BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE EDUCATION

MASTER OF SCIENCE DUCATION DEGREE IN MEASUREMENT, ASSESSMENT AND EVALUATION

COURSE CODE: MAE 503 (03). NARRATION: STATISTICS FOR EDUCATIONAL RESEARCH

DURATION: 3 HOURS **TOTAL MARKS: 300**

JAN 2025

INSTRUCTIONS

- Answer any three questions.
- E ach statistics question carries 50 marks and this will be expressed as percentage..
- Begin each answer on a separate answer sheet.
- Where necessary, relate your answers and examples to your subject of specialization in the education context.

QUESTION 1

Evaluate the role of computers in **any four** stages of educational research. [100]

QUESTION 2

Two school swimmers, Sibongile and Nadia are from different teams and wanted to find out who had the fastest time for the 50 meter freestyle when compared to their teams' mean time. Using the information in the table below:

Use an appropriate statistic to find which swimmer had the fastest time when compared to her team's.

Table 1: Individual swimming GPA and Team Mean GPA

	GPA (seconds)	Team Mean GPA	Team Standard Deviation
Sibongile	26.2	27.2	0.8
Nadia	27.3	30.1	1.4

[50]

QUESTION 3

Because of the large number of students enrolled for a university geography course and the limited accommodation in the lecture theatre, the department provides a filmed lecture. Students are randomly assigned to two groups. One group attends the lecture and the other watch the film. At the end of the term the two groups are given the same test. The geography

professor wishes to test whether there is a difference in the performance of the two groups and selects the marks of two random samples of students, 6 from the group attending the lecture theatre and 7 from the group attending the films. The marks for the two samples ordered for convenience, are shown below.

Lecture theatre	30	36	48	51	59	62	
Filmed lecture	40	49	52	56	63	64	68

Stating a necessary assumption, carry out a suitable non parametric test, at the 10% significant level, for a difference between the median marks of the two groups. [50]

QUESTION 4

a. A student wants to do some studies on the following
   I. The number of policeman that are visible at a learners' crossing point vs. the speed cars at that point.
   II. How a student does in algebra vs. how the student performs in geometry.
   III. A learner's height vs. the amount of money the learner has.
   For these studies below

For these studies

i. Determine whether the association would be positive, negative, or none. [10]

ii. Then decide if the relationship would most likely be causation, common response, or confounding [10]

iii. If it is common response, identify the hidden variable affecting both. If it is confounding, identify the hidden variable affecting the response variable [12]

b. Describe three measures of central tendency. [9]

QUESTION 5

Ten (10) students scored the following marks in a mathematics and physics test as shown in Table 2 below.

Table 2: Students scores in Mathematics and Physics tests

Student	A	B	C	D	E	F	G	H	I	J
MATHEMATICS	7	6	7	4	5	8	3	5	6	4
PHYSICS	17	12	16	10	9	20	11	13	15	11

a. State four assumptions of a Pearson product moment Correlation. [8]

b. Complete Table 3 below. [10]

Table 3

X	Y	X^2	Y^2	XY
7	17			
6	12			
7	16			
4	10			
5	9			
8	20			
3	11			
5	13			
6	15			
4	11			
$\sum X$=55	$\sum Y$=134	$\sum X^2$=325	$\sum Y^2$=1906	$\sum XY$=

c. Compute the product moment correlation co-efficient (r) for this data. [30]

d. Comment on the result. [2]

END OF EXAMINATION