ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF HUMANITIES, EDUCATION AND SOCIAL SCIENCES

DEPARTMENT OF EDUCATION AND LEADERSHIP DEVELOPMENT

EXAMINATION PAPER

PROGRAMME: POST GRADUATE DIPLOMA IN EDUCATION

COURSE CODE: EPR 124

COURSE TITLE: RESEARCH METHODS AND STATISTICS

DURATION: 3 Hours

DATE:

INSTRUCTIONS TO CANDIDATES:

1. Answer any **THREE** questions, **but** do not answer **more than two questions from one section.**
2. Each question carries 100 marks
3. Start each answer on a new page of your answer booklet.

SECTION A

1. Explain the following research components and show how they are related to educational research:

a) Statement of the problem

b) Research design.

2. 'Questionnaires are better data gathering instruments than qualitative interviews.' Discuss.

3. Assess the usefulness of statistics in educational research.

SECTION B

4.a) State the two measures of dispersion[2]

b) Given the following distribution: 42; 54; 60; 54; 62; 68; 80; 66; 80; and 98. Find

i. the mean [2]

ii. mode [2]

iii. median [2]

iv. Range [2]

v. Inclusive range[3]

c) The table presents marks obtained by candidates in a Sociology test.

Mark	**12**	**13**	**15**	**16**	**17**
Frequency	**2**	**4**	**3**	**2**	**1**

i) How many candidates wrote the test? (2)

ii) ii) State the median of the scores. (2)

iii) Compute the mean deviation [5]

iv) Calculate the variance of the marks (10)

4d). 12 students obtained the following marks in Maths and Computers

Maths	75	74	66	76	69	73	70	72	84	69	69	74
Science	74	82	68	76	70	76	67	75	83	68	70	74

i. Compute the standard deviation for the Maths marks [25]

ii. Calculate Spearman's Rank Order Correlation Co-efficient. [40]

iii. Comment on the strength of the correlation. [3]

5 a) State two **strengths** and one **limitation** of each of the following:

i. Mean [3]
ii. Mode 3]
iii. Median [3].

b)i) State any **three** measures of central tendency (3)

ii) Define standard deviation. (2)

c) Ten students obtained the following scores in an English test: 63; 71; 81; 77; 52; 48; 78; 52; 77; and 81. Compute the

i. Inclusive range [2]
ii. the variance [5]
iii. and standard deviation of the distribution [15].

d) The table shows marks for eight students in History and Shona

History (x)	63	71	81	77	52	48	78	52	77	81
Shona (y)	60	72	82	82	54	50	78	50	74	82

i. A student scored 78 in History and Shona. In which subject did she perform better and why? [15].

ii. Calculate the Pearson product moment correlation coefficient [45]
iii. Comment on the strength of the correlation coefficient. [5]

6. a) Given the following distribution 5.1; 4.2; 6.7; 9.4; 3.1; 6.7; 7.1; 8.4; 3.4 and 5.1 Find the

i. Mean [3]
ii. Median [2]
iii. Mode [2]
iv. Variance [10]
v. Standard deviation [10]
vi. z score for 3.1 [3]

b) The table below is showing Music and Statistics scores for seven students.

Music	62	42	55	83	50	55	66
Statistics	52	67	72	45	58	63	49

i. Calculate the Pearson's Product Moment Correlation Coefficient of the scores and comment on the strength of the correlation [35]

ii. Compute Spearman's Rank Order Correlation Co-efficient and comment on the strength of the correlation [35].

EPR101 LIST OF FORMULA

Arithmetic Mean

$$\bar{x} = \frac{\sum x}{n}$$

Mean Deviation

$$MD = \frac{\sum (x - \bar{x})}{n}$$

Variance

$$S^2 = \frac{\sum (x - \bar{x})^2}{n}$$

Standard Deviation

$$S = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

Z Score

$$Z = \frac{x - \bar{x}}{s}$$

Spearman Rank Order Correlation Coefficient (rho)

$$rho = 1 - \frac{6 \sum d^2}{n(n^2-1)}$$

Pearson's Product Moment Correlation Coefficient, (r)

$$r = \frac{\sum (xy) - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left(\sum (x^2) - \frac{(\sum x)^2}{n}\right)\left(\sum (y^2) - \frac{(\sum y)^2}{n}\right)}}$$

By Wonder Musada – PGDE 2018 – profesawonder@gmail.com