



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2007/2008

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF EDUCATION

ECT 505: RESEARCH METHODS AND STATISTICS

DATE: WEDNESDAY, 11TH JUNE 2008

TIME: 2.00 P.M. – 5.00 P.M.

SECTION I: RESEARCH METHODS

Instructions:

1. Answer any THREE Questions in this section. Each question is worth 12 marks.
 2. Section II should be answered in separate answer booklet.
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1. Historical and survey approaches are used in Educational research compare and contrast the two approaches under the following headings:
 - (a) Application of the research results. (3 marks)
 - (b) Design flexibility. (3 marks)
 - (c) Data collection procedures. (3 marks)
 - (d) Data analysis procedures. (3 marks)
 2. Suppose you were to research on the topic:
“Factors that contribute to achievement in Mathematics among secondary students in Nairobi Province, Kenya.”
 - (a) Indicate:
 - (i) the dependent variable
 - (ii) two possible independent variables
 - (b) In the methodology, stratified sampling is proposed. How would you use this technique to sample students? (3 marks)

- (c) Using the given research title:
- (i) Write one Null hypothesis
 - (ii) Write one Directional hypothesis
- (3 marks)
- (d) The title of this study suits a survey approach:
- (i) With a reason, suggest one instrument you would use to collect data.
 - (ii) Outline two advantages of survey approach over other approaches to research.
- (3 marks)
3. a) Discuss how the use of computers has aided research in education. (6 marks)
- b) You have just administered 400 questionnaires to students as part of your M.Ed. research.
- Outline the procedure you would follow in order to use SPSS package in your data analysis. (6 marks)
4. Take TWO Scenarios.
- Scenario A
- We measure the heights of a group of students this week. We also measure the heights of the same students in a week's time.
- Scenario B
- We construct a test of psychology and administer it to a group of students. We repeat the same in a week's time.
- Comment on the Pearson Correlation.

SECTION 2 – STATISTICS

- (a) Attempt Q1. and any two from 2, 3 & 4.
- (b) Answer questions for this section in a separate answer book.
- (c) Answers without calculations will not attract any marks.

1. Answer all the questions.

- (a) For the following list of test scores 52, 70, 62, 68, 50, 56, 65, 57
- (i) Find the M_n and σ
- (4 marks)

- (ii) Add 5 to each score and recalculate M_n and σ . (2 marks)
- (iii) Multiply each by 2 and calculate the M_n and σ . (2 marks)
- (b) In a test with $M = 100$ and $SD = 20$
- (i) What percent of scores lie above 130?
- (ii) What percent of scores lie between 70 and 110? (4 marks)
- (c) Out of Rank order method and Product moment method of correlation which method is preferred? Give your reasons, with example. (3 marks)
2. (a) The difference between two means is $D = 3.60$ and $\sigma_D = 3$. Both samples are larger than 100. Is the obtained difference significant at the .05 and .01 levels? (3 marks)
- (b) From the following tabulated data find out the significance of difference between two means. (7 marks)

	Initial test	Final test
No. of students	64	64
Mean scores	45	50
Standard Deviations	6.00 (σ_1)	5.00 (σ_2)

3. (a) Forty-eight salesmen have been classified into 3 groups – very good, satisfactory and poor by a consensus of sales managers. Does this distribution of ratings differ significantly from expected ability by normal distribution. (6 marks)

	Good	Satisfactory	Poor	Total
Observed (f_o)	17	24	7	48
Expected (f_e)	8	32	8	48

- (b) Calculate $\rho(rho)$ from the following ranked data. (4 marks)

Traits	Judge X	Judge Y
a	2	1
b	1	2
c	4	5
d	3	6
e	6	4
f	5	3

4. (a) Calculate F ratio and interpret it. (2 marks)

Source of variation	Sum of squares	Degrees of freedom	MS
Between Groups	49.0	1	49.00
Within Groups	264.0	14	18.86
Total	313.0	15	

- (b) Calculate F ratio, through analysis of variance for the following data. (8 marks)

TABLE P: Scores of four method Groups

Method groups			
1	2	3	4
26	32	37	35
23	28	30	29
19	26	27	29
17	24	26	28
17	21	23	25
15	19	22	22
$\sum X = 117$	150	165	168
