KINGDOOM OF SAUDI ARABIA
King Saud University
Deanship of Common First Year
Basic Sciences Department

المملكة العربية السعودية
جامعة الملك سعود
عمادة السنة الأولى المشتركة
قسم العلوم الأساسية

First Homework for
Introduction to Probability and Statistics (101 Stat)

1) Give an example for each of the following: **(4 marks)**

a) Discrete variable.
b) Continuous variable.
c) Qualitative variable.
d) Quantitative variable.

2) Give an example for each of the following: **(4 marks)**

a) Discrete set of data.
b) Continuous set of data.
c) Qualitative set of data.
d) Quantitative set of data.

3) Classify each variable as qualitative or quantitative. **(5 marks)**

a) The variable that recording the weight of vegetable boxes.
b) The variable that measures the lengths of roads in Riyadh.
c) The variable that recording color of flowers in gardens.
d) The variable that measures the temperature inside classrooms in CFY.
e) The variable that recording family status of employees in a public institution.

4) Classify each variable as discrete or continuous: **(5 marks)**

a) The variable that measures the lifetime of televisions sets of a specific brand.
b) The variable that recording types of cars in the forest markets in Riyadh.
c) The variable that recording numbers of trees in the Qaseem orchards.
d) The variable that measures the weights of people.
e) The variable that recording colors of spectrum of visible light.

5) We consider the data 5 , 4 , 3 , 7 , 8 , 6 , 7 , 8 , 6, 9 , 6 , 9. Then: **(34 marks)**

a) Calculate the **mean** for the given data. **(2 marks)**
c) Find the **mode(s)** of the given data. **(2 mark)**
d) Calculate the **standard deviation** of given data**.** **(4 marks)**
e) Calculate the **standard score** for the value **7.** **(2 marks)**
f) Calculate the **coefficient of variation** for the given data. **(2 marks)**
g) Using the experimental rule. What is the number of data falling within two standard deviations around the mean (in the interval $\overline{x} \mp 2S$)? What are these data? **(4 marks)**
h) Calculate Q_3, D_5, P_{25} , LF and HF for the given data. **(10 marks)**
i) Check if the given data have **extreme values**. **(2 marks)**
j) Draw the **box plot** for the given data and determine the five numbers on the graph. **(6 marks)**

6) Forty students were asked about the number of study hours at home in the last month. The results were found as follows: **(22 marks)**

8	11	12	14	17	16	19	20	24	12
9	10	11	15	15	19	17	28	14	22
8	12	13	17	19	21	16	26	24	18
10	13	15	16	20	23	18	23	25	19

a) Construct a **frequency distribution** table for this data. **(6 marks)**

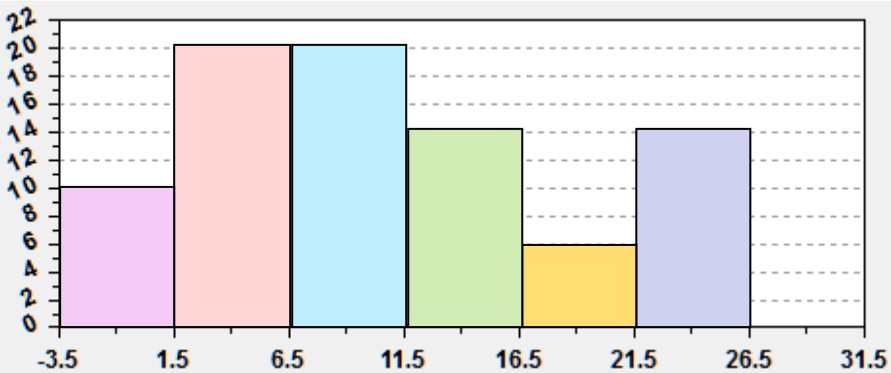
b) Draw the **histogram** and **frequency polygon** for the distribution table. **(4 marks)**

c) Draw the **ascending cumulative frequency polygon** for the distribution table. **(2 marks)**

d) Calculate the **mean, median, mode** and **standard deviation** for the frequency distribution table.

(2+2+2+4=10 marks)

7) Consider the following histogram of grouped data: **(8 marks)**



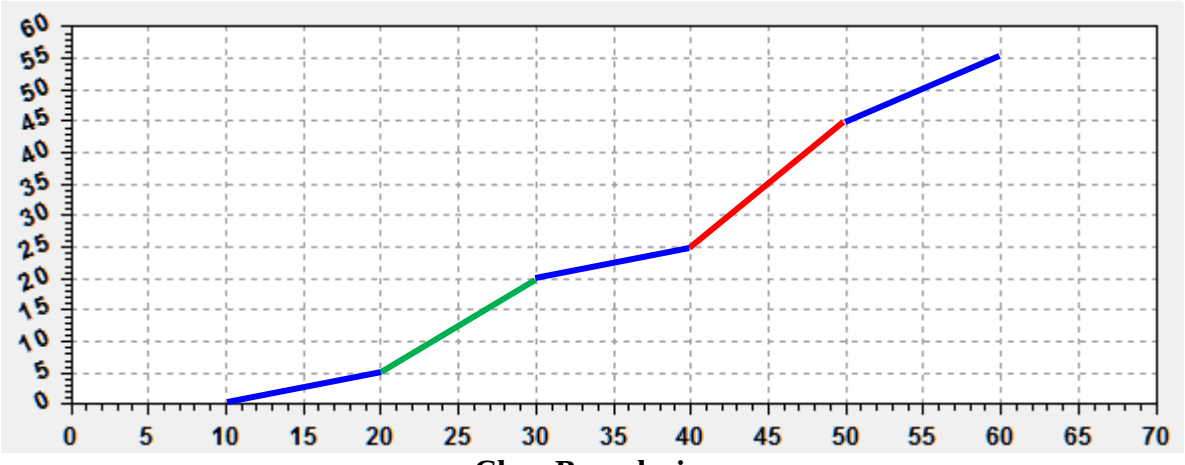
a) Prepare the **frequency distribution table** of this data. **(2 marks)**

b) How many **modes** have the given data? **(2 marks)**

c) Calculate the **mode(s)** of given data. **(2 marks)**

d) Calculate the **median** for the given data. **(2 marks)**

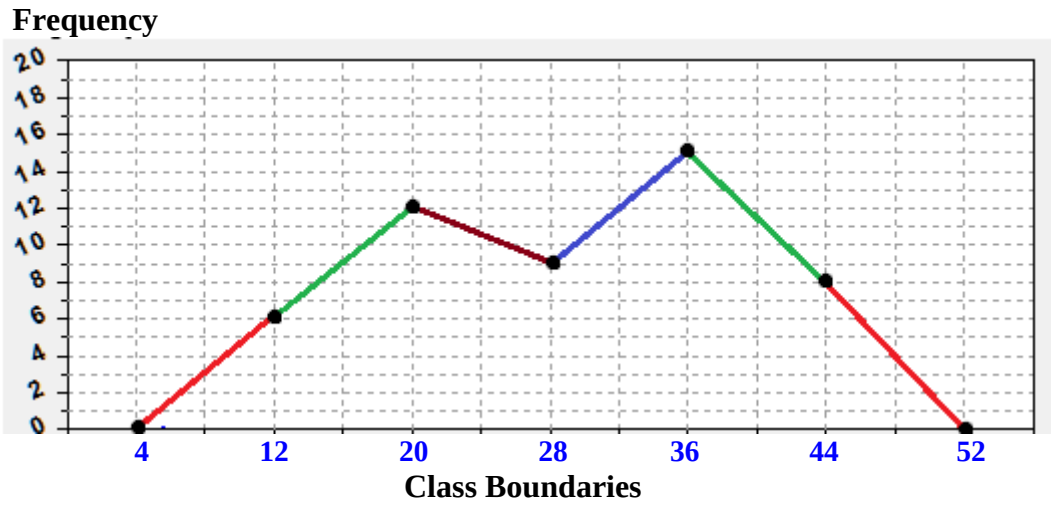
8) Consider the following ascending cumulative frequency polygon of grouped data: **(6 marks)**



a) By using the given ACFP, what is ACF of the values 45? **(2 marks)**

b) By using the given ACFP, what is the value, which has ACF 15? **(2 marks)**

9) Consider the following ascending cumulative frequency polygon of grouped data: (4 marks)



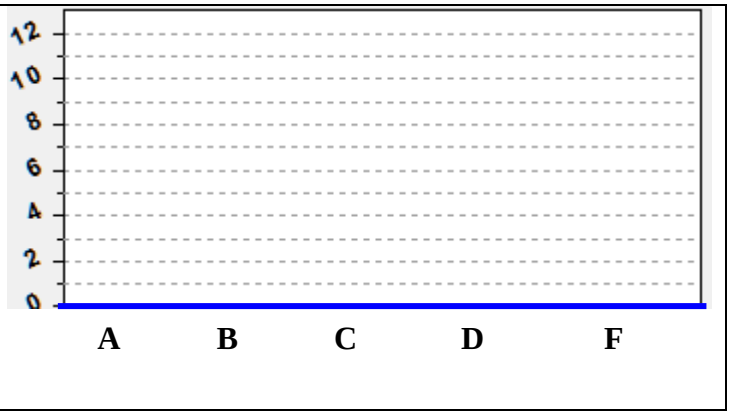
Draw the **histogram** and **ACFP** for these data. **(3+3 marks)**

10) The following two data sets represent grads of 45 students in two schools A and B: (8 marks)

School A	B	A	A	B	C	C	F	A	A	A	B	F	B	A	C
	A	C	A	A	F	A	B	A	C	B	B	C	F	B	B
	C	D	F	A	D	A	D	D	A	F	A	B	A	C	B
School B	F	B	A	C	C	B	B	A	A	F	A	A	A	C	A
	B	B	A	A	C	A	A	A	D	A	B	D	D	C	A
	B	A	A	F	A	A	A	C	B	A	A	B	C	C	F

Complete the following frequency table for the above data, and draw the **multiple bar graph** for them.

Grad	Frequency for School A	Frequency for School B
A		
B		
C		
D		
F		
Total		



(2+2+4 marks)