



MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR DIPLOMA IN
HOSPITALITY AND TOURISM

DTM 031: INTRODUCTION TO STATISTICS

DATE: 4/12/2017

TIME: 2.00-4.00 PM

INSTRUCTIONS:

Attempt question **one** which is a compulsory question and any other **two** questions.

Show all your working.

1. a) Define the terms
 - i) Mean
 - ii) Median
 - iii) Mode
 - iv) Range (4 marks)
- b) Determine the mean, median, mode and the range of the following data: -
27, 6, 38, 7, 12, 11, 20, 19, 20, 25, 30. (5 marks)
- c) The mean age of 15 boys in a class is 19 years. On a day when one of the boys was absent the rest gave their ages as follows,
20 22 16 18 17 21 18 20
17 18 19 20 19 21
Find the age of the absent boy (5 marks)
- d) A die is thrown once. Find the probability of getting
 - i) a 5
 - ii) 3 or less
 - iii) an odd number or a 4 (6 marks)
- e) The data below shows the number of bags of rice taken to a certain hotel by 100 suppliers

Bags of rice	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85-94	95-104
No of suppliers	18	26	30	7	1	5	4	2	5	2

Determine i) the mean

ii) the standard deviation

(10 marks)

2. The analysis of a hotels order book gave the following value of orders received, values being to the nearest £

ORDERS

47 80 43 52 45 54 52 69 56 82 55 48 56 59 58 68 64 81 60 58 62 62 62 72

67 83 66 61 66 69 69 60 72 86 70 67 71 74 73 63 77 89 75 72 76 79 78 68

- a) Tabulate the data into the form of a frequency table using intervals of £ 5 (4 marks)
- b) State clearly the limits of your second interval (1 mark)
- c) Draw a histogram of the data (5 marks)
- d) Calculate the
- i) mean
 - ii) variance
 - iii) standard deviation (10 marks)

3. a) The shoe size of 40 students were recorded as shown in the table below

Shoe size	4	5	6	7	8	9
No of students	1	4	18	14	2	1

Determine the

- i) Mode
 - ii) Median
 - iii) Mean shoe
 - iv) Standard deviation (12 marks)
- b) Using the above data construct a cumulative frequency curve and use it to determine the:-
- i) Upper quartile
 - ii) Lower quartile
 - iii) Quartile deviation (8 marks)
4. a) Name two types of correlation (4 marks)

- b) The following data refers to the amount of money spent by ten customers who checked in a Nairobi hotel in a certain year and their social class index.

Amount spent in the hotel(x) Ksh in 1000's	58	55	50	43	39	33	36	25	21	19
Social class index (y)	114	112	108	104	101	97	95	85	75	77

Calculate the

- i) correlation coefficient and comment on the figure obtained
 - ii) coefficient of determination and comment on the figure obtained. (16 marks)
5. a) A carton of 20 components contains 4 defective items. Three components are selected at random from the carton, with replacement. Find the probability that :-
- i) all three components are good
 - ii) two components are good and one is defective. (10 marks)
- b) The table below shows the marks of students for mathematics and physics. Find Rank correlation coefficient. Comment on the relationship in performance between the two subjects. (10 marks)

Mathematics	80	60	65	50	35	30	90
Physics	80	5	60	55	45	30	95