MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2018/2019 ACADEMIC YEAR
FIRST YEAR *SECOND* SEMESTER

SCHOOL OF COMPUTER AND INFORMATION SCIENCES

BACHELOR OF TOURISM MANAGEMENT

COURSE CODE: STA 2200/1103

COURSE TITLE: PROBABILTIY AND STATISTICS

DATE: APRIL 2019   **TIME:**

INSTRUCTIONS TO CANDIDATES

1. Answer Question **ONE** and any other **TWO** questions
2. Show all your working and be neat
3. Do not write on the question paper

*This paper consists of **FOUR** printed pages. Please turn over.*

QUESTION ONE (30 MARKS)

a) Briefly explain the following terms

  i). Hypothesis

  ii). Test statistic

  iii). Sampling

  iv). Random Variable   (4marks)

b) Find the quartile deviation and the mean absolute deviation for the following data.
   3, 6, 9, 10, 7, 12, 13, 15, 6, 5, 13   (3marks)

c) Briefly explain the Arithmetic Mean and its properties   (4marks)

d) Below are the scores of two cricketers in 10 Minutes. Find the most consistent scorer by indirect

   method and draw a appropriate conclusion.

A	204	68	150	30	70	95	60	76	24	19
B	99	190	130	94	80	89	69	85	65	40

(3marks)

e) Estimate the mean, median, mode and standard deviation for the following frequency distribution:

Class	5-9	10-14	15-19	20-24	25-29	30-34	34-39
Freq	5	12	32	40	16	9	6

(8marks)

f) Given a probability distribution of X as below, find the mean and standard deviation of X.

x	0	1	2	3
P(X=x)	1/8	¼	3/8	¼

(4marks)

g) Calculate the coefficient of Skewness α_3 and the coefficient of kurtosis α_4 for the data
   5, 6, 7, 6, 9, 4, 5   (4 marks)

QUESTION TWO (20 MARKS)

a) Briefly explain the following terms as used in statistics

   i). Type I and Type II error   (2marks)

   ii). Sample and Population   (2marks)

   iii). Descriptive and Inferential Statistics   (2Marks)

b) The claim that the true mean of TV sets in Kenya homes is equal to 3. Suppose the sample results are n = 100, $\bar{x} = 2.84$ ($\sigma = 0.8$ is assumed known). Test the claim at 5% significance level and draw an appropriate conclusion   (8marks)

c) The following data in the table below relate to the size of capital and number of companies. Compute the Bowley's coefficients of skewness and interpret the results.

Capital(Kshs)	1-5	6-10	11-15	16-20	21-25	26-30	31-35
No. of companies	20	27	29	38	48	53	70

          (6marks)

QUESTION THREE (20 MARKS)

a) Define the following terms

   i). Frequency Distribution   (1mark)

   ii). Raw Data   (1mark)

   iii). Kurtosis   (1 mark)

b) Obtain the correlation coefficient of the following data and draw an appropriate conclusion

Mean Temp. (x)	14.2	14.3	14.6	14.9	15.2	15.6	15.9
Pirates (y)	35000	45000	20000	15000	5000	400	17

          (8marks)

c) Scores made by students in a statistics class in the mid-term and final examination are given here. Develop a regression equation which may be used to predict final examination scores from the mid – term score.

Student	1	2	3	4	5	6	7	8	9	10
Mid term	98	66	100	96	88	45	76	60	74	82
Final	90	74	98	88	80	62	78	74	86	80

          (9marks)

QUESTION FOUR (20 MARKS)

a) Define the following terms

    i). Skewness   (1 mark)

    ii). Probability Value   (1 mark)

b) Briefly explain the steps to performing hypothesis testing   (5marks)

c) The table below contains the data of ten competitors in a beauty contest as ranked by three judges in the following order. Use the rank correlation to discuss which pair of judges has the nearest approach to common tastes in beauty?

1st Judge	1	6	5	10	3	2	4	9	7	8
2nd Judge	3	5	8	4	7	10	2	1	6	9
3rd Judge	6	4	9	8	1	2	3	10	5	7

(8marks)

d) The following table below gives the number of aircraft accident that occurred during various day of the week. Find whether the number of accidents is uniformly distributed over the week. ($\chi^2_{6,0.05} = 12.59$)

Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat
No. of Accident	14	15	7	20	11	9	14

(5marks)

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