stats test 2

15 problems based on Descriptive Stats: 30 mins



Introduction to Statistics

1. Problem:

A researcher collects the following data on the heights (in cm) of a sample of five plants:

120, 125, 130, 135, 140 .

Classify the type of data as:

a) Structured b) unstructured

c) Numerical d) categorical

A)structured data as it is well organized and measured .

2. Problem:

A survey records the following data for 10 individuals: their age, favorite color, and hours

spent on social media per day.

Identify the types of data for:

a) Age: numerical type

b) Favorite color: categorical type

c) Hours spent on social media : numerical type

Measures of Central Tendency

3. Problem:

Calculate the mean, median, and mode for the dataset:

1. Dataset: 3, 7, 7, 10, 15, 20 .

mode(most accaring value or frequent value)

7 is mode as it appears twice, more than any other value

mode=7

median(middle value) formula is median= 7+10 = 8.5

2

There are total 6 values in dataset

As we know median is 3rd and 4th value

mean(average):

mean=3+7+7+10+15+20 = 62 = 10.33

6 6

4. Problem:

The weights (in kg) of five parcels are: 12, 15, 18, 21, 25 .

Add an outlier weight of 50 . How does this affect the mean and median?

A) weights of the five parcels = 12,15,18,21,25.

Mean without outlier : mean= 12+15+18+21+25 = 91/5 =18.2

5

Median without outlier: middle value of sorted list = 18

Mean with outlier : Now add an outlier of 50:

New dataset =12,15,18,21,25,50

New mean=12+15+18+21+25+50 = 141/6 =23.5

6

New median :

Even number of values (average of 3rd and 4th value (18 and 21)

median=18+21=19.5

2

So we can say that outlier affect the median and mean effectively as there is increase in values from 18 to 19.5 and 18.2 to 23.5 respectively.

Measures of Dispersion

5. Problem:

Find the range and interquartile range (IQR) for the dataset:

1. Dataset :5, 10, 15, 20, 25, 30, 35 .

Range =35-5=30

Interquartile range(IQR):

Q1= Median of lower half:5,10,15 Q1=10

Q3= Median of upper half: 25,30,35 Q3= 30

IQR= Q3-Q1=30-10=20

Theyfore the range :30

And IQR : 20

6. Problem:

A dataset has a standard deviation of . If all values in the dataset are doubled, what is the 5

new standard deviation?

A)when each value in a dataset is multiplied by a constant, the standard deviation is also multiplied by that constant.

Original standard deviation =5

Each value is doubled (multiplied by 2)

Then : new standard deviation =5x2=10

7. Problem:

Calculate the coefficient of variation for a dataset with a mean of 50 and a standard

deviation of .

A)formula for coefficient of variation (cv):

CV = (Standard deviation) X 100

Mean

Given

Mean =50

Standard deviation =5

CV =(5/50)X100 10%

Tab 2