

STA301 GRAND QUIZ



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A histogram is consisting of a set of a set of adjacent rectangle whose bases are marked off by:

- a. **Class boundaries (Lecture no 4 Page no 32 Handouts)**
- b. Class limits
- c. Class frequency
- d. Class marks

The middle value of an ordered array of numbers is the

- a. Mean
- b. **Median (Lecture no 7 Page no 59 Handouts)**
- c. Mode
- d. Midpoint

If Mean = 25 & S.D is 5 then C.V is:

- a. 100%
- b. **20% (Lecture no 11 Example Page no 88 Handouts)**
- c. 10%
- d. 25%

Solution: C.V = (S.D/X) x 100 = (5/25) x 100 = 20% Answer

you connect the mid-points of rectangles in a histogram by a series of lines that also touches the x-axis from both ends, you will get:

- a. Ogive
- b. Frequency polygon
- c. **Frequency curve page 38**
- d. Histogram

The conditional probability $P(A/B)$ is:

- a. **$P(A \cap B)/P(B)$ (Lecture no 20 Page no 154 Handouts)**
- b. $P(A \cap B)/P(A)$
- c. $P(A \cup B)/P(B)$
- d. $P(A \cup B)/P(A)$

Serious disadvantage of using range as a measure of dispersion is that it is based on only:

- a. Minimum Values
- b. Maximum Values

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c. Both Minimum and Maximum values

d. None of the above

Frequency of a variable is always in:

a. Fraction form

b. Percentage form

c. Less than form

d. Integer form

5C_5 is equal to

a. 5

b. 1

c. 10

d. 24

Chebychev's inequality does not hold for $k = ?$

a. 3

b. 2

c. 1

d. 0 (Lecture no 12 Page no 94 Read CHEBYCHEV'S THEOREM)

If $A = \{1,2,3,4\}$ and $B = \{3,4,5,6\}$ then $A - B$ will be:

a. {1,2}

b. {3,4}

c. {3,2,1}

d. {1,2,3,4,5,6}

If $P(B|A) = 0.25$ and $P(A \text{ and } B) = 0.20$, then $P(A)$ is

a. 0.05

b. 0.80

c. 0.95

d. 0.75

Solution: $P(B|A) = [P(A \text{ and } B)] / P(A)$

$$P(A) = [0.20 / P(B|A)]$$

$$P(A) = [0.20 / 0.25]$$

$$**P(A) = 0.80**$$

According to Empirical rule, approximately 68% of the measurements will fall within:

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- a. **(Mean - S.D, Mean + S.D) (Lecture no 12 Page no 90 Handouts)**
- b. (Mean - 2S.D, Mean + 2S.D)
- c. (Mean - 3S.D, Mean + 3S.D)
- d. None of these

For Platykurtic distribution, b_2 (moment ratio) will be:

- a. Greater than 3
- b. **Less than 3 (Lecture no 14 Page no 114 Handouts)**
- c. Equal to 3
- d. Equal to zero

There are two broad categories of data, which are:

- a. Weighted and Un-weighted
- b. Grouped and Un-grouped
- c. **Qualitative and Quantitative (Lecture no 3 Page no 16 Handouts)**
- d. Primary and Secondary

In a linear regression, $Y = a + bX$, the variable "Y" will always:

- a. **A random variable (Lecture no 15 Page no 117 Handouts)**
- b. A non-random variable
- c. Qualitative variable
- d. Quantitative variable

In regression line $Y = a + bX$, X is called:

- a. Dependent variable
- b. **Independent variable (Lecture no 15 Page no 116 Handouts)**
- c. Explained variable
- d. Regressand

Difference between the largest and the smallest data values is called

- a. variance
- b. interquartile range
- c. **range**
- d. coefficient of variation

The extremely positively skewed curve is also known as:

- a. Frequency curve
- b. U-shaped curve
- c. J-shaped curve
- d. **Reverse J-shaped curve (Lecture no 5 Page no 35 Handouts)**

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A list of 7 pulse rates is: 70, 64, 80, 74, 92, 96, 98. What is the median for this list?

- a. 70
- b. 80**
- c. 92
- d. 98

Solution: Median is the middle value. First of all we will arrange them in ascending order 64, 70, 74, **80**, 92, 96, 98

The value of $10C_9$:

- a. 45
- b. 35
- c. 35
- d. 10**

The most frequent value in the data is called

- a. Mean
- b. Median
- c. Mode**
- d. Harmonic mean

An event that contains more than one sample points is called:

- a. Mutually exclusive event
- b. Not mutually exclusive event
- c. Hyper event
- d. Compound event (Lecture no 17 Page no 140 Handouts)**

Calculate range for the following data: 22, 22, 30, 32, 37, 48, 60, 88, 90.

- a. 22
- b. 90
- c. 37
- d. 68**

Solution: Largest value – Smallest value = Range
 $90 - 22 = 68$ Answer.

What is the median of this set of numbers: 4, 6, 7, 9, 2000000?

- a. 9
- b. 6
- c. 7.5
- d. 7**

The value of the middle term in a ranked (ordered) data set is called the:

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- a. Mode
- b. Mean
- c. Median**
- d. Harmonic mean

The median is _____.

- a. The highest number
- b. The middle point**
- c. The average
- d. Affected by extreme scores

The Mode of 8, 5, 7, 10, 15, 21, 5, 7, 2, 5 is

- a. 8
- b. 5**
- c. 7
- d. 21

Note: Mode is the most repeated value so in this case 5 is the most repeated value.

When all the values falling in a class are equal to the mid point of the class interval is called

- a. Random error
- b. Unbiased Error
- c. Biased Error
- d. Grouping Error (Lecture no 7 Page no 56 handouts)**

For a Leptokurtic distribution, b_2 (moment ratio) will be:

- a. Greater than 3 (Lecture no 14 Page no 114 Handouts)**
- b. Less than 3
- c. Equal to 3
- d. Equal to zero

Let $A = \{1,2,3,4\}$ and $B = \{3,4,5,6\}$ Then $A \cap B$:

- a. {3,4}**
- b. {1,4}
- c. {3,5}
- d. {3,6}

The range of the scores 29, 3, 143, 27, 99 is:

- a. 140**
- b. 143
- c. 146

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d. 70

Solution: $(143 - 3) = 140$ Answer

In how many ways, a team of 11 players can be chosen from a total of 16 players?

- a. **4368**
- b. 2426
- c. 5400
- d. 2680

Direct personal investigation is _____ when the area to be covered is vast.
(Doubtful)

- a. **Costly (Lecture no 2 Page no 6 Handouts)**
- b. **Time-consuming (Lecture no 2 Page no 6 Handouts)**
- c. Localized inquires
- d. Inaccurate

Note: It can be both read lecture no 2 Page no 6 Handouts.

What is the mean of this set of numbers: 4, 6, 7, 9, 200000?

- a. 7.5
- b. 7
- c. **400,005.2**
- d. 4

Solution: Mean = $(4+6+7+9+200000)/5 = 400,005.2$ Answer

According to this empirical rule, approximately how much values will fall within (Mean - 3S.D, Mean + 3S.D)?

- a. **100% (Lecture no 12 Page no 90 Handouts)**
- b. 95%
- c. 75%
- d. 68%

In a linear regression, $Y = a + bX$, the variable "X" will always:

- a. A random variable
- b. **A non-random variable (Lecture no 15 Page no 117 Handouts)**
- c. Qualitative variable
- d. Quantitative variable

Variance is expressed in _____ units as the units of data set.

- a. **Squared (Lesson no 11 Page no 85 Handouts)**
- b. Cube

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- c. Single
- d. Same

In a linear regression, best fitted line is obtained through:

- a. Method of moment
- b. Method of likelihood
- c. Method of least square
- d. Method of semi average

In case of frequency distribution, the median is given by the formula:

- a. $I + \frac{h}{f} (n/2 - 2c)$
- b. $I + \frac{h}{f} (n/2 - c)$
- c. $I + \frac{f}{h} (n/2 - c)$
- d. $I + \frac{f}{h} (n/4 - c)$

The sum of squared deviations from mean is:

- a. Maximum
- b. Minimum
- c. Zero
- d. Undefined

In a week the prices of a bag of rice were 350,280,340,290,320,310,300.

- a. 320
- b. 315
- c. 300
- d. 420

Which scale will you use to measure the temperature?

- a. Nominal scale
- b. Interval scale (Lecture no 1 Page no 4 Handouts)
- c. Ratio scale
- d. Ordinal scale

From the given data, which one of the following chart we can draw:

Year	Turnover
1965	350000
1966	42000
1967	43500
1968	48000
1969	48500

- a. Simple bar chart
- b. Multiple bar charts

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- c. Component bar chart
- d. Pie chart

In a Venn diagram, the overlap between two circles represents:

- a. The union of two sets
- b. The intersection of two sets
- c. The elements that are in either of two sets
- d. The difference between the number of elements in two sets

Calculate range for the following data: 10, 32, 33, 34, 37, 42, 55, 58, 70

- a. 50
- b. 60
- c. 40
- d. 20

Solution: Largest value – Smallest value = Range
 $70 - 10 = 60$ Answer

When the frequency distribution or curve departs from symmetry, is called

Skewed

- Positively skewed
- Negatively skewed
- None of these

Measure of central tendency is used to measure:

- a. Average
- b. Variability
- c. Location
- d. Both Average and Location

Component bar charts are used when data is divided into:

- a. Parts
- b. Groups
- c. Circles
- d. None of these

In a Box and Whisker plot, right end of the box is referred as:

- a. First quartile
- b. Second quartile
- c. Third quartile
- d. Mode

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Fourth moment about mean provides information about the _____ of the distribution.

- a. Centre
- b. Dispersion
- c. Symmetry
- d. **Kurtosis**

Let A and B are two dependent events such that $P(A)=1/4$, $P(A/B)=1/2$ and $P(B/A)=2/3$. Find $P(A \cap B)$.

- a. $1/8$
- b. **$1/6$**
- c. $2/3$
- d. $1/4$

Consider a set $A = \{1,2,3\}$. What is the number of subsets of A? (**Doubtful**)

- a. 3
- b. 6
- c. **8**
- d. 9

The stem for the following data is:

22, 45, 36, 15, 14, 12, 14, 14, 17, 21, 24, 24, 25, 25, 26, 26, 27, 29, 31, 34, 35

- a. **1,2,3,4**
- b. 1,2,3,4,5
- c. 11, 12,13,14,15
- d. 10,20,30,40,50

An event that contains more than one sample points is called: (**Doubtful**)

- a. Mutually exclusive event
- b. Normal event
- c. **Simple event**
- d. Compound event

Frequency distribution is considered as negatively skewed if all values of distribution moves to

- a. **lower tail**
- b. median tail
- c. variance tail
- d. upper tail

Which of the following is NOT a common measure of central tendency?

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- a. Mode
- b. **Range**
- c. Median
- d. Mean

From the table given below, how many students obtained marks between 60 and 69? (**Doubtful**)

Marks	f	Mid-Points
50-59	5	54.5
60-69	7	64.5
70-79	8	74.5
80-89	5	84.5

64.5
12
60
7

If the first and third quartiles are 22, 16 and 56,36 respectively, then the quartile deviation is:

- a. **17.1**
- b. 30.5
- c. 50.5
- d. 51.3

Adding all the squared deviations taken from mean and dividing by the number of observations, we get:

- a. Standard Deviation
- b. Variance
- c. Mean Deviation
- d. **None of the above**

Standard deviation divided by mean is known as:

- a. **Co-efficient of standard deviation**
- b. Co-efficient of variation
- c. Both
- d. None

5C5 equals to:

- a. 5
- b. **1**
- c. 10
- d. 15

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Which of the measure of dispersion is used to compare variation between two series?

- a. C.V.
- b. Q.D.
- c. M.D.
- d. S.D.

If $Y=3X+5$, then S.D of Y is equal to (**Doubtful**)

- a. 9 s. d(x)
- b. 3 s. d(x)
- c. s. d(x)+5
- d. 3 s. d(x) + 5

Which of the following technique is not used to represent the bivariate qualitative data?

- a. Component Bar Chart
- b. Multiple Bar Chart
- c. Line Chart
- d. Pie Chart

When a frequency distribution involves "open-end" classes, then which average is appropriate?

- a. Mean
- b. Mode
- c. Median (Lecture no 8 Page no 62 Handouts)
- d. None of these

Harmonic mean is extremely useful in averaging _____ types of data.

- a. Ratios
- b. Rates
- c. Both ratios and rates
- d. None of the above

According to Empirical rule, approximately how much values will fall within (Mean-3S.D, Mean+3S.D)?

- a. 100% (Lecture no Page no 90 Handouts)
- b. 95%
- c. 75%

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d. 68%

What is probability of drawing two clubs from a well shuffled pack of 52 cards?

- a. $13/51$
- b. $1/17$**
- c. $1/26$
- d. $13/17$

Solution: Total Cards = 52 cards

Number of club cards = 13 Probability of 1st card being club card = $13/52$

Probability of 2nd card being club card = $12/51$

∴ Total Probability

= $(13/52) \times (12/51)$

= **$1/17$ Answer**

Which pair of measure cannot be calculated when one of numbers in the series is zero?

- a. G.M. and A.M.
- b. H.M. and A.M.
- c. G.M. and H.M.**
- d. None of these

Which of the following techniques is used to predict the value of one variable on the basis of other variables?

- a. Correlation analysis
- b. Coefficient of correlation
- c. Covariance
- d. Regression analysis**

A bag contains 12 red balls and 12 blue balls. A ball is drawn at random. The probability that ball drawn is red is

- a. $1/2$**
- b. $5/11$
- c. $6/10$
- d. 1

Solution: Total Red Balls: 12

Total blue balls: 12

Total Balls: $12 + 12 = 24$

Probability of ball drawn is a red ball:

$P(\text{Red}) = 12/24 = 1/2$ Answer

If the GM of a set of two observations is 10 and its HM is 8, then the AM of the set of observations is

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a. 100

b. 12.5

c. 64

d. 7.5

RELATION BETWEEN AM, GM AND HM - FORMULA

Relation between AM, GM and HM is:

$$AM \times HM = GM^2$$

Solution: $GM = 10$, $HM = 8$, $GM^2 = (10)^2 = 100$, $AM \times HM = GM^2$,

$$AM \times 8 = 100, AM = 100/8 = 12.5 \text{ Answer}$$

If $A = \{H, T\}$ then which of the following is power set of A?

a. $\{\}, \{H, T\}$

b. $\{\{H\}, \{T\}, \{H, T\}\}$

c. $\{\{H\}, \{T\}, \{H, T\}, \{T, H\}\}$

d. $\{\}, \{H\}, \{T\}, \{H, T\}$

What do understand by the term power set?

In set theory, the **power set** (or **power set**) of a **Set A** is defined as the set of all subsets of the **Set A** including the **Set** itself and the null or empty set. It is denoted by $P(A)$. Basically, this set is the combination of all subsets including null set, of a given set. Simple formula 2^n . n is the number of subsets. $2^2 = 4$.

$$A = \{H, T\} = \{\}, \{H\}, \{T\}, \{H, T\} \text{ Answer}$$

2nd Quartile = 5th Decile = 50th Percentile =?

a. Geometric Mean

b. Median

c. Mode

d. Harmonic Mean

The total number of observations, which are below a certain value are known as

A. class boundaries

B. class marks

C. cumulative frequency

D. variances

Histogram can be drawn only for:

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- A. Discrete frequency distribution
- B. Continuous frequency distribution**
- C. Continuous frequency distribution
- D. Relative frequency distribution

Classification is the process of arranging data according to:

- A. one characteristic
- B. Two or more characteristic
- C. Similar characteristic**
- D. None of these

Which of the following, measures the dispersion around mean?

- A. Mean deviation
- B. Standard deviation**
- C. Mean deviation and Standard deviation
- D. None of these

What is mode for the following set of data: 1,1,2,2,5,5,7

- a. 1
- b. 1,2
- c. 1,2,5**
- d. no mode in the data

The mode is the value that appears most frequently in a data set. A set of data may have one mode, more than one mode, or no mode at all. Other popular measures of central tendency include the mean, or the average of a set, and the median, the middle value in a set.

Important: The mode can be the same value as the mean and/or median, but this is usually not the case.

Which of the following averages give information about central value in the distribution?

- a. Mean
- b. Median** I think
- c. Mode
- d. Harmonic mean

In a Pie diagram, the sector of a circle is obtained by:

- a. $(\text{component part}/\text{total}) \times 100$
- b. $(\text{component part}/\text{total}) \times 360$**

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c. (component part/total)*180

d. (component part/total)*300

Relationship among the averages

a. $HM \geq GM \geq AM$

b. **$AM \geq GM \geq HM$**

c. $GM \leq HM \leq AM$

d. $AM \geq HM \leq GM$

Which of the scale is best to use for measuring the salary of an employee?

a. nominal

b. ordinal

c. interval

d. **ratio**

83. The mean of a distribution is 30, the mode is 24 and the standard deviation is 4, then the coefficient of skewness will be:

a. Less than zero

b. Equal to zero

c. **Greater than zero**

d. None of the above

Smaller standard error of estimate shows:

a. Data points are very far to the line

b. Data points are close to the line

c. **There is no difference between line and points**

d. Difference is additive

Data arranged in ascending or descending order of magnitude is called:

a. Ungrouped data

b. Grouped data

c. Discrete frequency distribution

d. **Arrayed data**

A circle in which sectors represents various quantities is called:

a. Histogram

b. Frequency Polygon

c. **Pie Chart**

d. Component Bar Chart

Sum of the absolute deviations of the values is least when deviations are taken from:

a. Mean

b. **Median**

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- c. Mode
- d. G.M

Chebychev's inequality is valid for the data set

a. Sample

- b. Entire population
- c. Both sample and entire population
- d. None of the above

Which of the following terms best describes data that were originally collected at an earlier time by a different person for a different purpose?

- a. Primary data
- b. **Secondary data**
- c. Experimental data
- d. Field notes

Statistics deals with

- a. Individuals
- b. Isolated items
- c. Observations

Aggregates of facts

. If a box contains six red, three blue and five pink ties then probability of blue ties will be equal to:

- a. 1/14
- b. **3/14**
- c. 5/14
- d. 6/14

Which of the rule is applied to any data set, regardless shape of the frequency distribution?

- a. **Chebychev's rule**
- b. Empirical rule
- c. Combination rule
- d. Permutation rule

Which average is used in the situation where the number of floors in the buildings at the center of a city?

- a. Mean

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b. Median

c. Mode

d. Variance

94. Rankings of the finishes of competitors in a foot race is an example of a(n)_____.

a. ratio scale

b. ordinal scale

c. nominal scale

d. interval scale

95. Among 18 articles, six having minor Defects and three have major defects. Determine the probability that an article selected at random has major defect.

a. 1/6

b. 1/5

c. 0.25

d. 0.11

96. A series of data with exclusive classes along with the corresponding frequencies is called:

a. Discrete frequency distribution

b. Continuous frequency distribution

c. Percentage frequency distribution

d. Cumulative frequency distribution

Using the following table, calculate $P(X < 2)$

X	0	1	2	3
f(x)	1/8	3/8	3/8	1/8

a. 1/8

b. 3/8

c. 4/8

d. 7/8

If a distribution has two modes then the distribution is called:

a. Uni-Modal

b. Bi-Modal

c. Tri-Modal

d. Multi-Modal