



PAN AFRICA CHRISTIAN UNIVERSITY
MASTERS IN COUNSELLING PSYCHOLOGY
END OF JANUARY-APRIL 2025 TRIMESTER
COURSE TITLE: MCP 605: STATISTICS
INSTRUCTOR: DR. ELIZABETH NJOROGÉ

TIME: 3 Hours

INSTRUCTIONS

Read all questions carefully before attempting

Question ONE is Compulsory

Answer any other TWO from the choices provided

This exam carries 40% of the total assessment marks

A set of formulae are attached in the last page

QUESTION 1 [20 marks]

- a) Differentiate between the following terms and give relevant examples.
- i) Interval and Ratio scales of measurements. [3 marks]
 - ii) A Histogram and A Hypothesis [3 marks]
- b) The following are distances in meters travelled by 50 Psychiatric patients to their respective clinic.
- 454, 453, 447, 511, 416, 443, 449, 421, 445, 452,
478, 407, 433, 466, 413, 452, 412, 508, 477, 430,
419, 456, 439, 413, 435, 479, 463, 462, 451, 459,
403, 421, 448, 462, 438, 475, 436, 457, 460, 432,
509, 441, 468, 481, 498, 432, 431, 486, 410, 455,
- .
- i. Prepare a frequency distribution table starting with the class 400 – 419. [5 marks]

- ii. Using assumed mean method, calculate the mean and standard deviation of the meters travelled. [5 marks]
 - iii. Calculate the mode of the data [2 marks]
- c) Matthew 14:17 “We have here only five loaves of bread and two fish,”.....Jesus told the disciples to sit the people in groups of fifty,.....After everyone ate there was 12 baskets of food remaining. This the Jesus Miracle of feeding the five thousand. Write a short narrative on this bringing out how mathematics was applied. [2 marks]

QUESTION 2 [10marks]

The data below shows the client fees charged by six counsellors for sessions attended in a week.

Sessions (X)	5	10	17	8	12	6
Fee sh.(000) Y	6	15	22	15	26	4

- i) Draw a scatter diagram for the data above. [2 marks]
- ii) Find the least square estimates and hence the regression line. [4 marks]
- iii) Interpret the values of a and b. [2 marks]
- iv) Calculate the amount charged for 22 sessions using the line in (ii) above. [1 mark]
- v) Draw the regression line on the Scatter diagram in (i) [1 mark]

QUESTION 3 [10 marks]

- a) State the five steps followed in testing a hypothesis [5 marks]
- b) Differentiate with an example the terms Correlation Analysis and a Cumulative frequency curve. [3 marks]
- c) State two reasons why Counsellors need to use statistics. [2 marks]

QUESTION 4 [10 marks]

Violence and lack of discipline have become major problems in schools. A random sample of 200 parents were selected and were asked if they are in favor of the students receiving punishments. The table below shows their responses. Test the hypothesis at 5% that the gender and opinions of the parents are independent.

[10 marks]

	In favour	Against	Not sure	Totals
Male	61	50	8	
Female	55	19	7	
Total				

QUESTION 5 [10 marks]

A Psychologist claimed that the mean age of the clients in his clinic is 25. A statistician took a sample of 36 clients and found that their mean age is 22 with a standard deviation of 9. Advice the Psychologist at 5% level of significance that the age of his clients is different from his claim. [10 marks]