



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

**UNIT CODE:** DCHP 128  
**UNIT NAME:** BASIC BIOSTATISTICS  
**DATE:** 9<sup>th</sup> April 2023  
**TIME:** TWO HOURS  
**START:** 4.15 PM **FINISH:** 6:15 PM

**INSTRUCTIONS**

- 1. Do not write on this question paper**

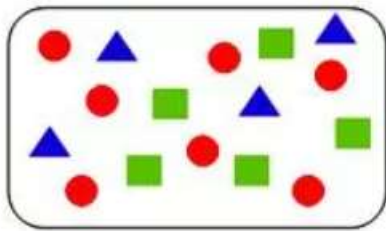
**SECTION A: ANSWER ALL QUESTIONS 20 MARKS**

1. Using diagrams, differentiate between histogram and pie chart (5 Marks)
2. Explain the meaning of a non-representative sample (2 Marks)
3. Name the type of data for each of the following; (5 Marks)
  - a. Patients gender
  - b. Number of languages a person speaks
  - c. Weight of cars
  - d. Pain associated with cancer
  - e. No of cigarettes smoked per day by a person
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. (3 Marks)
  - d. If the number 6.3 above were changed to 1.5, what would happen to the sample mean, median, and standard deviation? State whether each would increase, decrease, or remain the same (3Marks)

**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 the 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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