Batch_12 - Statistics - Scholarship test

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Identify the variables that are continuous or discrete? 3 points

- ○ Time & country are continuous. Weight & colour are discrete
- ○ Weight & colour are continuous. Time & country are discrete
- ○ Time & country & weight & colour are continuous
- ◉ Time & weight are continuous. Country & colour are discrete

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A histogram is what representation of the continuous variable ? 2 points

- ○ Median
- ○ Mode
- ◉ Probability distirbution
- ○ Standard deviation

What method of data representation is best suited to the demonstration of data results if that data is of differing nominal values and needs to represent quantitative data on X axes ? 2 points

- ◉ Bar chart
- ○ linear chart
- ○ pie chart
- ○ scatter plot

In a project the business wants to see the relationship between revenue generated and YoY Sales. Which plot is the best ? 2 points

- ○ Scatter plot
- ○ Box plot
- ○ Density plot
- ◉ Matrix plot

Millions of Americans work from home during office hours and following is a sample data of individuals who work at home 18,54,20,46,25,48,53,27,26,37,40,36,42,25,27,33,28,40,45,25 Find the Mean and mode? 4 points

- ◉ 34.75,25
- ○ 31.75,25
- ○ 25,25
- ○ 34.75,27

The median age of population of all adults is 36 years. Using the median age obtained in Q5 (above) comment whether the at-home workers tend to be younger or older than the population of adults ? 4 points

- (●) At home workers are slightly younger
- ( ) At home workers are slightly older
- ( ) At home workers are same as population
- ( ) All of the above

Using the sample data from Q5 compute the first and third quartile ? 4 points

- ( ) 25.5,43.5
- ( ) 24.5,43.5
- (●) 25.5,42.5
- ( ) 25,43.5

If the value 18 in Q5 is replaced with 38, the standard deviation ? 2 points

- ( ) Increases
- (●) Decreases
- ( ) remains same
- ( ) None of the above

What is the relation between Standard Deviation and variance when the sample is less than 30? 2 points

- ○ The SD is directly proportional to variance
- ○ The SD is variance/(Sqrt(n))
- ○ The SD is the Sqrt(variance)
- ◉ More than one correct answer

If a population consists of distinct 5000 records sorted between 50 and 5050 and if the last 10 samples are taken for analysis. What is the range of the sample ? 4 points

- ○ 5000
- ○ 4999
- ◉ 10
- ○ 5001

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Car rental rates per day for a sample of seven Eastern US cities are as follows City Boston Dallas Atlanta Ohio New York Miami Pittsburgh Rate ($) 43 35 34 58 30 30 36. Compute the Mean, variance, standard deviation for the car rental rates

3 points

- (●) 38, 97, 9.85
- ( ) 38, 95, 9.85
- ( ) 28, 97, 9.85
- ( ) 38, 97, 9.65

A similar sample of seven Western US cities showed a sample mean of $ 38 per day and variance and SD as 93, 9.64. What can you infer from this ?

4 points

- ( ) Western shows more variation
- (●) Eastern shows more variation
- ( ) Eastern and western have high variations
- ( ) All the above

The sales report about the pharmaceutical company in million $ for the 21 states in US has been provided in the spread sheet 8408,1374,1872,8879,2459,11413,608,14138,6452,1850,2818,1356,10498,7478,4019,4341,739,2127,3653,5794,8305. 1. Provide the five number summary of the box plot(min,Q1,Q2,Q3,max) 4 points

- ○ 608,1872,5019,8305,14138
- ○ 608,1872,4039,8305,14138
- ◉ 608,1862,4019,8305,14138
- ○ 608,1872,4019,8315,14138
- ○ 608,1872,4019,8335,14138
- ○ None of the above

Compute the IQR, lower and upper limits from the above 4 points

- ○ 6433,-7767.5,17955
- ◉ 6443,-7777.5,17955
- ○ 6433,-7777.5,17975
- ○ 6433,-7777.5,17955

From the above does the data contain any outlier 2 points

- ○ Yes
- ◉ No
- ○ Maybe

Ohio state has the highest sales at $14,138 million. Suppose a data entry error has been made as $ 41,138 million. Would this been identified as an outlier and corrected ? 3 points

- ○ No, 41,138 would not be an outlier
- ◉ Yes, 41,138 would be an outlier
- ○ Depends on IQR value
- ○ None of the above

What is the range of correlation coefficient ? 1 point

- ◉ -1 to +1
- ○ -∞ to + ∞
- ○ 0 to 1
- ○ None of the above

Sample observations were taken between x and y as follows. X = 6,11,15,21,27 and Y=6,9,6,17,12. Compute the covariance and correlation coefficient

4 points

- ○ 26.5,0.793
- ◉ 26.5,0.693
- ○ 25.5,0.693
- ○ 26,0.693

1.The Sum of probabilities of all events is 1 2. The probability lies between -1 to +1 3. In a mutually exclusive event P(AnB) = 1 4. In a mutually exclusive event P(AUB) = 1 From the above please check the appropriate option

4 points

- ○ 1 & 2 are True
- ○ 1 & 3 are True
- ◉ 1 & 4 are True
- ○ None of the above

When 2 coins are tossed and the probability of getting 2 heads is 0.25 what is the size of sample space ? 1 point

- [ ] 2
- [x] 4
- [ ] 8
- [ ] 1

Twenty four people had a blood test and the results are shown below. A , B , B , AB , AB , B , O , O , AB , O , B , A, AB , A , O , O , AB , O , O , A , AB , O , B , A. If a person is selected randomly from the group of twenty four people, what is the probability that his/her blood type is not O? 4 points

- [ ] 0.5
- [ ] 0.567
- [x] 0.667
- [ ] 0.75

CSK winning IPL 2019 (0.8 probablity) MI winning IPL 2019 (0.2 probablity) CSK winning Champions trophy 2019 (0.6 probablity) MI winning Champions trophy 2019 (0.4 probablity) In the above events what are the mutually exclusive events? 3 points

- ○ 1 & 3
- ○ 1 & 4
- ◉ 3 & 4
- ○ None of the above

Using the above data what is the probablity of CSK winning IPL 2018 or CSK winning Champions trophy 2018 2 points

- ○ 0.5
- ○ 0.62
- ○ 0.72
- ◉ 0.92

Using the above data what is the probablity of CSK winning IPL 2018 and not winning Champions trophy 2018 2 points

- (●) 0.32
- ( ) 0.5
- ( ) 0.92
- ( ) 0.62

A case study to find out a patient's probability of having liver disease if they are an alcoholic. Patient has liver disease - Past data tells you that 25% of patients entering your clinic have liver disease. Patient is an alcoholic - Five percent of the clinic's patients are alcoholics. Among those patients diagnosed with liver disease, 10% are alcoholics. 4 points

- ( ) 0.75
- ( ) 0.5
- ( ) 0.4
- ( ) None of the above

In a Normal distribution 2 points

- mean > median > mode
- median > mean > mode
- mean = median = mode
- All the above

Which test to be performed when we have only the mean of population and sample is less than 30 ? 2 points

- T test
- Z test
- F test
- Anova

A sample of size 50 is drawn from a population of mean 100 and Standard deviation 25. What is the Standard deviation of the sample ? 3 points

- 2.53
- 3.23
- 4.53
- 3.53

A pharma company manufactures thousands of tablets every day. The manufacturing team gets a complaint stating that the weight of a tablet named zingx has changed from its actual claimed weight of 100mg with population standard deviation 20. The company wants to test this and submit a report to the concerned authority stating the proof of this complaint. The company takes 50 samples with mean 105 to test this. What is the Null and alternate hypothesis?

5 points

- ◯ H0 = 100 and Ha ≠ 105
- ◯ H0 = 100 and Ha < 105
- ◯ H0 = 100 and Ha ≠ 100
- ◯ H0 = 105 and Ha ≠ 105

At Ohio University the mean score of scholarship exam for fresh applications is 900 and the population standard deviation is 180. Every year the HOD uses sample applications to determine the change in the examination score. A sample of 200 applications with a sample mean of 935 is used to perform hypothesis test. What is the result ?

5 points

- ◯ Calculated value 2.5, Reject the Null hypothesis
- ◯ Calculated value 2.74, Accept the Null hypothesis
- ◯ Calculated value 2.64, Reject the Null hypothesis
- ◯ Calculated value 2.74, Reject the Null hypothesis

The California university performs the hypothesis test for the same scenario as Ohio university on 6 samples with the population mean as 900 with samples as 935,925,850,875,945,915. What is the result? 5 points

- Calculated value 2.53, Reject the Null hypothesis
- Calculated value 2.57, Accept the Null hypothesis
- Calculated value 2.53, Accept the Null hypothesis
- Calculated value 2.57, Reject the Null hypothesis

What is the purpose of a goodness-of-fit test? 4 points

- To assesses whether the central tendency, variability and distribution of sample is different from that of the population
- To identify significant effects
- To assess whether there is a significant difference between a collection of categorical data
- Other:

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