



(University of choice)
**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)
MAIN CAMPUS
UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR
FIRST YEAR FIRST SEMESTER EXAMINATIONS
FOR THE CERTIFICATE
OF
CRIMINOLOGY AND CRIMINAL JUSTICE/ SOCIAL WORK**

COURSE CODE: CSD/0021/444/3A

COURSE TITLE: NUMERACY SKILLS

DATE: 19/12/2023

TIME: 2:00-4:00PM

INSTRUCTIONS TO CANDIDATES

Answer question one (compulsory) and any other two questions

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

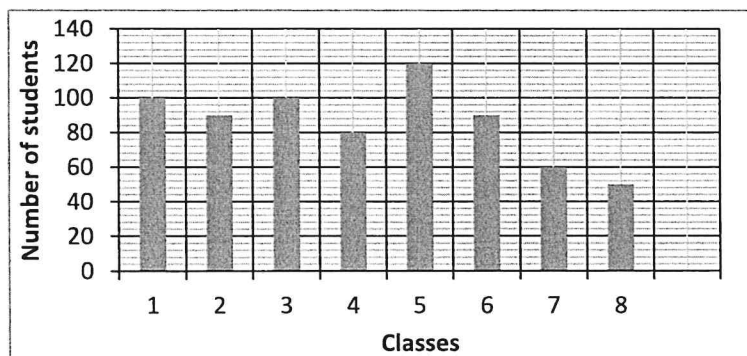
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QUESTION ONE (30 MARKS)

- a) Discuss the relevance of numeracy skills in our everyday life. (10 Marks)
- b) Define the properties of addition and subtraction. Give examples to illustrate each property. (8 Marks)
- c) How does algebraic expression manipulation contribute to solving mathematical problems? Provide an example of simplifying an algebraic expression. (6 Marks)
- d) Solve the following linear equations
- $2x - 5 = 10$ (2 Marks)
 - $2x + 3 - 5x + 7$ (2 Marks)
 - $3x - 2 = 2x + 5$ (2 Marks)

QUESTION TWO (20 MARKS)

- a) Convert the following decimals into fractions
- 0.75 (1 Mark)
 - 1.25 (1 Mark)
 - 0.3 (1 Mark)
 - 0.5 (1 Mark)
- b) Solve the following word problems
- You have $\frac{2}{3}$ of a pizza left. If you eat 0.25 of it, how much is left? (2 Marks)
 - A recipe calls for 0.75 cups of sugar, but you only have $\frac{1}{4}$ cup. How much more sugar do you need? (2 Marks)
 - The price of a toy is \$8.50, and you have a 10% discount. Calculate the final price. (2 Marks)
- c) The bar graph below depicts the number of students in various classes at school.



Answer the below questions using the bar graph provided.

- a) What is the total number of students in each class? (4 Marks)
- b) The overall number of students from grades 6 to 8. (2 Marks)
- c) State and explain 2 advantages of using a bar graph. (4 Marks)

QUESTION THREE (20 MARKS)

a) Solve the following:

- i. A car travels at a constant speed of 60 miles per hour. How far will the car travel in 3 hours? (2 Marks)
- ii. An athlete runs a 400-meter race in 50 seconds. What is the athlete's average speed during the race? (2 Marks)
- iii. A plane flies from City X to City Y, a distance of 800 kilometers, at a speed of 400 kilometers per hour. How long does the flight take? (2 Marks)
- iv. Your friend's height is measured in centimeters, and you want to know their height in feet and inches. How tall is your friend in feet and inches if they are 180 centimeters tall? (2 Marks)
- v. You have a parcel that weighs 3.5 kilograms, and you need to determine its weight in pounds. What is the weight of the parcel in pounds? (2 Marks)
- vi. A marathon race is 42.195 kilometers long. What is the equivalent distance of the marathon in meters? (2 Marks)

b) Imagine you're a tour guide in a new city. A group of tourists asks you for directions to visit three different landmarks: a museum, a park, and a historical monument. Using formal language, provide clear and concise directions from a central starting point to each of these locations, making use of landmarks and cardinal directions. (4 Marks)

c) You're planning a day trip to explore a nearby town, and you have a map at your disposal. Describe the steps you would take to plan your route efficiently. (4 Marks)

QUESTION FOUR (20 MARKS)

You are enlisted in a research project and assigned to assist in data collection approaches, explain the different types of data collection techniques you are likely to use for this study (20 marks).

QUESTION FIVE (20 MARKS)

a) Differentiate between

- i. A histogram and a bar graph. (2 Marks)
- ii. Probability sampling and non-probability sampling. (2 Marks)

b) What is your understanding of a frequency distribution? (2 Marks)

c) Using the data below

Classes	2-4	5-7	8-10	11-13	14-16	17-19
Frequency	2	5	4	6	3	1

- i. Calculate the cumulative frequencies (3 Marks)
- ii. Calculate the mean (6 Marks)
- iii. Construct a histogram. (5 Marks)

