ELIZADE UNIVERSITY

ILARA-MOKIN

FACULTY: BASIC AND APPLIED SCIENCES
DEPARTMENT: MATHEMATICS AND COMPUTER SCIENCE
2nd SEMESTER EXAMINATION
2016 / 2017 ACADEMIC SESSION

COURSE CODE: MTH 214

COURSE TITLE: Introduction to Statistics

COURSE LEADER: Dr. A. Adesanya

DURATION: 2 Hours

HOD's SIGNATURE

INSTRUCTION:

Candidates should answer any **FOUR** Questions

Students are warned that possession of any unauthorized materials in an examination is a serious assessment offence

Question 1

(a) Define the following (i) Data (ii) Qualitative Variable (iii) Descriptive Statistics
(iv) Inferential Statistics.

(b) The following distribution is the marks of fifty (50) students in a Mathematics test

28 31 1 45 27 36 14 26 2 9
36 42 43 1 38 40 37 31 4 40
15 7 14 31 8 36 26 18 36 32
21 9 27 16 26 41 14 17 43 15
48 14 33 18 13 8 26 4 19 28

Using ten equal class intervals construct (i) a grouped frequency table (ii) a cumulative frequency table.

Question 2.

On an interview for a job, the interviewer tells you that the average annual income of the company's twenty-five employee's is $N60,849$. The actual annual incomes of the twenty-five employees are shown below:

$N17,305$ $N478,320$ $N45,678$ $N18,980$ $N17,408$

$N25,676$ $N28,906$ $N12,500$ $N24,540$ $N33,450$

$N12,500$ $N33,855$ $N37,450$ $N20,432$ $N28,956$

$N34,983$ $N36,540$ $N250,921$ $N36,853$ $N16,430$

$N32,654$ $N98,213$ $N48,980$ $N94,024$ $N35,671$

What are the mean, median and mode of the incomes? Was the person telling you the truth? Justify your answer. .

Question 3.

(a) Define the following concepts: (i) Conditional Probability (ii) Independent Events
(b) A bag contains three black balls and two white balls. A ball is taken from the bag and not replaced. A second is chosen. What is the probability that (i)they are both black (ii) one is black and one is white (iii) at least one is black (iv) at most one is black.

Question4.

(a) The table below shows the distribution of the masses of on- hundred and twenty (120) logs of wood correct to the nearest kg.

Mass\ kg.	15 – 24	25 – 29	30 – 34	35 – 39	40 – 49	50 – 60
Frequency	4	35	49	24	6	2

(i) Draw a histogram for the distribution

(ii) Draw a cumulative frequency curve and use it to estimate , correct to two significant figures the Median

(b) Calculate the sample standard deviation of the vehicle selling prices shown in the distribution below.

Selling price (Nthousand)	15 – 18	18 – 21	21 – 24	24 – 27	27 – 30	30 – 33	33 – 36
Frequency (f)	8	23	17	18	8	4	2

Question 5.

(a) Two fair dice are tossed, find the probability that the total score that shows up is

(i) 8   (ii) less than 6 (iii) greater than or equal to 9 (iv) a prime number.

(b) If the probability that Jerry solves a particular problem is $\frac{1}{3}$ and the probability that Joy solves the same problem is $\frac{1}{5}$. If they both attempt the problem, what is the probabilty that it will be solved by at least one of them?

Question 6.

Use the distribution table given below to estimate the median and the mode

Gas Consumption	Frequency
10 -19	1
20-29	0
30-39	1
40-49	4
50-59	7
60-69	16
70-79	19
80-89	20
90-99	17
100-109	11
110-119	3
120-129	1