a loss of 10%. Determine the price at which Jane bought the car (4 Marks)
11. A man leaves a point walking at 6.5 km/h in a direction E 20° N (i.e. a bearing of 70°). A cyclist leaves the same point at the same time in a direction E 40° S (i.e. a bearing of 130°) travelling at a constant speed. Find the average speed of the cyclist if the walker and cyclist are 80 km apart after 5 hours. (5 Marks)
12. The mean mark of student performance calculated using the formula $Q = \frac{x+y+z}{3}$ where $x =$ CAT 1, $y =$ CAT 2, $z =$ CAT 3 find the value of y given that when $x=80$, $Q=64$ and $z=73$. (3 Marks)

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SECTION B (60 Marks)*Answer question 11 and other TWO questions*

13. Table 1 shows marks obtained by 100 students at AMREF Training Centre in Mathematics examination.

Table 1

Marks	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85-94
Frequency	6	14	24	14	x	10	6	4

Determine:

- value of x ; (2 Marks)
- Modal class; (1 Mark)
- Median mark; (5 Marks)
- Mean mark; (6 Marks)
- Standard deviation. (6 Marks)

14.

- a) A boiler consists of a cylindrical section of height 8 m and diameter 6 m. On one end a hemispherical cap of diameter 6 m is mounted while on the other end conical section of height 4 m and base diameter 6 m is fixed as shown in the figure 1 below

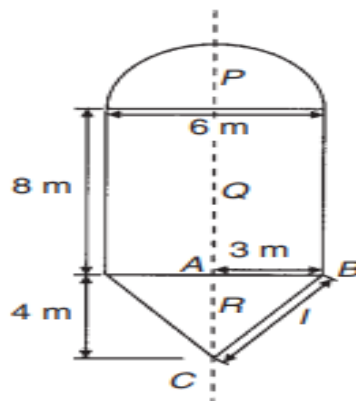


Figure 1

Determine the:

- Volume of the boiler (5 Marks)
 - Total Surface area (5 Marks)
- b) State one difference between a two dimension (2D) figure with a three dimension (3D) figure (2 Marks)
- c) Name two 2D figures and two 3D figures (2 Marks)
- d) State any three uses of shapes in our daily lives (3 Marks)

- e) The sum of interior angles of a regular polygon is 1080° . Find the size of each exterior angle. (3 Marks)
15. A boy 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° . He then walked on a bearing of 030° to the water tank. From the water tank he went west to the bore-hole.
- (a) Using a scale of 1cm to represent 20m, construct a diagram to show the positions of the tank, borehole, dormitory and library. (10 Marks)
- (b) Find the distance and bearing of the bore-hole from the water tank. (5 Marks)
- (c) Calculate the total distance covered by the boy. (5 Marks)
- 16.
- a) Kasee wants to grow vegetables at his rented apartment. He buys 16 raised beds measuring 1 m by 4 m by 0.5 m.
- i) Calculate the volume of one raised bed in cubic centimetres. (4 marks)
- ii) How many 40-litre bags of soil will Kasee need for each raised bed (3 marks)
- iii) How much will soil cost for one raised bed A 40-litre bag of soil costs Ksh. 250. (3 marks)
- iv) How much will she spend on soil in total? (2 marks)
- b) A tin of shoe polish is 8 cm in diameter and 2 cm high. The shoe polish must be stored in an upright position. Find the number of tins that will fit into a carton of dimensions 40 cm by 32 cm by 10 cm. (4 Marks)
- c) At the final school rugby match, the ratio of children to adults is 3 : 2. There are 120 children in the crowd. Each adult ticket costs £9. Each child ticket costs a third of the adult ticket. How much money was collected from the ticket sale? (4Marks)