



MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF EDUCATION

DEPARTMENT OF EDUCATIONAL MANAGEMENT AND CURRICULUM STUDIES

APRIL SESSION EXAMINATION FOR MASTER OF EDUCATION

ECT802: EDUCATIONAL STATISTICS.

DATE: 9/8/2019

TIME: 9.00-12.00 PM

INSTRUCTIONS:

Answer QUESTION ONE and any other TWO QUESTIONS

1. (a). Complete the table below. (4 marks)

CLASS INTERVAL	MID-POINT X	FREQUENCY f	Frequency x mid-point f x X
0-10	5	12	
10-20	15	2	
20-30	25	8	
30-40	35	2	
40-50	45	6	
50-60	55	4	
60-70	65	1	
Totals		N= 35	

- (b) Calculate the mean for the data in the table above. (3 marks)
- (c) Calculate the position of the Median. (3 marks)
- (d) In which class interval does the median fall? (1 mark)
- (e) Using a suitable scale, draw the graph of frequency versus class interval. (3 marks)
- (f) On the same graph, draw the frequency polygon. (3 marks)
- (g) Show on the above graph the position of the Median. (3 marks)

2. The Chi-Square equation is given as:

$$\sum \frac{(O - E)^2}{E}$$

- (a) Explain the meaning of O, E, (O-E), (O-E)². (4 marks)
- (b) Study the data in the table below and calculate the expected values for each cell.

	HIGH PERFORMANCE	LOW PERFORMANCE	TOTAL
NATIONAL	250	150	400
COUNTY	100	300	400
TOTALS	350	450	800

Use the information to fill the table below: (8 marks)

OBSERVED O	EXPECTED E	O-E	(O-E) ²	(O-E) ² /E
250				
150				
100				
300				

- (c) Find the Chi-Square value by totaling the values in the last Column. (2 marks)
- (d) Calculate the degrees of freedom= (R-1) X (C-1). (3 marks)
- (e) How significant is the calculated value of Chi-Square at 95% confidence level? (3 marks)

3. (a) Variance expression is given as:
$$\text{Var.} = \frac{\sum fx^2 - \frac{(\sum fx)^2}{n}}{n-1}$$

Explain the symbols: X, X², n, FX, fX², $\sum fx$, $\sum fx^2$. (3 marks)

(b) Study and complete the variance table below:

(8 marks)

SCORE X	FREQUENCY f	Square score X ²	f X	f X ²
5	1			
8	2			
7	2			
6	1			
4	2			
2	1			
9	2			
10	1			
TOTALS	N= 12			

(c) Calculate the Variance for this data.

(5 marks)

(d) Calculate the Standard deviation for this data.

(4 marks)

4. Study the data below.

(a) Complete the table for cumulative frequency.

(3 marks)

CLASS INTERVAL CI	MID-POINT X	FREQUENCY f	CUMULATIVE FREQUENCY Cf
0-10	5	5	
10-20	15	10	
20-30	25	15	
30-40	35	20	
40-50	45	40	
50-60	55	40	
60-70	65	20	

70-80	75	15	
80-90	85	10	
90-100	95	5	

- (b) Draw a graph of cumulative frequency versus the class interval. (5 marks)
- (c) Calculate the median position. (3 marks)
- (d) Calculate the position of the 1st Quartile. (3 marks)
- (e) Calculate the position of the 3rd Quartile. (3 marks)
- (f) Show the position of the three quantities above on the cumulative frequency curve. (3 marks)
5. (a) Calculate the sum of the scores in the table below. (2 marks)
- (b) Calculate the mean score. (2 marks)
- (c) Complete the table for the data below. (8 marks)

	SCORE X_i	$(X_i - \text{MEAN OF } X)$	$(X_i - \text{MEAN OF } X)^2$
1	5		
2	8		
3	7		
4	6		
5	4		
6	2		
7	9		
8	10		
9	8		
TOTAL			

- (d) Find the sum of the square deviations. (2 marks)
- (e) Calculate the variance in the scores. (3 marks)
- (f) Calculate the standard deviation for the scores. (3 marks)