MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECOND YEAR SECOND SPECIAL SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE TOURISM AND HOSPITALITY MANAGEMENT

HTM 209:INTRODUCTION TO STATISTICS IN HOSPITALITY AND TOURISM MANAGEMENT

DATE:7/6/2017 **TIME:11.00-1.00 PM**

Instruction: Attempt question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

(a) Explain the meaning of the following terms as applied in Statistics

(i) Population

(ii) Sample

(iii) Variable

(iv) Data (8 marks)

(b) Differentiate between each of the following terms:

i) Descriptive and inferential statistics

(ii) Nominal and interval measurement (4 marks)

(c) The data below shows the performance in a statistics continuous assessment test:

Score in %	0 -20	20 - 40	40 – 60	60 – 80	80 – 100
No of Students	3	9	11	15	2

Calculate:-

(i) The mean (4 marks)

(ii) The standard deviation (4 marks)

(c) A set of cards, identical in size and shape, is numbered 1 to 15 inclusive. A card is drawn at random from the pack and its number n is noted

A is the event: n is prime

B is the event: n is≤ 10

Calculate (i) P(A),(ii) P(B),(ii) P(A∧B) (5 marks)

(d) The mean and variance for the marks in mathematics examination are 55 and 25 respectively. Calculate the proportion of students who scored 70 and above. (5 marks)

QUESTION TWO (20 MARKS)

(a) Explain the meaning of the following sampling techniques:-

(i) Random sampling

(ii) Stratified sampling

(iii) Quota sampling

(iv) Cluster sampling (8 marks)

(b) The median of the following frequency distribution is 59.5 and the ninetieth` percentile is 79.5 Determine the values of a ,b and c

CLASS	**FREQUENCY**
30 – 39	14
40 – 49	a
50 – 59	40
60 – 69	b
70 – 79	19
80 – 89	c

$\sum f = 150$ (12 marks)

QUESTION THREE (20 MARKS)

The data below shows the number of hours worked in one week by employees in certain 5- star hotel:

46.3	39.2	44.2	41.3	45.1	42.3	43.5	40.0
45.6	40.6	42.0	42.6	45.6	39.5	43.1	39.7
46.1	38.9	42.4	42.1	45.0	44.4	42.4	40.8

(a) Tabulate a frequency distribution table with class intervals by 38.9 – 40.4, … etc (6 marks)

(b) Use the table in 2(a) above to calculate the:

(i) quartile deviation (6 marks)

(ii) mode (4 marks)

(iii) median (4 marks)

QUESTION FOUR (20 MARKS)

(a) Explain the meaning of terms as used in probability theory.

(i) Random experiment

(ii) An event

(iii) Mutually exclusive events

(iv) Independent events. (8 marks)

(b) 100 employees of a Tour company were questioned on whether they smoked or not. There were equal numbers of males and females. Half the males smoked and 40% of the females smoked. Find the probability that if one of the members were chosen at random.

(i) The person was a smoker (3 marks)

(ii) The person was a female. (3 marks)

(iii) The person was a female that smoked (3 marks)

(v) The person was a female given that the person selected was a smoker.

(3 marks)

QUESTION FIVE (20 MARKS)

(a) The mean weight of a consignment of 500 sacks of sugar is 151 kg and the standard deviation is 15kg.Assuming that the weight are normally distributed, determine how many sacks weigh:

(i) Between 120kg and 155kg (4 marks)

(ii) More than 185kg (3 marks)

(iii) Less than 128kg (3 marks)

(b) Past records suggest that the heights of graduates of a certain college (at the time of their graduation) fit a normal distribution with mean 165 cm and standard deviation 6 cm. Use this information to determine:-

(i) The percentage of graduates whose heights is less than 170 cm. (4 marks)

(ii) The percentage of graduates whose heights is between 170 cm and 175 cm.

(6 marks)