BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE EDUCATION

MASTER OF SCIENCE DUCATION DEGREE IN MEASUREMENT, ASSESSMENT AND EVALUATION

COURSE CODE: MAE 503 (02). NARRATION: STATISTICS FOR EDUCATIONAL RESEARCH

DURATION: 3 HOURS TOTAL MARKS: 300

INSTRUCTIONS AUG 2024

- Answer any three questions.
- Each 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

a. Define co-variance. [4]

b. What is the meaning of:
   i. $S = 0$
   ii. $S > 0$
   iii. $S < 0$ [6]

c. Explain the difference between Measures of central tendency and dispersion [4]

d. Describe the three types of measures of central tendencies. [9]

e. Describe any three measures of dispersion [6]

f. For the distribution 8,10, 67, 13, 10, 10, 56, 32,32 calculate
   i. Mean [2]
   ii. Mode [3]
   iii. Variance [4]
   iv. Standard deviation [4]
   v. Range [2]
   vi. Median [4]

QUESTION 2

A teacher wanted to find if a specialized form of teaching improves the results of learners in her subject and the following information was found.

a. Copy and complete the Table 1 below: [15]

Table 2: Absenteeism of male and female teachers

Number of days absent per term	Female teachers	Male teachers
0-1	120	375
2-3	224	112
4-5	78	34
6-7	18	8

a. Formulate a research topic for this investigation. [4]
b. State the independent variable for this investigation. [2]
c. State the null hypothesis for this investigation. [2]
d. Determine the appropriate statistic and use it to test the null hypothesis at the 0.01 level of significance. [40]
e. Explain the difference in meaning between the 0.01 and the 0.05 levels of significance. [2]

QUESTION 5

A University graduate and teacher's graduate teach mathematics to comparable groups of pupils. On average. These are marks obtained by their pupils after ten tests.

Test	1	2	3	4	5	6	7	8	9	10
University graduate	74	58	90	20	65	45	55	80	30	40
College graduate	60	20	45	90	40	70	30	10	55	85

a. What is meant by **comparable groups** and how would you ensure that the two groups are indeed comparable? [2]
b. Which variable is being investigated? [2]
c. State the dependent variable in this investigation. [2]
d. By using the results of the 10 tests to compare the competency of the two teachers, the researcher controlled some variables that could have influenced the results of the investigations. Name the type of variables which could have the same influence as the independent variable. [2]
e. Give any **one** examples of such variables in this investigation. [2]
f. Determine an **appropriate statistic** and use it to test the null hypothesis at the 0.01 level of significance. [40]

END OF EXAMINATION