JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF BIOLOGICAL, PHYSICAL, MATHEMATICS AND ACTUARIAL SCIENCE

UNIVERSITY EXAMINATION FOR DIPLOMA FOR TVET

1ST YEAR 1ST SEMESTER 2022/2023 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE   :   WMB 2111

UNIT OF COMPETENCY : NUMERACY SKILLS I

DATE: 08/12/2022   **SESSION : 9.00-11.00AM**

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATE

This assessment requires you to demonstrate competence against unit of competency: **Numeracy**

Skills

 In this assessment, you will be required to answer three Sections **A, B and C.**

*You have **two (2) hours** to answer all the questions.*

You are provided with a separate answer booklet.

Write your Name, Registration Number, Date and Signature.

Do not write on the question paper.

Marks for each question are indicated in the brackets [ ]

TIME: 2 HOURS

SECTION A (10 MARKS)

1. Which of the following is the largest fraction?   (1Mark)

   7/8, 4/5, 7/9 , 11/17

   A. 4/5

   B. 11/17

   C. 7/9

   D. 7/8

2. A farmer decides to sell 25% of his 500 cows. How many cows does he sell? (1 Mark)

   A. 125

   B. 127

   C. 200

   D. 250

3. What is $\dfrac{128 miles}{4 hours}$ written as a unit rate?   (1 Mark)

   A. 64/2 miles per hour
   B. 16miles per hour
   C. 32miles per hour
   D. 128miles per 4 hours

4. Using a calculator, find the value of $\sqrt{36 \times 49}$ (1Mark)

   A. 40
   B. 41
   C. 42
   D. 43

5. A pupil scores 45.5% in Test 1 and 64.5% in Test 2. Calculate the pupil's average mark, assuming they were weighted equally?   (1Mark)

   A. 62%

   B. 50%

   C. 55%

   D. 58%

6. The following are 2-D objects except?   (1Mark)
   A. Circle
   B. Rectangle
   C. Triangle
   D. Cuboids

7. The following are methods of data sampling except?   (1 Mark)
   A. Probability sampling
   B. Systematic sampling
   C. Clustered sampling
   D. Quota sampling

8. Express 10000cm^3 in liters?   (1 Mark)
   A. 1 liter
   B. 100 liters
   C. 10 liters
   D. 1000liters

9. One of the following is not a type of an angle.   (1 Mark)
   A. Reflux
   B. Acute
   C. Obtuse
   D. Straight

10. Find the value of x in $2x + 1 = 6$ (1 Mark)
    A. 5
    B. 7/2
    C. 5/2
    D. 7

SHORT STRUCTURED QUESTIONS: SECTION B (40 MARKS)

11. The formula $C = \dfrac{25}{45}(F - 160)$ is used to convert temperature in degrees Fahrenheit to degrees Celsius. Calculate

a) the value of C when F=205   (3 Marks)
b) the value of F when C=125   (3 Marks)

12. The two way table shown compares pupils' results for GCSE Maths with GCSE Science grades.

Maths GCSE Grades	Science GCSE Grades								Total
	A*	A	B	C	D	E	F	U	
A*									
A			3						3
B	1	2	4	2	3				12
C		2	3	10	2	2		1	20
D			2	3					5
E									
F									
U									
Total	1	4	12	15	5	2		1	40

Determine
i)   The number of pupils who achieved a C grade in both Science and Mathematics
            (2 Marks)
ii)   The number of pupils who got a D grade in Mathematics   (2 Marks)

iii)   The number of pupils who got a B grade in Mathematics   (1Mark)

13. How many quarters are there in 7/9 (2Marks)

14.   The pie chart below shows the number of pupils who got a Grade C or better in Science in three different schools.

Grace C or above across three different schools

School 3
67

School 1
58
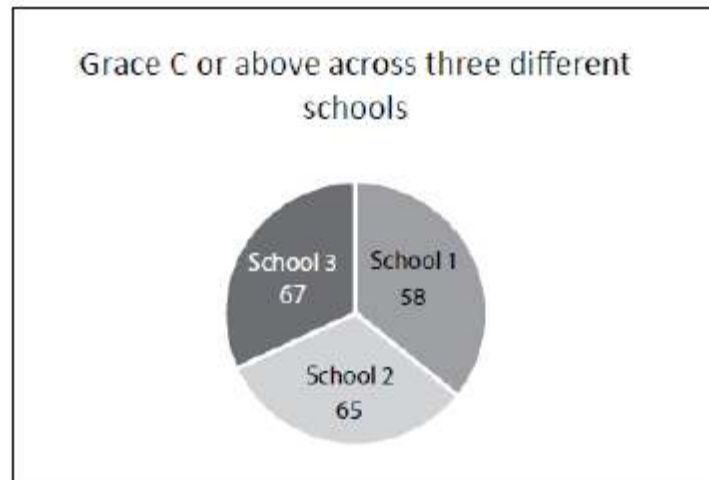
School 2
65

Calculate

i)   The percentage of pupils who got a grade C or above in Science in School 3 (2Marks)

ii)   The percentage of pupils who got a grade C or above in Science in School 1 (3 Marks)

iii)   The proportion of pupils getting a grade C or above in Science at School 2   (1Mark)

15. The mean of three numbers is calculated using the formula $Q = \dfrac{x + y + z}{3}$. Find the value

Of Q given that when x=8, y=17 and z=2.   (3Marks)

16. The head of English created the following table showing the number of pupils in each year group who had additional help in English. Express in percentage the total number of pupils that are not having additional tuition. Give your answer to the nearest whole number.   (4Marks)

Year Group	No. of pupils	No. of pupils receiving additional help in English
7	96	15
8	108	21
9	111	16
10	98	9
11	116	15

17. The plan shows the dimensions of an L-shaped sitting room. The house owner wants to buy skirting board to go around the edge of the room, leaving gaps at the doors. Determine the shortest length of skirting board he can buy.   (4 Marks)
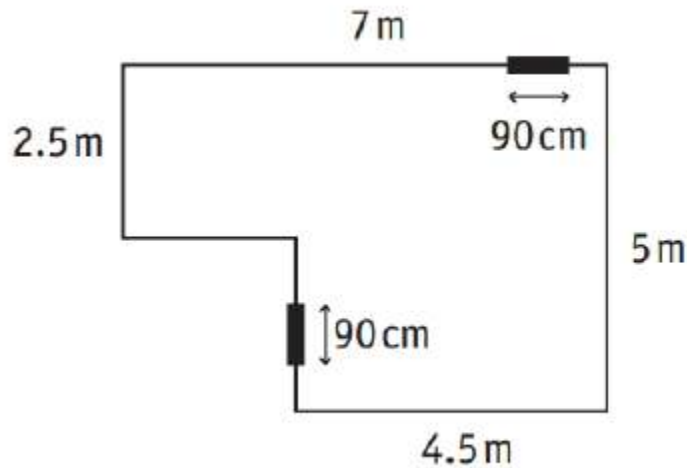

Not drawn to scale

18. The diagram below shows the plan of a patio. The patio is to be paved with square paving slabs of sides of 0.5 meters. Calculate the number of slabs required.
(5Marks)
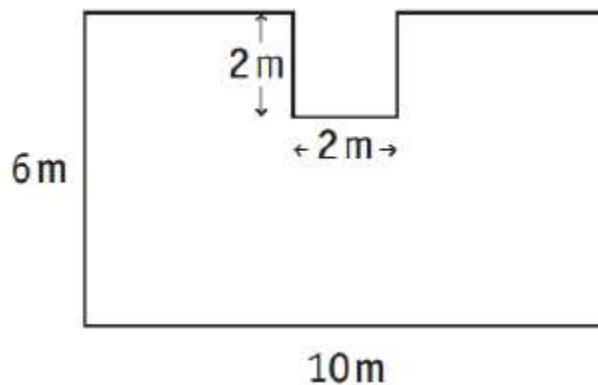
Not drawn to scale

19. 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 fi t into a carton of dimensions 40 cm by 32 cm by 10 cm.   (5 Marks)

8 cm

↕ 2 cm

10 cm

40 cm   32 cm

Not drawn to scale
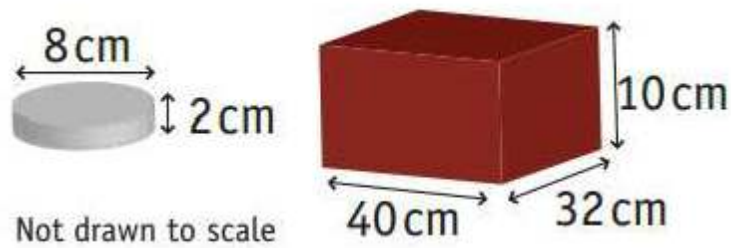
SECTION C (50 MARKS)

20. Pupils from the cycling club cycled along the south coast. The table below shows the time they cycled each day and the average speed.   (6Marks)

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

Determine the day they cycle the longest distance.

21. a) Manyatta village is 74km North West Nyanguta village. Chammwe village is 42km West of Nyanguta. by using scale drawing find the distance between Chammwe and Manyatta.(5marks)

b)Using a suitable scale drawing, draw a water tank in form of a   dimensions 4meters and determine its capacity in litres. (5marks)

22. In Year 3, pupils take different measurements at school. As part of their homework, they were asked to measure their journey time to school to the nearest minute. The teacher used a cumulative frequency graph to present this data which later was looked at by Year 6 pupils when they were learning about different ways of displaying data.   (6 Marks)
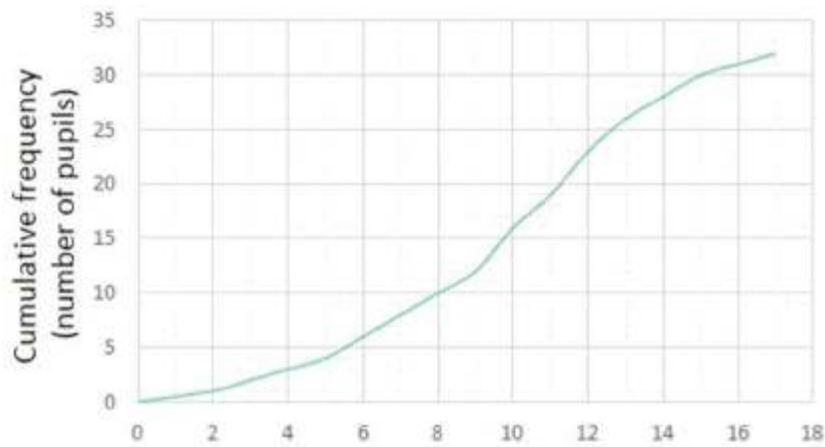
Calculate

a. The median time spent to school

b. Time spent to school by 25% of pupils
c. Time spent to school by 75 of pupils.

23. Jane paints clay figurines to sell at a crafts fair. The graph shows that the number of figurines she paints, y, is directly proportional to the number of days she paints, x.
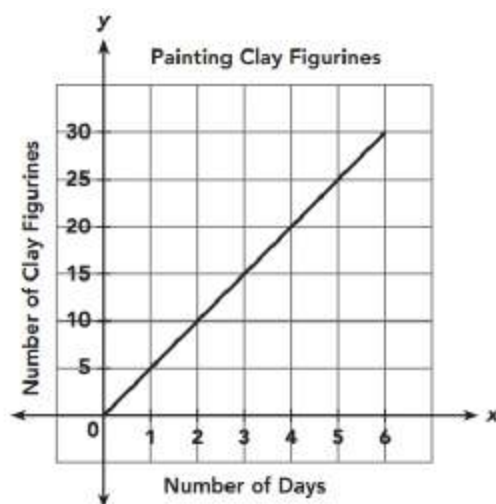
        i)   Determine the constant of proportionality(2 Marks)

        ii)   What does the constant of proportionality represent in this situation? (1 Mark

        iii)   How long will it take Jane to paint 30 figurines?   (3 Marks)

24. 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?   (6Marks)

26. Outline the steps of finding the value of $\dfrac{3.51 + 4.51}{7.5 \times 1.28}$ using a calculator   (6 Marks)

27. Evaluate the roots of $2x^2 - 5x - 3 = 0$ using the quadratic formula   (4Marks)

25. Expand the expression $(x - y)^5$