



MAASAI MARA UNIVERSITY

**REGULAR UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR
FIRST YEAR FIRST SEMESTER**

**SCHOOL OF ARTS AND SOCIAL SCIENCES
CERTIFICATE IN SOCIAL WORK**

COURSE CODE: CAS 01

COURSE TITLE: QUANTITATIVE TECHNIQUES

DATE: 11TH DECEMBER 2019

TIME: 11.00AM-1.00PM

INSTRUCTIONS TO CANDIDATES

Answer question one and any other three questions

This paper consists of 3 printed pages. Please turn over.

Question One

- a) Define the following:
- i) Commission
 - ii) Profit
 - iii) Discount (3 marks)
- b) Mary deposited Sh. 500,000/= in a bank offering a simple interest of 10% per annum. Determine the:
- i) Accrued amount after 5 years (3 marks)
 - ii) Accrued amount after 12 years (3 marks)
- c) Given $a = 3, b = 5$ and $c = \frac{1}{2}$, evaluate (3 marks)

$$\frac{4a^2 + 2b - 4c}{\frac{1}{4}(b^2 - 3a)}$$

- d) Musa invested Sh. 98,000 in a bank offering a compound interest of 15% per annum. Determine the:
- i) Amount accrued after 20 years. (3 marks)
 - ii) Time it will take for an accrued amount of Sh. 140,000. (4 marks)
- e) Solve for x; (6 marks)
- i) $2x - 4 = 20 - 6x$
 - ii) $\frac{2x - 5}{3} = \frac{3x - 4}{2}$
 - iii) $\frac{8 - 2x}{3} - \frac{7 - x}{4} = 10$

Question Two

A company produces three products X, Y and Z. The table below shows the different departments A, B and C the products pass through.

Department	Product X	Product Y	Product Z	Total Hours
A	4	2	8	170
B	5	3	7	185
C	6	4	2	160

Formulate equations and get the values of X, Y and Z that will consume all the hours during manufacturing. (15 marks)

Question Three

Given that set $\Omega = \{1, 2, 3, 4, 6, 8, 9, 12\}$, $A = \{1, 2, 3, 4, 6\}$, $B = \{6, 8, 9, 12\}$ and $C = \{1, 2, 3, 4\}$.

- a) Giving reasons state the set which is a subset of A (2 marks)
- b) Determine the following
 - i. A^c (1 marks)
 - ii. $A \cap B$ (2 marks)
 - iii. $B - A$ (2 marks)
 - iv. $A \cup B$ (2 marks)
 - v. $A \cap C$ (2 marks)
- c) Show that Ω is partitioned by B and C (4 marks)

Question Four

The data below illustrate the number of students in 7 courses within the university;

Course	A	B	C	D	E	F	G
No. of Students	16	14	15	12	13	12	18

Use it to calculate;

- i) The mean (4 marks)
- ii) Median (3 marks)
- iii) Mode (2 marks)
- iv) Standard deviation (6 marks)

Question Five

A student rolled two dices simultaneously and recorded sum of the two numbers obtained from two dices. Calculate the probability that;

- i) The sum is five (2 marks)
- ii) The sum is less than 5 (3 marks)
- iii) The sum is more than 6 (2 marks)
- iv) The sum is more than 4 but less than 10 (3 marks)
- v) One of the dices gives a 4 or the sum is 5 (3 marks)
- vi) That one of the dices gives a 5 (2 marks)

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