ROBERT MUGABE SCHOOL OF HERITAGE AND EDUCATION

DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM DEVELOPMENT

LEVEL 1 SEMESTER 1

M Ed (EDUCATIONAL PSYCHOLOGY)

M Ed (SOCIOLOGY)

M Ed (EARLY CHILDHOOD DEVELOPMENT)

M .Ed(INCLUSIVE EDUATION)

M Ed (LANGUAGES) , CURRICULUM STUDIES AND HUMANITIES

EXAMINATION QUESTION PAPER

MODULE CODE	**ARMS515**
MODULE NARRATION	**ADVANCED RESEARCH METHODS AND STATISTICS**
DATE:	**2024**
DURATION:	**3 HOURS**

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

List of Formulae

Statistical Tables

SECTION A: RESEARCH METHODS

1. 'Reviewing related literature stifles the creativity of the researcher . Discuss. [100]
2. Analyse the claim that research sub questiones are the hub and heart of any educational research . [100]
3. (a) Examine the relevance of any **one** qualitative research design of your choice highlighting its applicability in your area of specialisation. [50]

   (b) Discuss the utility of any **two non** probability sampling methods indicating their applicability in your area of specialisation. [50]

SECTION B: STATISTICS

4. (a). The following data reflect number of school dropouts in various districts in Zimbabwe.

167 155 177 164 157 146 115 127 158 165 175 188 191 165
175 185 145 127 175 182 194 116 138 145 119 137 169 148
159 177 188 174 162 152 179 183 169 167 188 177 165 138 174
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	71	68	57	93	86	74	67	52	64	78
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 F performed better. **[4]**

(vi)State any **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)	76	50	72	60	88	76	72	54	65	90
Score in the academic exercise (y)	64	55	75	64	74	80	78	49	55	84

(c)i Calculate Pearsons product moment correlation coefficient and comment on it. **[30]**

(ii) Calculate coefficient of determination. **[5]**

(d) Given a choice, would you use Spearman's rank order correlation coefficient or Pearson's rank order correlation coefficient? Justify your answer. **[10]**

(e) Discuss any three scales of measurement giving at most two examples of each. **[15]**

---

5. (a) The masses of M ed students in a certain university follow a normal distribution with a mean of 70kg and a variance of 64kg. Find the probability that the mass of a randomly selected M ed student in the mentioned country

(i) Is less than 67 kg [4]

(ii) Is greater than 75kg [5]

(iii) Lies between 63kg and 77kg. [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	48	70	90	90	64	68	55	64	90
Irrationality score (y)	76	43	57	87	76	66	66	52	37	82

(ii) Calculate Spearman rank order moment correlation coefficient and comment on it. **[40]**

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

Gender	**Attitudes To Research Methods and Statistics**		
	Positive	**Neutral**	**Negative**
Female	**30**	**22**	**10**
Male	**24**	**28**	**7**

Showing all the necessary steps, carry out a chi-square test at the 1% 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) Negative skewness [4]

(ii) Statistic [3]

(iii) Type I error [4]

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

(c). The marks scored by Master of Psychology students in the modules EFPSYM501 and EFPSYM505 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**
EFPSYM501 score	44	67	76	60	75	66	67	58	79	85
EFPSYM505 score	50	64	22	37	31	38	30	31	27	23

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]

(d). An educational researcher carried out a study to determine if the academic performance secondary school learners in English Language differed on the basis of the geographical location of their schools. The English Language scores of secondary school learners from rural, peri-urban and urban secondary schools were captured and summarised in Table 6.2 below:

Rural secondary school learners	**Peri-urban secondary school learners**	**Urban secondary school learners**
60	70	75
62	66	76
55	72	84
48	71	80
	68	

Test the hypothesis that there is no difference between all the means using a one-way analysis of variance at 5% significance level. [50]

END OF EXAMINATION