

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF CERTIFICATE IN BRIDGING

MATH 0022: PROBABILITY AND STATISTICS

STREAMS: CERT. BRIDGING

TIME: 2 HOURS

DAY/DATE: TUESDAY 05/12/2017

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER THREE

QUESTION ONE (30 MARKS)

(a) Briefly distinguish between the following statistical terms [6 marks]

- (i) Primary and secondary data
- (ii) Discrete and continuous data
- (iii) Sampling and census

(b) Given the data below, find Q_1 and Q_3 . [4 marks]

x	0	1	2	3	4	5	6	7	8
f	1	72	59	52	29	9	26	7	1

(c) If the probability that a person lives in an industrialized country is $\frac{1}{5}$. Find the probability that a person does not live in an industrialized country. [2 marks]

(d) In Chuka university farm, there is a total of 900 animals out of these 600 are chicken, 100 goats, 150 cows and the rest as sheep. Represent this information in a pie chart. [5 marks]

(e) Consider the data below which represents the number of votes in 24 polling stations

92	18	83	11	61	30	28	64
78	26	52	19	85	43	29	96
72	35	98	15	75	14	26	68

Construct a stem and leaf display. [5 marks]

(f) Given below is the distribution of diameter of cups manufactured by a certain machine. Find the mean diameter and state two advantage of using arithmetic mean. [4 marks]

x	2.0	2.2	2.3	2.8	3.0
f	2	4	6	3	5

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- (g) The number of hardware faults for each computer in a laboratory containing 30 computers is recorded over a 12 month period. The results in the form of a frequency distribution are given in the table below.

Month	Jan	Feb	March	April	May	June	July	August	Sep	Oct	Nov	Dec
No. of faults	1	3	5	2	1	2	3	1	2	4	5	3

Find:

- (i) The variance [2 marks]
(ii) Standard deviation [2 marks]

QUESTION TWO (10 MARKS)

- (a) Hotel records indicates the number of customers who stayed in a hotel for the number of days shown in the distribution.

No. of days	Frequencies
3	15
4	32
5	56
6	19
7	5

- (b) Give 5 aspects of a good questionnaire. [4 marks]

QUESTION THREE (10 MARKS)

The table below shows the marks scored by a statistics class of Embu campus

Marks	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
No of students	4	10	12	18	16	9	8	3

Calculate the [10 marks]

- (i) Mean mark
(ii) Mode mark
(iii) Median mark
(iv) Standard deviation
(v) The 6th decile

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QUESTION FOUR (10 MARKS)

- (a) The following data shows votes obtained by 40 candidates on 8th august 2017 general election.

99	72	54	25	40	65	32	60	10	64
74	35	62	51	71	67	57	95	80	45
63	39	73	53	82	76	50	66	60	63
85	56	55	48	69	62	52	61	75	49

- (i) Find the range [1 mark]
(ii) Construct a grouped frequency distribution table using class 10-19, 20-29 e.t.c [5 marks]
(iii) Draw a histogram and frequency polygon on the same axis for the data.[4 marks]

QUESTION FIVE (10 MARKS)

- (a) Consider the following data of saving of a certain Sacco.

Month	Saving in millions
Jan	190
Feb	150
March	75
April	215
May	170

Prepare this information in a component bar chart [4 marks]

- (b) The following data shows the number of units done by 7 students before graduating
31, 35, 29, 63, 55, 72, 37

Find

- (i) Absolute mean deviation (MAD) [3 marks]
(ii) Coefficient of range [2 marks]
(iii) Median [1 mark]

QUESTION SIX (10 MARKS)

- (a) State 5 properties of a good measure of dispersion. [5 marks]
(b) A ballot box contains 4 white ballots papers and 6 black ballots papers. Two ballot papers are drawn at random one at a time without replacement. What is the probability that [5 marks]
(i) The first ballot paper is black
(ii) The first ballot paper is white and the second is black
(iv) Both ballot papers are white