



## **MASENO UNIVERSITY**

### **UNIVERSITY EXAMINATIONS 2015/2016**

**SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE  
OF BACHELOR OF SCIENCE IN GEOSPATIAL INFORMATION  
SCIENCE WITH INFORMATION TECHNOLOGY**

### **CITY CAMPUS - REGULAR**

#### **PGS 224: STATISTICAL ANALYSIS**

Date: 8<sup>th</sup> December, 2015

Time: 9.00 - 11.00 am

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#### **INSTRUCTIONS:**

- Answer question ONE and any other TWO questions.



PGS 224 : STASTICAL ANALYSIS

Instructions: Answer Question 1 and any other two

1.(a) From the data given below, locate graphically:

(i) median (ii)  $Q_1$  (iii)  $Q_3$  (iv)  $D_4$  (v)  $P_{45}$  (15mks)

0.10	10.20	20.30	30.40	40.50	50.60	60.70	70-80
7	15	18	23	30	13	8	6

(b). Calculate coefficient of variation (C.V.) from the following data (15 marks)

Income	No. of employees
300-399	30
400-499	46
500-599	58
600-699	76
700-799	60
800-899	50
900-999	20

2.a) Explain the term skewness .(5marks)

b) Calculate the Karl Pearson's co-efficient of skewness from the following data:(10marks)

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	10	40	20	0	10	40	16	14

c) Interpret the coefficient value.(5 marks)

3. Seven methods of imparting GIS education were ranked by GIS students of two universities as follows:

Method of teaching	I	II	III	IV	V	VI	VII
Rank by students of university A	2	1	5	3	4	7	6
Rank by students of university B	1	3	2	4	7	5	6

Calculate Spearman's Rank correlation coefficient and comment on its value. (20mks)

4. From the data given below, find

(i) The two Regression equations. **(10 marks)**

(ii) The Coefficient of Correlation between marks in Economics and Statistics. **(10 marks)**

Marks in Economics ( X)	25	28	35	32	31	36	29	38	34	32
Marks in Statistics ( Y)	43	46	49	41	36	32	31	30	33	39

5. A husband and wife appear in an interview for two vacancies in the same post. The probability of the husband's selection is  $\frac{1}{7}$  and that of the wife is  $\frac{1}{5}$ .

What is the probability that

a) Both of them will be selected. **(7 marks)**

b) Only one of them will be selected. **(7 marks)**

c) None of them will be selected. **(6 marks)**

6.a) With the help of an example distinguish clearly between partial and multiple correlation and their application to GIS  
**(6marks)**

b)The simple correlation coefficients between temperature  $X_1$ , corn yield  $X_2$  and rainfall  $X_3$  are

$$r_{12}=0.59, r_{13}=0.46, r_{23}=0.77$$

Calculate partial correlation coefficient  $r_{123}$  and multiple regression coefficient  $R_{123}$  .**14marks**