



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2015/2016

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF MASTER OF ARTS IN PROJECT PLANNING
MANAGEMENT**

HOMA-BAY CAMPUS

PPM 812: QUANTITATIVE TECHNIQUES

Date: 23rd April, 2016

Time: 9.00 - 12.00 noon

INSTRUCTIONS:

- Answer question ONE and any other TWO questions.



PPM 812: QUANTITATIVE TECHNIQUES (HOMABAY CAMPUS)

QUESTION ONE

A sample of 15 Project Planning and Management Students showed the following credit hours taken the First Semester of Year 1

15	21	18	16	18	21	19	15	14	18	17	20	18	15	16
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- (a) Compute the mean, median and mode for the credit hours taken (9Marks)
- (b) Outline the advantages and disadvantages of the above measures of Central Tendency (6 Marks)

QUESTION TWO

The profit before taxation of a company for the past seven years is given in the following table

YEAR	PROFIT BEFORE TAXATION \$000s
1977	85
1978	95
1979	165
1980	190
1981	275
1982	260
1983	260

- a) Plot this on a graph (3 Marks)
- b) Calculate the Least Square Regression Line of profit on year (7Marks)
- c) Predict the profit for 1984 (5 marks)

QUESTION THREE

- (a) Briefly, describe the following patterns of correlation

- I. No correlation (1 Mark)
- II. Positive Correlation (1 Mark)
- III. Negative Correlation (1 Mark)

(b) The following table shows the examination marks in French and Germany of 10 students.

Student.	I	II	III	IV	V	VI	VII	VIII	IX	X
French	21	29	39	44	55	64	68	79	86	94
Germany	33	37	43	39	51	51	53	46	59	58

- I. Plot these results on a graph and draw the line of best fit. Determine an equation relating French and German mark corresponding to a French mark of 50 (8 Marks)
- II. Calculate a co-efficient of rank correlation between the French and German marks (4 Marks)

QUESTION 4

An experiment into the correlation between the two variables X and Y produce the following data

X	13.0	16.0	19.0	22.0	25.0	28.0
Y	36.5	37.8	40.2	39.3	41.7	43.0

- a) Calculate Spearman's Co-efficient of Rank Correlation between X and Y (5Marks)
- b) Obtain the equation of this line in the form of $Y=AX+B$ where A and B are given correct two significant figures. (5Marks)
- c) Assuming extrapolation to be valid use your equation to calculate to calculate the most probable value of Y when $X=10$ (5 Marks)

QUESTION 5

In order to study the effect of temperature upon yield in a chemical process, 5 batches were produced under each of three temperature levels.

TEMPERATURE			YIELD		
50	34	24	36	39	32
60	30	31	34	23	27
70	23	28	28	30	31

Using a 0.05 level of significance, test to see if the temperature level appears to have an effect upon the mean yield of the process (15 Marks)

QUESTION 6

- a) Explain the following errors in hypothesis testing (5 marks)
 - i. Type I Error
 - ii. Type II Error
- b) Describe the characteristics of a good hypothesis (5 marks)
- c) Outline the steps involved in hypothesis testing (5 marks)