THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

P.O. Box 62157
00200 Nairobi - KENYA
Telephone: 891601-6
Fax: 254-20-891084
E-mail:academics@cuea.edu

MAIN EXAMINATION

AUGUST - DECEMBER 2018 TRIMESTER

FACULTY OF COMMERCE

DEPARTMENT OF ACCOUNTING AND FINANCE

REGULAR PROGRAMME

CID 082: STATISTICAL METHODS IN DATA ANALYSIS

Date: DECEMBER 2018	**Duration: 2 Hours**
INSTRUCTIONS: Answer Question ONE and ANY OTHER TWO Questions	

Q1. a) Distinguish between any of the following terms
   a) Simple Random sampling and Stratified sampling
   b) Null and alternative Hypothesis
   c) Frequency Probability and Classical Probability **(6marks)**

b) Discuss any THREE characteristics of a good Estimator **(6marks)**

c) i) State any two properties of a probability Distribution **(2marks)**

ii) What is the mathematical expectation that one wins sh.75 000 if a balanced coin falls head and loses 50 000 if it falls tails? **(4marks)**

d) Use the Binomial Theorem to expand $(2a - \frac{3}{b})^6$ **(6marks)**

e) State three features of a :
   i) binomial experiment
   ii) Probability distribution **(6marks)**

Q2. a) If *n* = 6, *and p* = 0.4, use the Binomial formula to obtain the following probabilities:

i) *P*(0) ii) *P*(2) iii) *P*(*less than* 4)

iv) *P*(*at least* 4) v) *P*(4) **(10 Marks)**

b) On the college soccer team, the mean weight of men is 65.6kg and a standard deviation of 0.95kg.

i) What is the probability that a certain man weighs over 63kg?

ii) Below what weight will 35% of the men weigh?

iii) What is the probability that he weighs between 63kg and 66kg?

iv) Above what weight will the heaviest 5% of the men be? **(10 marks)**

Q3. a) A population is normally distributed with **μ**=55 and **σ**=28. If one of the items is taken at random from this population, find the probability that

i) greater than 72
ii) less than 48
iii) between 41 and 66 **(9marks)**
iv) Atleast 60

b) Find the 90% confidence limits for (a) above. **(3marks)**

c) An assessment test is given to all interviewees in a company. Test scores are normally distributed. A random sample of seven participants obtained the following results: 69, 58, 68, 66, 75, 85, and 80. Test the assumption that the mean test score is 65 using the 5% significance level. (In your workings, show the confidence limits) **(8marks)**

Q4. a) On a particular day, a trader expects the sales of tickets to follow the pattern.

Sales	0	50	100	150
Probability	0.02	0.26	0.39	0.31

Calculate:

i) The expected sales, **(7marks)**
ii) The standard deviation. **(2marks)**
iii) Determine the coefficient of variation **(3marks)**

b) If λ**=3.5,** use poison distribution to obtain the following probabilities

i) P (0)
ii) P(less than 2)
iii) P(more than 2)
iv) P (at most 2) **(8marks)**

END