



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF HEALTH SYSTEMS AND COMMUNITY HEALTH
HIGH DIPLOMA IN COMMUNITY HEALTH PRACTICE
END OF JANUARY-APRIL 2023 SEMESTER EXAMINATIONS**

UNIT CODE: HDCH 015
UNIT NAME: BIostatISTICS
DATE: 3rd April 2023
TIME: TWO HOURS
START: 4.15 PM **FINISH:** 6:00 PM

INSTRUCTIONS

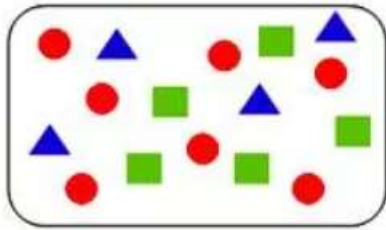
1. This exam is marked out of 60 Marks
2. This Examination comprises of TWO Sections
3. This online exam shall take TWO Hours
4. Late submission of the answers will not be accepted
5. Ensure your web-camera is on at all times during the examination period
6. No movement is allowed during the examination
7. Idling of your machine for 5 min or more will lead to lock out from the exam
8. The Learning Management System (LMS) has inbuilt integrity checks to detect cheating
9. Any aspect of cheating detected during and or after the exam administration will lead to nullification of your exam
10. In case you have any questions call the Head of Department on Tel 0720573449
11. For adverse incidences please write an email to: amiu.examinations@amref.ac.ke

SECTION A: ANSWER ALL QUESTIONS (20 MARKS)

1. Outline FIVE sources of statistical Data (5 Marks)
2. Highlight three characteristics of a bar graph (3 Marks)
3. Using examples, outline three categories of categorical data; (6 Marks)
4. The duration of time from first exposure to HIV infection to AIDS diagnosis is called the incubation period. The incubation periods of a random sample of 7 HIV infected individuals is given below (in years):
12.0, 10.5, 9.5, 6.3, 13.5, 12.5, 7.2
 - a. Calculate the sample mean (1 Mark)
 - b. Calculate the sample median. (1 Mark)
 - c. Calculate the sample standard deviation. (2 Marks)
 - d. Calculate Coefficient of Variation (2 Marks)

SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)

- 5.
- a) The graphic below shows a container with 4 blue triangles, 5 green squares, and 7 red circles. A single object is drawn at random from the container.



Find the probability that;

- i. The object is not a circle (2 Marks)
 - ii. The object is a triangle (2 Marks)
 - iii. The object is not a triangle (2 Marks)
 - iv. The object is a circle (2 Marks)
 - v. The object is a square (2 Marks)
- b) Brenda a student at AMIU tosses a fair coin three times
- i. Find probability of three heads (HHH)? (2 Marks)
 - ii. Calculate the probability that you observe exactly one head? (3 Marks)
 - iii. Given that you have observed at least one head, calculate the probability of observing at least two heads? (5 Marks)

6. The table shows the ages of 45 people at a cinema showing.

Age in years	Frequency
0-9	5
11-20	7
21-30	11
31-40	13
41-50	8
51-60	1

Use the above table to find the following;

- a. Mean (4 Marks)
- b. Median (4 Marks)
- c. Mode (4 Marks)
- d. Standard Deviation (4 Marks)
- e. Variance (4 Marks)

7.

a). Using examples, describe the following terms in biostatistics

- a. Data (2 Marks)
- b. A sample (3 Marks)
- c. A complementary event (3 Marks)
- d. Sample Space (2 Marks)
- e. Random event (2 marks)

b) Describe FOUR axioms of probability (8 Marks)

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