



MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

**SCHOOL OF ARTS, HUMANITIES, SOCIAL
SCIENCES AND CREATIVE INDUSTRIES
DIPLOMA IN CRIMINOLOGY**

COURSE CODE: CRM 103

COURSE TITLE: QUANTITATIVE SKILLS II

DATE: 31ST MARCH, 2022

TIME: 1430-1630

INSTRUCTIONS

1. Answer question ONE and any other TWO questions from section II
2. Question one is compulsory

Section A: COMPULSORY

QUESTION ONE (30 marks)

a) Consider the following data

8 4 6 7 9 3 6 8 7
10 7 6 5 8 7 7 7 2
9 1 5 8 4 8 6 7 10
6 8 7 5 5 6 4 5 6
3 5 4 9 7 5 7 2 6

i) Construct a frequency distribution table for the following data (5mks)

b) Consider the following sets

$A = \{1,2,3,4\}$, $B = \{1,3,5,6\}$ and $C = \{2,4,6,7\}$

- i) $A \cup B$ (3mks)
- ii) $A \cap B$ (2mks)
- iii) $A \cup C$ (2mks)
- iv) Set difference $A - B$ (2mks)

c) Consider the universal set $U = \{1,2,3,4,5,6,7,8,9,11\}$ and $A = \{1,2,3,5\}$. Find A^c (3mks)

d) The performance in five subjects was as follows

Mathematics	80
English	60
Kiswahili	70
Biology	50
Chemistry	30

Represent the information on a bar graph (5mks)

e) The probability that Mutua goes to Nakuru is $\frac{1}{4}$. If he goes to Nakuru, the probability that he will see a flamingo is $\frac{1}{2}$. If he does not go to Nakuru, the probability that he will see a flamingo is $\frac{1}{3}$.

i) Draw a well labeled tree diagram to represent the above information and find the probability that Mutua will go to Nakuru and see a flamingo (5mks)

f) Consider the following data set

2,3,4,2,4,7,2,3,4,8,6

- i) Calculate
 - a) Mean (3mks)

b) Mode

(1mk)

SECTION B, ANSWER ONLY TWO QUESTIONS

QUESTION TWO (20 MARKS)

- a) In a livestock research station, a new drug for a certain fowl disease is being tried. A sample of 36 fowls was diagnosed to have the disease. Twenty (20) fowls were treated with the drug and the rest were not. Calculate the probability that a fowl picked at random is
- i) Treated with the drug (1mks)
 - ii) Not treated with the drug (1mks)
- b) If a fowl is treated, the probability of dying is $\frac{3}{10}$ while if not treated the probability is $\frac{9}{10}$. Calculate the probability that, a fowl picked at random from the 36 fowls is
- i) Treated with the drug and will die (2mks)
 - ii) Not treated with the drug and will die (2mks)
 - iii) Treated with drug and will not die (2mks)
 - iv) Not treated with the drug and will not die (2mks)

QUESTION THREE (20 MARKS)

- a) Consider the following data

Classes	5–9	10–14	15–19	20–24	25–29	30–34	35–39
Frequency	6	20	12	10	5	6	3

- i) Construct a histogram for the data above (5mks)
- ii) Construct a frequency polygon for the data above (5mks)
- iii) Consider the total population of animals in a farm given as 2000. Out of these 800 are chicken, 200 are cows, 400 are goats, 500 are sheep and 100 are ducks. Represent the information on a pie chart (10mks)

QUESTION FOUR (20 MARKS)

- a) The data below illustrate the distribution of wages of employees in a certain company. Use it to answer the following questions.
(20mks)

Wages	Frequency
50 - 56	4
57 - 63	3
64 - 70	7
71 - 77	8
78 - 84	6
85 - 91	14
92 - 98	8

Calculate

- i) State the modal class
- ii) Arithmetic mean
- iii) Mode
- iv) Median
- v) Variance
- vi) Standard deviation

QUESTION FIVE (20 MARKS)

a) What is the meaning of the following terms (5mks)

- i. Set
- ii. Element
- iii. Finite set
- iv. Union of a set
- iv) Singleton set

b) The following data represent skin colours of some students. Represent them in a bar graph (5mks)

Colour	Black	Brown	white	chocolate
Number of students	10	20	5	15

c) Consider the following table

Wages	Frequency
11 -20	4
21 -30	3
31-40	7
41-50	8
51-60	6
61-70	12
71-80	8

Determine

- i) Mean (3mks)
 - ii) Median (3mks)
- d) A group of executive consists of 4 males and 6 females. 3 males smokes and 2 females smokes.
- i) Represent the data in contingency table (3mks)
 - ii) Calculate the probability that an executive is a male (1mk)

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