



ROBERT MUGABE SCHOOL OF HERITAGE AND EDUCATION  
DEPARTMENT OF EDUCATIONAL AND CURRICULUM DEVELOPMENT  
**LEVEL 1 SEMESTER 1**

**M Ed (EDUCATIONAL PSYCHOLOGY)**

**M Ed (SOCIOLOGY)**

**M Ed (EARLY CHILDHOOD DEVELOPMENT)**

**M Ed (LANGUAGES) AND M Ed (CURRICULUM STUDIES) MEd TECHNICALS**

**EXAMINATION QUESTION PAPER**

**MODULE CODE** ARMS515

**MODULE NARRATION** ADVANCED RESEARCH METHODS AND  
**STATISTICS**

**DATE:** 2025

**DURATION:** 3 HOURS

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**INSTRUCTIONS TO CANDIDATES**

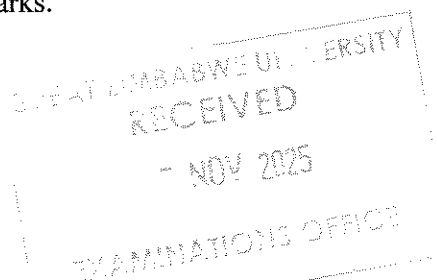
Answer any **three** questions choosing at least **one** question from **each** section. Each question carries 100 marks.

Use statistical tables and formulae provided where necessary. Show all working. Omission of essential working will result in loss of marks.

**ADDITIONAL MATERIALS**

Graph paper

Scientific Calculator



**SECTION A: RESEARCH METHODS**

1. 'React to the claim that research sub questions are the nerve centre of research . [100]
2. Analyse the claim that the mixed method approach proffers a solution to the quantitative-qualitative debate. [100]
3. (a) Examine the relevance of **phenomenology research design or survey** highlighting its applicability in your area of specialisation. [50]  
(b) Discuss the utility of any **three** non probability sampling methods indicating their applicability in your area of specialisation. [50]

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**SECTION B: STATISTICS**

4. (a). The following are the marks which were scored by 50 students in a project based assessment marked out of 200

127 155 117 164 157 146 115 127 158 165 175 188 191 165  
175 185

145 127 175 182 194 106 138 145 119 137 169 148 159 177  
188 174

60 152 179 183 169 167 188 177 165 138 174 139 156 195  
168 188 168 148

(i) Represent the marks on a stem and leaf diagram [8]

(ii) Give any **two** advantages of a stem and leaf diagram [4]

(iii) State the mode(s) of the distribution [2]

(iv) Give the modal class [2]

- (b) A classroom practitioner administered Mathematics and Geography tests on a group of 10 Advanced level learners and tabulated the results as shown in Table 4.1 below:

Table 4.1

| Learners          | A  | B  | C  | D  | E  | F  | G  | H  | I  | J  |
|-------------------|----|----|----|----|----|----|----|----|----|----|
| Mathematics marks | 80 | 68 | 57 | 93 | 86 | 74 | 67 | 52 | 64 | 80 |
| Geography marks   | 76 | 73 | 57 | 87 | 68 | 74 | 60 | 45 | 57 | 76 |

- (i) Find the mean of the Mathematics marks [5]
- (ii) Find the median of the Geography marks [3]
- (iii) Give the mode(s) of the Geography marks [2]
- (iv) Find the variance of the Mathematics marks [6]
- (v) If the mean and the standard deviation of the Geography marks are 67.3 and 12.38 respectively, determine the subject in which Learner C performed better. [4]

(vi) State **one** advantage and **one** disadvantage of the mean [2]

(vii) State **one** advantage and **one** disadvantage of the median [2]

(c) A Psychology lecturer measured the self-efficacy levels of 10 secondary school students and their scores in an academic exercise. The outcomes were as shown

|                                    |    |    |    |    |    |    |    |    |    |    |
|------------------------------------|----|----|----|----|----|----|----|----|----|----|
| Self-efficacy score (x)            | 66 | 40 | 78 | 66 | 88 | 78 | 85 | 54 | 65 | 90 |
| Score in the academic exercise (y) | 64 | 55 | 75 | 64 | 74 | 80 | 78 | 84 | 59 | 84 |

Calculate Spearman's rank order correlation coefficient and comment on it. [35]

- (d) Given a choice, would you use Spearman's rank order correlation coefficient or Pearson's rank order correlation coefficient? Justify your answer. [5]
- (e) Discuss the four scales of measurement giving at most two examples of each. [20]
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5. (a) The masses of postgraduate students in a certain country in Africa were found to be normally distributed with a mean of 75kg and a standard deviation of 64kg. Find the probability that the mass of a randomly selected postgraduate student in the mentioned country

- (i) Is less than 70 kg [4]
- (ii) Is greater than 78kg [5]

(iii) Lies between 73kg and 80kg. [8]

(iv) Give any **three** characteristics of the normal distribution [3]

(b) An Educational Psychology student wanted to establish if there is an association between learners' anxiety levels and degrees of irrational thinking. After collecting data using anxiety and irrational belief scales from 10 learners, the student obtained the following outcomes shown in Table 5.1:

Table 5.1

| Learner                 | A  | B  | C  | D  | E  | F  | G  | H  | I  | J  |
|-------------------------|----|----|----|----|----|----|----|----|----|----|
| Anxiety score (x)       | 70 | 56 | 77 | 90 | 85 | 85 | 68 | 55 | 30 | 88 |
| Irrationality score (y) | 76 | 55 | 77 | 87 | 78 | 66 | 67 | 52 | 30 | 82 |

(ii) Calculate Pearson's product moment correlation coefficient and comment on it. [35]

(iii) Find the coefficient of determination and comment on it. [5]

(d) A Psychology of Education lecturer claimed that university students' attitudes towards Heritage Based Curriculum were dependent on gender. In an attempt to verify the claim, data was collected and the outcomes were as shown below:

| Gender | Attitudes To Heritage Based Curriculum |         |          |
|--------|----------------------------------------|---------|----------|
|        | Positive                               | Neutral | Negative |
| Female | 38                                     | 24      | 18       |
| Male   | 32                                     | 25      | 13       |

Showing all the necessary steps, carry out a chi-square test at the 10% significance level to determine if there is an association between students' gender and their attitudes towards Research Methods and Statistics. [40]

6. (a) Define the following terms:

(i) Positive skewness [4]

(ii) statistic [3]

(iii) Test statistic [4]

(b). State the **three** main assumptions of an analysis of parametric test. [9]

(c). The marks scored by Master of Psychology students in the modules EFPM501 and EFPM505 were captured by a lecturer who suspected that there is a significant difference between the scholastic attainment of students in the two modules. Table 6.1 shows the marks which were captured.

**Table 6.1**

| Student       | A  | B  | C  | D  | E  | F  | G  | H  | I  | J  |
|---------------|----|----|----|----|----|----|----|----|----|----|
| EFPM501 score | 55 | 67 | 78 | 65 | 75 | 60 | 67 | 58 | 78 | 85 |
| EFPM505 score | 50 | 64 | 62 | 67 | 71 | 48 | 50 | 41 | 67 | 73 |

Carry out a t-test at the 5% level of significance to determine if there is a significant difference between the scholastic attainment of students in the two modules. [30]

- (e) . Educational researchers carried out a study to determine if the exam leakage at Ordinary level in Mathematics paper 1 differed on the basis of the geographical location of their schools. The Researchers online sampled schools in rural,peri-urban and urban areas and constructed the following table to show candidates who had pre-access to the exam in various districts.

**(f) Table 6.2**

| Rural secondary school learners who had pre-access to the paper | Peri-urban secondary school learners who had preaccess to the paper | Urban secondary school learners who had preaccess to the paper |
|-----------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------------|
| 55                                                              | 72                                                                  | 85                                                             |
| 65                                                              | 75                                                                  | 88                                                             |
| 55                                                              | 72                                                                  | 84                                                             |
| 45                                                              | 75                                                                  | 80                                                             |
|                                                                 | 70                                                                  |                                                                |

Test the hypothesis that there is no significant difference in the magnitude of how the paper leaked in different geographical locations using a one-way analysis of variance at 5% significance level. [50]

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**END OF EXAMINATION**