



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

UNIVERSITY EXAMINATIONS 2022/2023 ACADEMIC YEAR

DIPLOMA SECOND SEMESTER EXAMINATIONS

(MAIN EXAM)

FOR THE DIPLOMA OF SCIENCE IN:

- 1. EMERGENCY MANAGEMENT AND HUMANITARIAN ASSISTANCE**
- 2. CONFLICT RESOLUTION AND HUMANITARIAN ASSISTANCE**

COURSE CODE: SEC/CU/DM/BC/02/6

COURSE TITLE: NUMERACY SKILLS

DATE: 20/4/2023

TIME: 2-4 pm

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

TIME: 2Hours ▶

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

1. (a) Numeracy is a term that is normally used interchangeably with Mathematics.

i) State two similarities between Numeracy and Mathematics. (2 marks)

ii) Numbers are an integral part of Mathematics and Numeracy. What do you understand by the following terms? (3 marks)

I. Prime numbers –

II. Whole numbers-

III. Natural numbers –

iii) It is a fact that light travels at a speed of 300,000,000 m/s; which translates to 9,460,800,000,000,000 m/year. This figure is inconvenient not only to write, but also to pronounce. Give the place value of 6. (1 mark)

iv) On one Friday morning a survey of workers present was done during a mock fire outbreak drill. The number of those present at the fire Assembly venue was subtracted from the total number of the company employees. What term is given to the missing (absent) number of employees? (1 mark)

(b) 360 employees of the same security agency firm all claimed overtime allowances. They each worked beyond the stipulated times on 18 days. The agency firm overtime allowances are paid at Kshs. 500 per day. How much did this cost the Firm? (3 mark)

(c) Wamukoya's working place is 20km away from his rented apartment. If he goes to work daily including Sundays,

i) how many kilometers does he travel in 30 weeks? (3 marks)

ii) How much does he spent on fare per month, given that he pays a friendly fare of Kshs. 80 one way daily? (2 marks)

(d) Simplify:

i) $\frac{wa + wb}{ma + mb}$

ii) $\frac{nx - ny + zx - zy}{n + z}$

(4 marks)

(e) Convert the following percentage into decimals:

(2 marks)

i) 12%

ii) 8.2%

(f) A lorry was loaded with 60 gas cylinders containing Carbon IV oxide (black) and Water (red). 22 of them were red. What proportion of the gas cylinders contained Carbon IV oxide?

(2 marks)

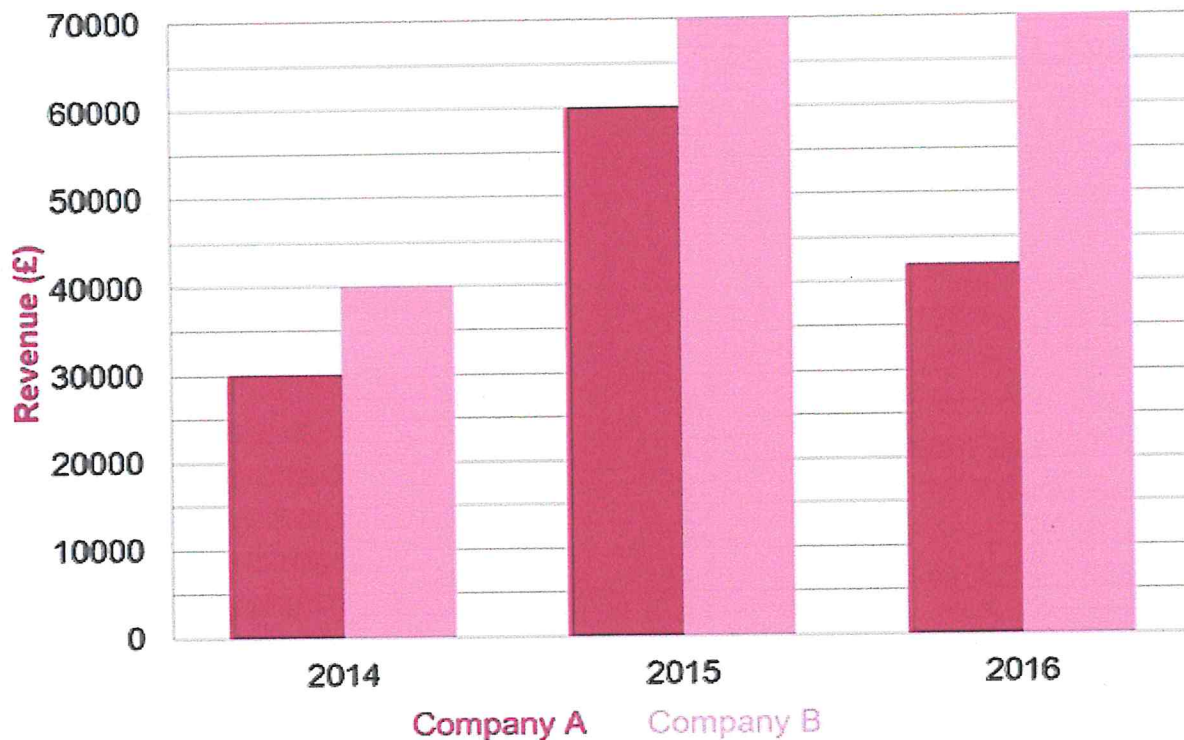
(g) The number of hours 9 students spent on revision in the winter and summer Terms were recorded. The results are displayed in the table below.

Student	Number of hours spent on revision	
	Winter Term	Summer Term
A	10	15
B	12	12
C	3	7
D	13	12
E	7	6
F	25	27
G	8	11
H	9	10
I	18	12

What fraction of the students spent more hours revising in the Summer than in the Winter?

(2 marks)

(h) The revenues over the past three years of two market competitors, company A and Company B are displayed below.



Which of the following statement(s) are/is not true? **(3 marks)**

- A: The revenue of company A quadrupled from 2014 to 2015
- B: The revenue of Company B saw an increase of 50% from 2014 to 2015
- C: There was a 10,000 pounds difference in revenues between the two companies in 2015

(i) State two errors in Sampling as a method of collecting data in statistics. **(2 marks)**

2. A soda depot had **30840** sodas which were packed in crates. Each crate contained 24 sodas. The mass of an empty crate was 2 kg and that of a full crate is 12 kg.

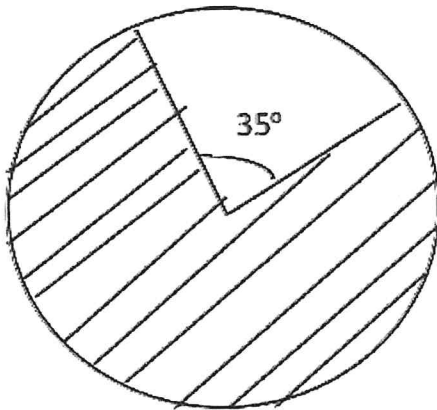
a) How many crates were there? **(2 marks)**

b) What was the total mass of empty crates? **(2 marks)**

c) What was the total mass of sodas alone? **(3 marks)**

d) A lorry was hired to transport the crates at a cost of sh. 5 per crate of soda per trip. The lorry could only carry 107 crates per trip. How much money was spent on transporting all the crates? **(3 marks)**

- e) Calculate the area of the shaded region given that the radius of the circle is 24cm. **(4 marks)**



- f) Two spheres have surface areas of 36cm^2 and 49cm^2 . If the volume of the smaller sphere is 20.2cm^3 calculate the volume of the larger one. **(3 marks)**

- g) Calculate the volume of a sphere of radius 7cm. **(3 marks)**

3. The table below shows the distribution of marks in a mathematical test done by 100 form Three students at Wamalwa Kijana School in 2015 pre-mock.

Marks	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89
No. of students	12	25	20	15	8	7	11	2

- (a) State the modal class **(1 mark)**
 (b) Draw accumulative frequency curve to represent the above data. **(4 marks)**
 (c) Use the above graph to estimate (i) the median **(1 mark)**
 (ii) the quartile deviation **(2 marks)**
 (iii) The pass mark if 60% of the students passed **(2 marks)**
- (d) a) State two types of data. **(2 marks)**
- (e) List 4 techniques of data collection during sampling. **(4 marks)**

(f) Give four advantages of tabulation of data in statistics

(4 marks)

4. a) Complete the table for:

(i) $x - 2y = -1$

x	0	1	3
y		1	

(ii) $2x - y = 4$

x	0	1	-
y	-4	-2	0

(3 marks)

Hence or otherwise solve graphically the simultaneous equation above.

(5 marks)

$x - 2y = -1$ and $2x - y = 4$

State the coordinates of point of intersection.

(2 marks)

b) A surveyor followed the route PQRS. Q is 250 km on a bearing of 075° from P. R is on a bearing of $S 70^\circ E$ from P and 275 km from Q. S is 300 km on a bearing of 100° from Q. using a scale of 1 cm to represent 50 km:

(i) Show the relative position of PQRS.

(4 marks)

(ii) Determine:

I. The distance PR in km.

(2 marks)

II. Bearing of Q from R.

(1 mark)

III. Distance PS in km.

(2 marks)

IV. The bearing of R from S.

(1 mark)

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