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MAIN EXAMINATION

JANUARY – APRIL 2022

FACULTY OF ARTS AND SOCIAL SCIENCES

DEPARTMENT OF HUMANITIES (GEOGRAPHY)

REGULAR PROGRAMME

MGE 502: ADVANCED QUANTITATIVE METHODS IN GEOGRAPHY

Date: APRIL 2022	**Duration: 3 Hours**
INSTRUCTIONS: Answer Question ANY OTHER FOUR QUESTIONS	

Q1. a) Explain the following statistical concepts:.

i) Population parameter **(3 marks)**
ii) Correlation coefficient **(3 marks)**
iii) Level of significance **(3 marks)**

b) i) Differentiate between a Pearson's and Spearman's test **(4 marks)**

ii) State two data requirements that would enable you choose one over the other in (i) above. **(2 marks)**

Q2. Outline in detail the logic and process of hypothesis testing. **(15 marks)**

Q3. a) Discuss the four measurement scales as used in statistics. **(8 marks)**

b) Elaborate on how to visually interpret the strength and direction of correlation. **(7 marks)**

Q4. Given:

x	1	2	3	4	5	6	7
y	9	8	10	12	11	13	14

Calculate:

a) Regression coefficient of y on x **(5 marks)**
b) Calculate the equation of regression line of *y* on *x* **(7 marks)**

c) Interpret the gradient of the regression line **(3 marks)**

Q5. In determining a fertilizer response, a researcher treated eight tomato plants of the same variety, that were selected randomly with a fertilizer solution in which *x* grams of fertilizer that was dissolved in a fixed quantity of water. The yield, *y* kilograms, of tomatoes was recorded:

Plant	A	B	C	D	E	F	G	H
x	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5
y	3.7	4.2	5.6	6.9	7.1	7.5	7.6	7.9

a) Plot a scatter diagram on yield, *y,* against amount of fertilizer, *x*. **(4 marks)**

b) Calculate the value of the product moment correlation coefficient between fertilizer applied and tomato yield **(6 marks)**

c) Comments briefly on the result obtained in part (a and b) **(5 marks)**

Q6. a) Name the statistical procedure for estimating whether the difference under study is significant or non-significant **(3 marks)**

b) Discuss the assumptions made in linear regression **(12 marks)**

END