BIOSTATISTICS 660-151

Final Exam, SPRING 2022
Monroe College
Date: August 04, 2022

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Q1. In any distribution, about 68 percent of all cases fall between two standard deviations of the mean.

A. True
B. False ←
C. None of the above

Q2. Which of the following statements is not true?

A. Observations are the units upon which measurements are made.
B. Variables are the characteristics being measured
C. Values are the unrealized measurements ←
B. None of the above

Q3. Which of the following statement is true about distributional shape?

A. Distributional shape is described in terms of symmetry
B. Distributional shape is described in terms of direction of skew.
C. Distributional shape is described in terms of modality and kurtosis.
D. Distributional shape is described in terms of all of the above. ←

Q4. Which of the following is true of multistage sample?

A. a probability sample that draws independent simple random samples from within relatively homogeneous groups.
B. a probability sample that draws from the sampling frame
C. a probability sample that randomly draws from large scale units and then samples smaller units in successive stages. ←
D. None of the above

Q5. The cumulative probability for the entire binomial distribution can often sum up to 1.

A. True
B. False
C. None of the above

Q6. Which of the following are true of probability?

A. Probability refers to the proportion of times an event is expected to occur in the short run.
B. Probability refers to the proportion of times an event must occur in the long run.
C. Probability refers to the proportion of times an event is predicted to occur in the long run.
D. None of the above

Q7. Which of the following is true of stratified sample?

A. A probability sample that draws independent simple random samples from within relatively homogeneous groups.
B. A sample in which each member of the population has unknown probability of being selected.
C. A probability sample that randomly selects from large units of clusters consisting of smaller subunits.
D. None of the above

Q8. Which of the following is not a primary function of the mean of a distribution?

A. In the process of sampling, it can be used to predict an individual value drawn at random
B. In the process of prediction, it can be used to interpret the population mean
C. In the process of prediction, it can be used to predict a value drawn at random from the population
D. In the process of interpretation, it can be used to determine the variability of a distribution

Q9. Sampling independence implies that the selection of a given individual from a population influences the probability of selecting any other.

A. True
B. False
C. None of the above.

Q10. Which of the following is true about statistical inference?

A. Statistical inference is the process of generalizing from a sample to a population with a calculated degree of certainty
B. Statistical inference is the process of generalizing from a population to a sample with a calculated degree of certainty
C. It is the process of generalizing from a sample and a population.
D. It is the process of generalizing from a sample or a population.

Q11. What do you think would happens when the sample size in a simple random sample (SRS) is decreased?

A. The standard error gets smaller
B. The precision of the estimate increases
C. The standard error stays about the same
D. The precision of the estimate decreases

Q12. Researchers are interested in conducting an analysis about the effectiveness of a new investigational drug aimed at increasing overall survival among HIV positive patients co-infected with Hepatitis C. Current national data claims that 5-year survival for patients with HIV and Hepatitis C is 32%. After treatment analysis, the research team estimates that 5-year survival among those treated with the new medication is 37%.

Is the value 37% a parameter or an estimator?

A. Parameter
B. Estimator
C. None of the above

Q13. Points of inflection start off at one standard deviations of the mean.

A. True
B. False
C. None of the above.

Q14. **Mr. Johnson, newly diagnosed of cancer, was told by his physician that he has a 40% probability of surviving seven or more years. Assuming that this statement is correct, can we say for certain that Mr. Johnson will live seven or more years?**

A. Yes
B. No

Q15. Which of the following statements is incorrect?

A. Fifty percent of the observations in a distribution fall above and below the median value.
B. The mean of a distribution describes the gravitational center of all the observations.
C. The mode of a distributions indicates observation(s) with the most weight in a distribution.
D. The first quartile is equivalent to the 75^{th} percentile of the distribution.

Q16. Statistical inference is the process of using

A. population statistics to draw inference about the population parameters with calculated degree of certainty
B. population statistics to draw inference about the sample parameters with calculated degree of certainly
C. sample statistics to draw inference about the population parameters with calculated degree of certainty
D. sample statistics to draw inference about the sample parameters with calculated degree of certainty

Q17. Which of the following is <u>not true</u> about probabilities?

A. The proportion from a small number of trials can be far from the actual probability.
B. The proportion gradually approaches the true probability as the number of trials increases.
C. Individual occurrences are uncertain, but occurrences are regular over a large number of repetitions.
D. Individual occurrences are uncertain, but occurrences are regular over a limited number of trials.

Q18. The probability of a positive test in a disease-free individual is known as:

A. The complement of the test
B. False positive
C. True positive
D. None of the above

Q19. Statistical independence indicates that knowledge of one event provides no further information about the occurrence of the other.

A. True ←
B. False
C. None of the above.

Q20. Using the Practicum Data, examine the effect of race on cholesterol. (Please attach your computer printout)

A. State the research question.
B. State both the null and the alternative hypotheses.
C. Test your hypothesis with the most appropriate statistical test
D. Interpret the findings and draw your conclusion.

A. Is there any relationship or association between race and cholesterol?

B.Null hypothesis: there is no association between race and cholestrol.
Alternative hypothesis: there is an association between race and cholestrol

c. I used independent sample T test because there is one categorical variable(race)and one quantitative variable(cholestrol)

Group Statistics

Group	N	Mean	Std. Deviation	S.E. Mean
cholesterol white	1398	221.19	45.19	1.21
black/other	215	212.06	46.39	3.16

Independent Samples Test

	Levene's Test for Equality of Variances		T-Test for Equality of Means						
							95% Confidence Interval of the Difference		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
cholesterol Equal variances assumed	.03	.863	2.75	1611.00	.006	9.13	3.32	2.61	15.65
Equal variances not assumed			2.70	280.12	.007	9.13	3.39	2.46	15.80

D.with sig(2tailed)of 0.006 which is lower than alpha level of 0.05 it shows that there is significant difference between cholesterol of races and there is signification association between race and cholesterol so we reject null hypothesis and accept alternative hypothesis.