



**ZIMBABWE EZEKIEL GUTI UNIVERSITY**

**FACULTY OF EDUCATION, GOVERNANCE, THEOLOGY AND  
LEADERSHIP**

**DEPARTMENT OF CURRICULUM AND EDUCATIONAL PHILOSOPHY**

**EXAMINATION PAPER**

**MODULE CODE** : EPD 124  
**MODULE TITLE** : RESEARCH METHODS AND STATISTICS  
**DURATION** : 3 Hours  
**LEVEL** : 1.2  
**DATE** : 23 SEP 2024

**INSTRUCTIONS TO CANDIDATES:**

1. Answer three (3) questions, but not more than two questions from one section.
2. Each question carries (100) marks.
3. Number of marks for part questions are shown in brackets.
4. Start each question on a new page.
5. This paper consists of four (4) pages.

**ADDITIONAL INFORMATION**

1. Formulae sheet
2. Calculator



**SECTION A: RESEARCH METHODS**

1. Critique the use of action research in educational inquiry. (100)
2. Examine ethical issues you may consider when working with minors as participants in research. (100)
3. Justify the use of any **three** techniques of presenting data in quantitative. (100)

**SECTION B STATISTICS**

**Question 4 A**

- i. What is the difference between inferential and descriptive statistics? (6)
- ii. List any **three** measures of central tendency. (6)
- iii. What are the characteristics of quantitative data? (6)
- iv. List **four** measurers of variability. (8)

**B. The table below shows marks awarded to ten choirs by two Adjudicators.**

Choirs	A	B	C	D	E	F	G	H	I	J
Adjudicator A	85	86	90	87	86	85	88	89	86	87
Adjudicator B	60	63	64	64	65	63	66	62	65	64

- i. Which adjudicator adjudicated fairly? Justify your answer. (20)
- ii. Compute the range for each of the two adjudicators. (10)
- iii. Calculate the variance for Adjudicator A. (20)
- iv. Find the standard deviation of Adjudicator B. (20)
- v. Calculate the median mark for Adjudicator B. (4)

**Question 5 A**

- i. What is the difference between the standard mean and the standard deviation? (6)



- ii. What is an outlier? (4)
- iii. What is the effect of an outlier on a statistical distribution? (5)
- iv. State the use of a z-score. (5)
- v. Draw a diagram to illustrate a non-existent correlation between two variables. (16)

**A. The table below shows marks obtained by 10 students in Accounting and Biology tests.**

Table 3

Student	A	B	C	D	E	F	G	H	I	J
Accounting	80	78	76	56	90	48	66	75	83	73
Biology	76	69	72	61	72	52	66	69	87	72

- i. Calculate the mean for the biology marks. (5)
- ii. Find the modal mark for biology. (4)
- iii. Calculate the range of marks for Accounting. (5)
- iv. Compute the median mark for Accounting. (5)
- v. Using the data from table 3, calculate the Pearson Product Moment Correlation Coefficient. (40)
- vi. Comment on the strength of the relation of the correlation coefficient (5)

**Question 6 A** State two statistical measures of association. (5)

- B. Illustrate diagrammatically a perfect negative correlation. (12)
- C. **What are the weaknesses of the following statistical measures?**
  - i. Mode (4)
  - ii. Mean (4)
  - iii. Median (4)



D. The table below shows marks obtained by 10 students in Accounts and Economics tests.

Table 4

Student	A	B	C	D	E	F	G	H	I	J
Accounts	95	88	87	69	86	88	70	76	98	88
Economics	72	78	70	80	86	80	80	79	85	77

- i. Calculate the mean for the Accounts marks. (5)
- ii. Compute the z-score for the Economics marks. (15)
- iii. Find the inclusive range of the Accounts marks. (6)
- iv. Calculate the variance of the Economics marks. (15)
- v. Use the data on table 4 to calculate the Spearman's rank order correlation coefficient. (25)
- vi. Comment on the strength of correlation coefficient. (5)

**THE END**

## EPR 101 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)

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

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