



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Business & Social Studies

DEPARTMENT OF LIBERAL STUDIES, COMMUNITY DEVELOPMENT & COUNSELING

DIPLOMA IN COMMUNITY DEVELOPMENT COUNSELLING

(DCDC J08)

STATISTICAL METHODS

END OF SEMESTER EXAMS

SERIES: APRIL, 2010.

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATES

- 1. The paper consists of **TWO** Sections **A** and **B**.
- 2. Answer **ALL** questions in Section **A**
- 3. Answer **TWO** questions only from Section **B**
- 4. Use of Calculators is allowed. DO NOT USE MOBILE PHONES AT ALL.

SECTION A

Answer **ALL** questions – 30 marks (Compulsory).

Q.1 (a) Bring out clearly the important feature			g out clearly the important features of:-	
		(i)	Quota sampling.	(4 marks)
		(ii)	Systematic sampling.	(4 marks)
	(b)	State	what you understand by the term, sample frame.	(2 marks)
(c) The arithmetic mean of ten numbers is 4. An eleventh n				
		is ado	ded so that the overall mean is changed to 5. A twelfth num	ber
		y is a	added and the overall mean changes back to 4. What are the	
		value	es of x and y ?	(6 marks)
	(d)	Comp	pute the Geometric mean of the following numbers: 3, 4, 9	
		and 1	13. (Answer to 4 d.p)	(4 marks)

(e) A fast food company operated a chain of restaurants around the country. In one week, the following data were obtained:-

No. of customers	No. of Restaurants	Total weekly		
		turnover		
150 to under 200	7	1,620		
200 to under 250	62	21,640		
250 to under 300	34	35,690		
300 to under 500	19	58,950		
500 to under 1000	3	43,600		

Required:

Draw a Lorenz Curve showing the relationship between proportion of total number of restaurants and total turnover. (10 marks)

SECTION B

Answer any **TWO** questions ONLY from this Section.

Q.2	(a)	The following are the commission earnings of seven assistants in a									
		retail store for the week ended 6 th February, 2010.									
		Assis	stant:	А	В	С	D	Е	F	G	
		Com	Commission								
		Earn	ing s (£):	72	36	48	69	35	96	36	
		<u>Requ</u>	uired:								
		(i) (ii)	The mean d The standa	leviatio rd devi	on ation						(7 marks) (5 marks)
	(b)	(i) Highlight TWO advantages of mean deviation.						(4 marks)			
		(ii) State TWO disadvantages of standard deviation.							(4 marks)		

Q.3 Data below show the distribution of ages of volunteers in a self-help project.

Age (years)	No. of volunteers
20 – 29	7
30 – 39	21
40 – 49	19
50 – 59	5
60 – 69	6
70 – 79	2
80 - 89	1

Required:

Q.4

(a)

(i)	Compute the median age for the volunteers.	(9 marks)		
(ii)	The first quartile	(4 marks)		
(iii)	The third quartile	(5 marks)		
(iv)	The quartile deviation	(2 marks)		
Define spurious correlation? (2 ma				

(b) An official of a local race track would like to forecast the amount of money bet (in sh. Million) based on attendance. A random sample of 10 days is selected with the results given below:-

Attendance	Amount bet				
(thousands)	(sh.millions				
14.5	0.70				
21.2	0.83				
11.6	0.62				
31.7	1.10				
46.8	1.27				
31.4	1.02				
40.0	1.15				
21.0	0.80				
16.3	0.71				
32.1	1.04				

Required:

(i)	With attendance as the independent variable, draw up a	
	scatter diagram.	(8 marks)

		(ii)	Assuming a linear relationship of the form $y = a + bx$, find the regression coefficients a and b .	(8 marks)
		(iii)	Predict the amount of bet for a day on which attendance is 25,000.	(2 marks)
Q.5	(a)	Outlin	ne any FIVE features of a good questionnaire.	(5 marks)
	(b)	Name	any FIVE important features to be considered while constru	cting
		a table	e.	(5 marks)

(c) The following table shows the value of export of agricultural commodities from a certain country during the year 2009 in million of shillings.

Commodities	Value (sh.million)
Coffee	96.5
Wheat	108.3
Cotton	61.2
Flowers	42.6
Tea	40.4
Timber	121.0
Others	20.0

Required:

A Pie chart showing the percentage export expenditure of the commodities. (10 marks)