



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL DIPLOMA

IN

ALL BIOLOGICAL SCIENCES

**MODULE: Research Methods and
Statistics**

PAPER NO: 503/23/M09

DURATION: 3 Hours

NOVEMBER/ DECEMBER 2025 EXAMINATION

REQUIREMENTS

Pen, Pencil, Ruler, Rubber

INSTRUCTIONS TO CANDIDATE

1. Answer any five (5) questions.
2. Each question carries 20 marks.
3. Do not write your name on the answer scripts.

This paper consists of 3 printed pages.

QUESTION 1

Briefly explain the research process. (20 marks)

QUESTION 2

- a) List sources of information. (10 marks)
- b) Outline data collection method used. (10 marks)

QUESTION 3

- a) Define the following terms:
- i) Validity (3 marks)
 - ii) Reliability (3 marks)
 - iii) Nominal data (3 marks)
 - iv) Measure at central tendency (3 marks)
 - v) Statistics (3 marks)
- b) Explain hypothesis testing. (5 marks)

QUESTION 4

A genetics engineer was attempting to cross nemonetta and rodade. She predicted a phenotype outcome at the traits she was observing to be in the following ratio 4 large fruits only, 3 small fruits only, a trait for both sizes when the cross was performed and she counted the fruits she found 50 large fruits only, 41 small fruits and 85 with both. According to chi-square test, did she get the predicted outcome.

(20 marks)

QUESTION 5

A bag has 10 different fruits basket. Each basket has 5 fruits, only one has basket has the same type of fruits. Pat plans to get all the fruits. Find the probability that part gets:

- a) One basket with all fruits. (10 marks)

b) All 10 fruits

(10 marks)

QUESTION 6

Citing examples, discuss measures of dispersion.

(20 marks)

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