Lecture 1

Introduction to Statistics

1.1- An Overview of Statistics

1.2- Data Classification

True Or False Questions:

1- Nominal level of measurement consists of categories only where data cannot be arranged in an ordering scheme:

O True

O False

2- A population is a subset of a sample

O True

O false

3- The relative frequency of a class is the sample size divided the frequency of the class

O True

O False

4- The sum of percentage frequency is 1

O True

O False

5- A population is the collection of some outcomes, responses, measurement, or counts that are of interest.

O True

O False

6- The midpoint of a class is the sum of its lower and upper limits

O True

O False

choose the correct answer Questions:

1- The branch of statistics that involves using a sample to draw conclusions about a population.

O data

O statistical inference

O descriptive statistics

O variable

2- The example of a qualitative data is

O number of accidents

O blood type

O age of patients

O weight of students

Lecture 1

IQ ACADEMY

Descriptive Statistics

2.1- Frequency Distributions & Their Graphs

Q1- For the following frequency distribution choose the correct answer:

Class intervals	Frequency
40 – 49	10
50 - 59	5
60 - 69	7
70 - 79	3

1- The class width is:

a) 10 b) 20 c) 7 d) 5

2- The midpoint of the third class is:

a) 30 b) 24.5 c) 54.5 d) 64.5

3- The class boundary (true class) of first class is:

a) 40.5-49.5 b) 39.5-49.5 c) 50.5-59.5 d) 70.5-79.5

4- The relative frequency of the last class is:

a) 0.5 b) 0.12 c) 0.25 d) 0.15:

5- The cumulative frequency of a second class is:

a) 25 b) 22 c) 10 d) 15

Q 2- Choose the correct frequency distribution for these data:

A B C A D

B C F D C

A F D F B

D C A C C

(a)

class	Frequency
A	4
B	3
C	6
D	4
F	3

(b)

class	Frequency
A	4
B	4
C	6
D	4
F	1

(c)

class	Frequency
A	4
B	4
C	5
D	4
F	2

(d)

class	Frequency
A	4
B	4
C	6
D	4
F	2

Q3- From the distribution table below: The midpoint in A is:

Class intervals	True class intervals	Frequency	Midpoints X	The percentage frequency
4 – 7	3.5 – 7.5	4		
8 – 11	7.5 – 11.5	6		B
12 – 15	11.5 – 15.5	2		
16 - 19	15.5 – 19.5	3	A	
Total		15		

From the distribution table below: The percentage frequency in B is:

Class intervals	True class intervals	Frequency	Midpoints X	The percentage frequency
4 – 7	3.5 – 7.5	4		
8 – 11	7.5 – 11.5	6		B
12 – 15	11.5 – 15.5	2		
16 - 19	15.5 – 19.5	3	A	
Total		15		

Q4-The sum of relative frequency in a frequency distribution table is:

- O Zero
- O 0.5
- O 10
- O 1

Q5- For the class 8-18, the lower-class limit is 8:

- O True
- O False

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Choose the correct answer.

Using the following frequency table to answer questions, 1, 2, 3, 4, 5 and 6

Interval	Frequency	Midpoint	Relative frequency
0 – 9	5	4.5	0.125
10 – 19	11	14.5	0.275
20 – 29	10	24.5	0.250
30 – 39	9	34.5	.....
40 – 49	2	44.5	0.05
50 – 59	1	....	....
60 – 69	2	64.5	0.05
Total	....		.....

1- Percentage frequency of (30 – 39) is:

a) 5% b) 22.5% c) 2.25% d) 25%

2- Class width is:

a) 20 b) 11 c) 9 d) 10

3- Midpoint of (50 – 59) is:

a) 54.5 b) 79.5 c) 84 d) 4.5

4- Upper boundary class of (20 – 29) is:

a) (19 – 30) b) 20.5 c) 29.5 d) 19.5

5- the sum of relative frequencies is:

a) 1 b) 100 c) 0 d) 1.5

6- the number of intervals is:

a) 5 b) 6 c) 8 d) 7

Lecture 2

Descriptive Statistics

2.1- Frequency Distributions & Their Graphs

2.2 More Graphs and Displays

True Or False Questions:

1- we use steam and leaf plot to represent quantitative data.

O True

O False

2- The sample size is 20, the maximum data is 94 and the minimum data 36

Key = 6|4 = 64

3	6
4	
5	6 6 8
6	0 4 4 6 6 5
7	6 8 8 8
8	0 2 4 6 8
9	4

O True

O false

choose the correct answer Questions:

1- Which graph should be used to represent "sales of five types of fruits in Riyadh"?

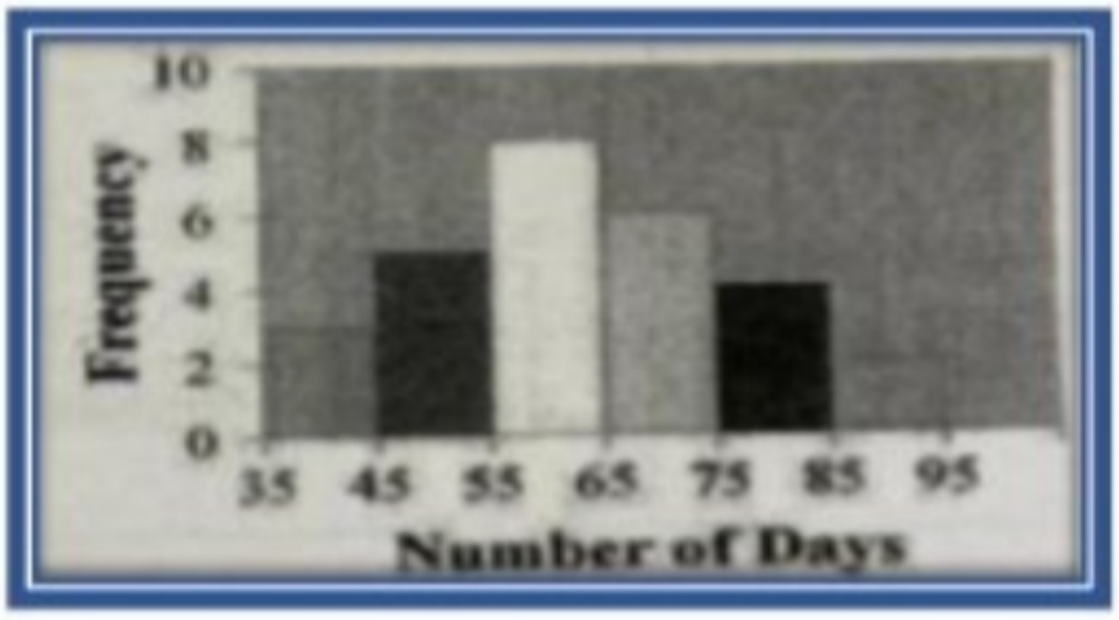
A) Histogram

b) Bar Chart

c) Ogive

d) Steam and Leaf

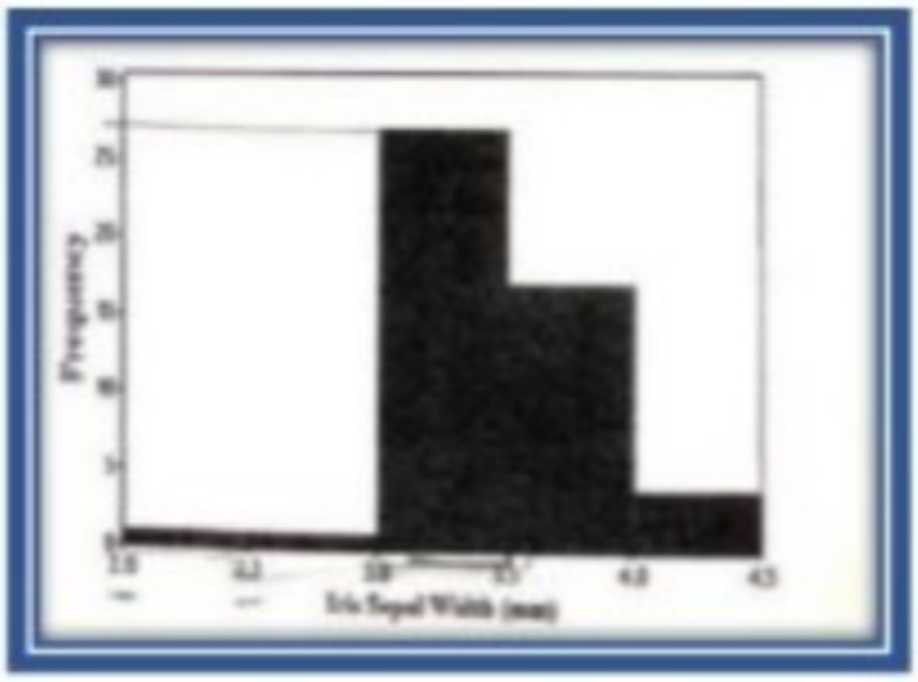
2- Find the class with the highest number of data values:



a) 75-85 b) 55-65 c) 65-75 d) 8

Questions:

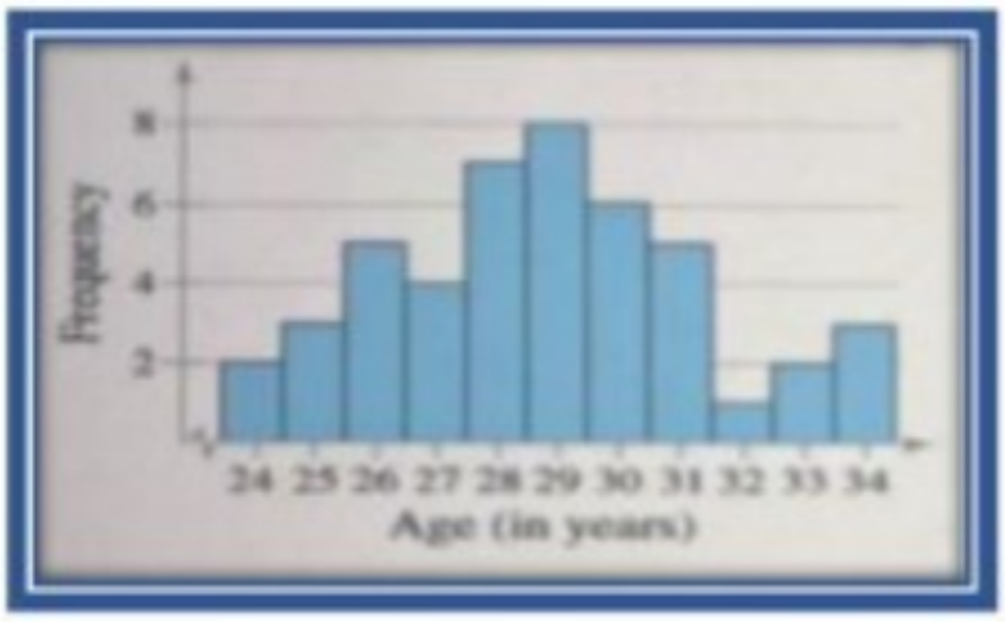
Q1- Based on the following histogram:



1- Which class corresponds to the highest frequency?

2- What are the approximate lower- and upper-class limits of the first class?

Q2- Bride's Age at first marriage



1- What is the number of classes?

2- What is the number of the fourth class?

Q3-If 92 patients were given a blood test to determine their blood type, if the frequency of type O! blood is 23 then the central angle of it in a pie chart is:

Lecture 3&4

Descriptive Statistics

2.3- Measures of Central Tendency

2.4- Measures of Variation

True Or False Questions:

1- The value most often repeated in a data set is called the mode.

O True

O False

2- Some data sets have no mode.

O True

O false

3- The medium is affected by the extreme value.

O True

O False

4- The mean is one of the measures of variation

O True

O False

5-The median is not affected by the outliers

O True

O False

choose the correct answer Questions:

1- Find the Mean for the following data

1, 3, 6, 4, 5, 6, 3, 4, 6, 3, 6

a) 4.273

b) 47

c) 2.5

d) 5.8

2- The mean of the following data is

1,2,5,3,7,9,12,10

a) A. 10

b) B. 6.12

3- The median of student's marks 20, 60,80,40,30 is

a) 40

b) 30

c) 60

d) 80

4- In a right-skewed distribution, which is greater?

a) The mean

b) The media

c) The mode

d) The mean= the median= the mode.

5- The range of the values 10, 15, 40, -5, 0, 99 is:

a) 105

b) 104

c) 99

d) 94

6- What is the most appropriate measure of central for the following data set?

red, blue, blue, red, red, black, yellow

a) The mean

b) The mode

c) The median

d) The midrange

7- The standard deviation of the first four pulse rates for males 73, 73, 73, 73 is:

a) 73

b) 0

c) 70

d) 292

9- What percent of the data lies above the Median?

a) About 50%

b) About 25%

c) About 75%

d) Can't tell without looking

10- The value most often repeated in a data set is called

a) mean

b) median

c) mode

d) variance

11- If $\bar{x} = 5$, S = 0 and n = 6, then the data is

a) 6, 6,6,6,6

b) 5,5,5,5,5,5

c) 0,0,0,0,0,0

d) 5,5,5

12- The mean of the frequency distribution is:

$(a)\ \bar{x} = \frac{\Sigma(wx)}{\Sigma w}$

$(b)\ \bar{x} = \frac{\Sigma(fx)}{\Sigma f}$

$(c)\ \mu = \frac{\Sigma(x)}{n}$

$(d)\ \bar{x} = \frac{\Sigma(x)}{N}$

Questions:

Q1- Using the following data to find 1, 2 and 3:

3 9 15 10 12 14 5 9

1- The mean is

a) 8.6 b) 9.6 c) 10.6 d) 11.6

2- The median is:

a) 8.5 b) 9.5 c) 10.5 d) 11.5

3- The mode is

a) 8 b) 9 c) 10 d) 11

Q2- For the following sample, answer questions 14-17:

16, 10, 9, 46, 15, 10, 16

14. The sample mean is:

a) 122 b)15 c) 7 d) 17.43

15. The median is:

a) 15 b) 10 c) 16 d) 46

17. The best measure of central tendency to represent this data is:

a) The mean b) The mode (c) The median d) None

Q3- What is the most appropriate measure of central tendency for the following data set

male, female, female, male, male, male, female

O The median

O The mode

O The weighted mean

O The mean

Q4- The mode of the following data is

1,3,6,1,8,3,9,4,1

O A. 3

O B. one mode 1

O C. two model 1, 3

O D. 9

Q5- For the following data:

Status	Married	Single	No response
Frequency	35	25	5

the mode is:

a) Married b) 35 c) No mode d) Single

Q6-Using the following graph, stem and leaf, answer questions 1, 2 and 3.

Key 4| 4 = 4 4

1	0 4
2	0 3 4 5 5 6 7 9
3	2 3 5 7
4	4 4 6 9
5	3 6 9
6	0 1
7	5 6 9
8	0

1- The range of data is:

a) 70 b) 75 c) 66 d) 61

2- The number of data are:

a) 25 b) 22 c)27 d)28

3. The Mode of data (is/are):

a) 2 b)25 &44 c)0,4,5, 6 &9 d) no mode

Q8- For the following frequency distribution

Class intervals	Frequency
4 – 7	4
8 – 11	6
12 –15	2
16 – 19	3
Total	15

Find the sample mean

Q9- Find the mean for the following data

Class interval	Frequency f	Midpoints x	Xf
10-14	2	12	24
15-19	5	17	58
20-24	3	22	66
25-29	2	27	54
30-34	7	32	224
35-39	5	37	185
Total	**24**		**638**

a) 26.58

b) 106.3

c) 27.47

d) 256

Q10- The student's marks in three courses are 10, 20, 30, and study hours for these Courses are 2, 3, 4, respectively. Then, the weighted mean $\bar{x}_w$ is

a) 36 b) 22.22 c) 10 d) 2

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Q15- the value most often repeated in a data set is called

(a) mean (b) median (c) mode (d) variance