



# **MAASAI MARA UNIVERSITY**

**SPECIAL/SUPPLEMENTARY UNIVERSITY  
EXAMINATIONS  
2018/2019 ACADEMIC YEAR  
THIRD YEAR FIRST SEMESTER**

**SCHOOL OF TOURISM & NATURAL RESOURCES  
MANAGEMENT  
BACHEOR OF EDUCATION (ARTS)**

**COURSE CODE: GEO 318**

**COURSE TITLE: QUANTITATIVE METHODS IN  
GEOGRAPHY**

**DATE: 29TH /4/2019**

**TIME: 11:00AM - 1:00PM**

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## **INSTRUCTIONS TO CANDIDATES**

Answer question **ONE** and any other **THREE** questions. Use of simple calculators allowed. Graph paper, Normal distribution, Student-t distribution and random number tables required. Borrowing of materials prohibited. Use illustrations where appropriate.

This paper consists of 4 printed pages. Please turn over

**SECTION A (ANSWER ALL QUESTIONS)**

Q1

- a) Explain the meaning of ‘primary data’ **[2 marks]**
- b) Describe one characteristic of dependent variables **[2 marks]**
- c) Describe a real life environmental situation that demonstrates the usefulness of each of the following descriptive measures.
  - i. Median **[2 marks]**
  - ii. Mode **[2 marks]**
  - iii. Range **[2 marks]**
- d) Some 58 residents were selected at random in one ‘Mabatini Hostel’ in a local urban centre. Most of these residents were young students registered in nearby colleges and universities. This hostel is cheap but has poor ventilation and is quite congested. Some of rooms are occupied by more than seven students. Each of sampled student as asked if the general environment inside ‘Mabatini Hostel’ was wonderful, satisfactory, or not alright. The table below shows the results of this survey.

<b>Nos of Students</b>	<b>Response</b>
12	Not alright
29	Just satisfactory
13	Very satisfactory
3	Wonderful
9	No Comment

- i. Obtain the relative frequency for each category **[2 marks]**
  - ii. Construct a suitable bar graph for the data **[2 marks]**
  - iii. Give an suitable interpretation of these results **[2 marks]**
- e) A linear regression model with three independent variables was obtained using survey data on the heating of some 210 Executive homes in Mt Kenya region. During the cold season the inside of each home is kept warm via heated water that is circulated through pipes in the floors and inside the walls of all the rooms. The water is heated using locally bought firewood and charcoal. The investigators were interested in only these indoor environment variables; mean temperatures outside, age of the water-heating system, thickness of the insulation of walls and the heating costs.
  - i. Give a suitable regression equation for this study **[2 marks]**
  - ii. Describe how such a model coefficients could have been computed by the researchers. **[2 marks]**

- iii. Explain the meaning of one of the coefficients in the model **[2 marks]**
- iv. Explain one assumption involved in the use of this model **[3 marks]**

**[Total 25 marks]**

**SECTION B (ANSWER ANY THREE)**

Q2 Miss Mughenda wishes to compute the probability of her getting the winning ticket in a national lottery game. This game is open to any citizens who have opened mobile bank account using only one Communications company. Each citizen is allowed to make only one entry, by sending a four-digit number, to the communications company, using the mobile phone.

- (a) Explain how she could do this. **(11 marks)**
- (b) Describe two dangers of students getting addicted to gambling? **(4 marks)**

Q3 Discuss, using examples, the benefits of using random number tables while studying samples obtained from a population has heterogeneous social characteristics. **[15 marks]**

Q4 Mwalimu Kilonzo computed average annual temperatures using data from a school meteorological station. The size of the sample was 56. It was found that these average temperatures conformed to a normal distribution. The mean of the temperatures was 21 Degrees Celcius and the variance was 16. Answer the following question on this survey.

- a) Describe four tests that Mwalimu Kilonzo may have done to prove that the data conformed to a normal curve. **[6 marks]**
  - b) What are Z-scores **[3 marks]**
  - c) What percentage of scores fall between 18 and 26 Degrees Celcius. **[3 marks]**
  - d) What positive value of Z-score would put 10% of the scores between it and the mean **[3 marks]**
- [Total 15 marks]**

Q5 With the aid of a hypothetical example in environmental studies explain the procedure for applying the student-t test. **[15 marks]**

Q6 A teacher wished to study the performance of a secondary school Form Three class. A sample of nine (9) students was selected randomly. The results of their geography mock exam done during the second term and the corresponding final

score of an exam they did at the end of their third term are tabulated below. Study the table and answer the questions that follow.

Mock exam	68	84	69	55	76	83	48	57	37
Final exam	74	93	85	63	88	99	59	65	46

a) What type of correlation do you expect between these two sets of scores?

Explain. **(3 marks)**

b) Plot a scatter diagram and label the sketch appropriately **(3 marks)**

c) Draw a suitable free-hand curve-of-best-fit for the data. **(3 marks)**

d) Compute a suitable correlation coefficient. **(3 marks)**

e) What can this teacher conclude from these results? **(3 marks)**

**[15 marks]**

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