

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

RESIT/SPECIAL EXAMINATION

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE

MATH 141: INTRODUCTORY STATISTICS

STREAMS: BSC

TIME: 2 HOURS

DAY/DATE: THURSDAY 04/11/2021

11.30 A.M – 1.30 P.M.

INSTRUCTIONS:

- Answer all questions.

Question One (30 marks)

- a) Define the following terms
- Population (2 marks)
 - Sample (2 marks)
 - Questionnaire (2 marks)
 - Survey (2 marks)
 - Statistic (2 marks)
- b) Consider the following data and construct a stem and leaf display (5 marks)
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|----|----|----|----|----|----|----|----|----|----|
| 20 | 14 | 21 | 29 | 43 | 17 | 15 | 26 | 8 | 14 |
| 29 | 23 | 16 | 46 | 28 | 11 | 26 | 35 | 26 | 28 |
| 30 | 22 | 23 | 7 | 32 | 19 | 22 | 18 | 27 | 9 |
- c) A box contains 3 red balls and 6 green balls. 3 balls are to be picked on after the other without replacement. Find the probability that;
- The balls picked are of the same colour (3 marks)
 - At least 2 balls picked are green (3 marks)
 - Only one ball is red (3 marks)
- d) Consider the data below and present it in a component bar chart (6 marks)

item	Person's A expenditure	Person's B expenditure
Transport	10	30
Food	125	100
clothing	150	120
education	25	200

Question Two (20 marks)

- a) State 2 advantages and disadvantages of mean (4 marks)

- b) Consider the following data and find the mean, mode, median, semi-interquartile range and standard deviation (16 marks)

Class interval	frequency
90-99	5
100-109	8
110-119	22
120-129	27
130-139	17
140-149	9
150-159	5
160-169	5
170-179	2

Question Three(20 marks)

- a) State Baye's Theorem (2 marks)
- b) A committee of 4 persons is to be appointed from 3 officers from production department, 4 officers of purchase department, 2 officers from sales department and 1 CPA accountant. Find the probability of forming a committee in the following manner
- i) There must be a person from each category (2 marks)
 - ii) It should have at least one person from the purchase department (2 marks)
 - iii) The CPA accountant must be in the committee (2 marks)
- c) The weights of fathers and sons is given in the table below

Father (weight in kgs)	Son (Weight in kgs)
65	67
56	68
67	64
68	72
69	70
71	69
73	70

- i) Fit a least square regression equation of father's weight on son's weight (9 marks)
- ii) If the son's weight is 65kgs, what is the father's height? (3 marks)