



PAN AFRICA CHRISTIAN UNIVERSITY
SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
END OF SEMESTER EXAMINATION FOR THE DEGREE OF
MASTERS OF ARTS IN MARRIAGE AND FAMILY THERAPY
MAY-AUGUST 2018

CAMPUS: ROYSAMBU
DEPARTMENT: PSYCHOLOGY
COURSE CODE: MFT601A
COURSE TITLE: STATISTICS FOR RESEARCH IN MFT
EXAM DATE: WEDNESDAY 8TH AUGUST 2018
TIME: 5.30PM-8.30PM

INSTRUCTIONS

- Read the instructions and questions carefully before you write the answers.
- Write your **STUDENT NUMBER** in the Answer Booklet given
- Answer **QUESTION ONE AND ANY OTHER TWO**
- *Write clearly and legibly.*
- *ALL PAC University's examination rules and regulations apply*

QUESTION ONE: [COMPULSORY] – 30 MARKS

- a) For each of the following questions, state the type of statistical data you would obtain from the answers **[5 marks]**
- What is your age?
 - How much money did you spend last semester?
 - What is your marital status?
 - How many shops did you enter at the Mall?
 - How would you rate the quality of teaching received from your lecturer?
- b) Using an appropriate illustration, briefly discuss the difference between descriptive and inferential statistics **[4 marks]**
- c) Briefly describe the following statistical sampling techniques and cite an appropriate situation where each is applicable:
- Stratified sampling **[2 marks]**
 - Snow balling **[2 marks]**
 - Systematic sampling **[2 marks]**
- d) By the help of a sketch diagram, explain the meaning of the terms Platykurtic and Leptokurtic in distribution of data **[4marks]**
- e) Identify and briefly explain any three methods of statistical data collection **[6 marks]**
- h) The following data represents the marks obtained by 16 candidates who sat for KCPE Mathematics examination: 80,75,66,52,87,87,91,42,68,92,42,67,44,16,25,72
Determine:
- The median mark **[2marks]**
 - The 60th Percentile **[3 marks]**

QUESTION TWO

- a) A firm categorized the employees according to their ages and computed the percentage of employees falling under each age class as below:

Age	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65
%	1.3	8.8	19	22.6	19.4	7.8	9.2	7.4	2.3	2.2

Compute and interpret:

- The mean age **[5marks]**
- The median age **[6marks]**

- iii. The modal age [6marks]
- b) State three advantages of using mean as a measure of central tendency [3marks]

QUESTION THREE

- a) By use of an illustration, differentiate between positive and negative skewness in distribution of data [3marks]
- b) The data below represents the monthly incomes (in thousands of shillings) of 1000 families sampled from a county:

Income (000)	100-120	120-140	140-160	160-180	180-200	200-220	220-240
Families	17	53	199	194	327	208	2

Determine and **interpret**:

- i. The standard deviation of the incomes [7marks]
- ii. The Coefficient of variation [3marks]
- iii. Interquartile range [4marks]
- iv. The Karl Pearson Coefficient of Skewness [3marks]

QUESTION FOUR

- a) Briefly describe three methods of determining correlation between statistical variables [6marks]
- b) The data below shows the number of domestic violence cases registered in 12 counties and the unemployment rate (%) in each county in a certain year

County	1	2	3	4	5	6	7	8	9	10	11	12
Domestic violence cases	300	310	320	260	460	600	190	350	400	480	570	720
Unemployment rate (%)	30	14	30	23	32	26	20	21	23	30	35	26

- i. Determine the Spearman Rank correlation coefficient between the two variables [5marks]
- ii. Comment on your answer in (i) [2 marks]

- c) A Counselling expert sampled 10 clients visiting her clinic in a particular year and recorded the number of visits made by these clients against the number of years that these clients have been married. The result was as follows:

Client	1	2	3	4	5	6	7	8	9	10
Years of marriage	5	12	6	14	28	8	38	3	13	16
No. of visits	7	3	9	2	3	6	5	2	1	2

Determine and interpret for the Counsellor:

- i. The Covariance between years of marriage and number of visits

[3marks]

- ii. Karl Pearson Correlation Coefficient between the two variables of concern **[4marks]**

QUESTION FIVE

- a) By use of an illustration, distinguish between Bivariate and Multivariate regression analysis **[4 marks]**
- b) Differentiate between dependent and independent variables as used in regression analysis **[4 marks]**
- c) A MAFT student thinks that the number of divorce cases filed in Kenyan courts is dependent on the nation's per-capita income level. Based on this belief, he collected the following data over the 10 years period from 2008 to 2017 as follows.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Per-capita income(million \$)	30000	39950	35550	45600	52500	37500	45700	65000	60000	72500
No. of divorce cases filed	2500	3500	1650	6600	8200	3000	7050	3300	7300	8400

Required:

- i. Determine the regression equation that describes the relationship between the research variables **[8 marks]**

- ii. Using the established regression equation, estimate the number of divorce cases expected to be filed if the per-capita income is \$ 120 million. **[4 marks]**