Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) The four basic methods used to obtain samples are: random, irregular, cluster, and stratified sampling. 1) _____
   A) False B) True

2) The names of all 106 students in a professor's class are written on identical slips of paper, and the slips are placed into a large glass jar. Then, the professor selects 11 random slips from the jar. Identify the kind of sample that is being used. 2) _____
   A) systematic sample B) sample of convenience
   C) cluster sample D) simple random sample

3) An independent variable can also be called a(n) 3) _____
   A) free variable. B) explanatory variable.
   C) outcome variable. D) suggestive variable.

4) Which of the following correctly describes the relationship between a sample and a population? 4) _____
   A) A sample is a group of subjects selected from a population to be studied.
   B) A sample is a group of populations that are subject to observation.
   C) A population is a group of samples that may or may not be included in a study.
   D) A population and a sample are not related.

5) What level of measurement classifies data into mutually exclusive categories in which no order or ranking can be imposed on the data? 5) _____
   A) interval B) ratio C) nominal D) ordinal

6) In the following chart, *Height* is the independent variable and *Age of Tree* is the dependent variable. 6) _____

A) True B) False

7) Which one of the following data are continuous? 7) _____
A) the rankings of the trees, from most numerous to least numerous
B) the number of representatives of each species in the park
C) the average height of a sample of trees
D) the number of species of trees in a park

8) What type of sampling is being employed if the country is divided into economic classes and a sample is chosen from each class to be surveyed? 8) _____
A) systematic sampling B) random sampling
C) stratified sampling D) cluster sampling

9) A _____ is a characteristic or attribute of a subject that can assume different values? 9) _____
A) sample B) datum C) exponent D) variable

10) Which of the following is the best description of a randomized experiment? 10) _____
A) an experiment in which the experimental units are selected at random
B) an experiment in which the treatments are assigned randomly to experimental units
C) an experiment in which the investigators are chosen at random
D) an experiment in which the outcomes are random

11) Based on her electric bills from last year, Mrs. Smith expects she will be paying $75/month this year. This is an example of descriptive statistics. 11) _____
A) False B) True

12) Determine which of the following describes qualitative data. 12) _____

i). the make of the car with license plate number VNS-862

ii). the license plate number VNS-862

iii). the number of vehicles whose license plate number begins with "VNS"

A) i only B) neither i, nor ii, nor iii

C) iii only D) i and ii only

13) A television station interviews five movie viewers after the first showing of a movie. After finding out that all five enjoyed the movie very much, the reporter states that this movie will definitely be a big hit. This is an example of _____. 13) _____

A) detached statistics B) changing the subject

C) ambiguous averages D) suspect samples

14) In a research study, it is always preferable for the researcher to carefully choose his participants rather than randomly select them from a suitable group. 14) _____

A) True B) False

15) In an advertisement for a car, a driver is shown driving expertly through a difficult road course. At the bottom of the ad, the following is included in small print "Professional driver on a closed course". Which of the following choices best describes this misuse of data? 15) _____

A) detached statistics B) faulty survey questions

C) implied connections D) changing the subject

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

16) A _____ variable assumes values that can be counted. 16) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

17) An electronics manufacturer test every 1000^{th} cell phone to verify that it is functioning properly. Identify the kind of sample that is being used. 17) _____

A) cluster sample B) stratified sample

C) simple random sample D) systematic sample

18) Which of the following best defines the relationship between confounding, dependent, and independent variables? 18) _____

A) The confounding variable influences the dependent variable, but is not separated from the independent variable.
B) The confounding variable influences the independent variable, but has no effect on the dependent variable.
C) The confounding variable may cause the dependent variable to act independently.
D) The influence of the confounding variable cannot be separated from the influence of the dependent variable.

19) In an experiment, subjects are put into two categories according to sex, and then each subject is randomly assigned a treatment . This is an example of... 19) _____

A) gender bias
B) observational studies
C) confounding
D) randomized blocking

20) Questioning every 14th customer leaving a theatre about the movie they had seen, would be an example of systematic sampling. 20) _____

A) True
B) False

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

21) What level of measurement would be applied when doing a survey on the average American's shoe size? 21) _____

22) Determining the number of people from the state of Alaska who voted for a Republican in the last election is an example of _____ measurement. 22) _____

23) How are statistics important in our everyday lives, and why do we need to understand them? 23) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

24) Which of the following sample types should you always regard as unreliable? 24) _____

A) cluster samples
B) voluntary response samples
C) stratified samples
D) simple random samples

25) A dependent variable can also be referred to as an outcome variable. 25) _____

A) False
B) True

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

26) A _____ consists of all subjects that are being studied. 26) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

27) Which one of the following data are continuous? 27) _____
A) the number of times the file has been downloaded
B) the time remaining for an MP3 music download
C) the number of musicians performing in the MP3 file
D) all of these represent continuous data

28) In a randomized experiment, if there are large differences in outcomes among the treatment groups, we can conclude that the differences are due to _____. 28) _____
A) the treatments B) random luck
C) experimental error D) deliberate data manipulation

29) The variable of height is an example of a quantitative variable. 29) _____
A) False B) True

30) Each value in a data set may be referred to as either a data value or a(n) _____. 30) _____
A) atom B) point C) subdata D) datum

31) If a weather center monitors and calculates the average number of tornadoes that pass through Topeka, Kansas each year, what type of variable would they be investigating? 31) _____
A) isolated variable B) controlled variable
C) random variable D) hypothesis variable

32) Give the boundaries of the given value. 32) _____
3.089
A) 3.0885-3.0895 B) 2.089-4.089
C) 3.088-3.09 D) 3.0889-3.0891

33) A(n) _____ makes it difficult to determine whether an experimental outcome is due to the applied treatment. 33) _____
A) uncooperative subject B) error
C) counfounder D) perplexer

34) Quantitative data can be further classified as continuous or nonsequential. 34) _____
A) False B) True

35) If a researcher manipulates one of the variables and tries to determine how the manipulation influences other variables, the researcher is conducting a(n) 35) _____

A) confounding study. B) experimental study.
C) observational study. D) independent study.

36) Which one of the following data are discrete? 36) _____

A) the average preseason ranking of the University of Connecticut's women's basketball team over the past 10 years
B) the height of the tallest player on Duke University's men's basketball team
C) the pre-season ranking of Duke University's men's basketball team
D) the average height of players on the University of Connecticut's women's basketball team

37) By visiting homes door-to-door, a municipality surveys all the households in 146 randomly-selected neighborhoods to see how residents feel about a proposed property tax increase. Identify the type of sample that is being used. 37) _____

A) stratified sample B) systematic sample
C) voluntary response sample D) cluster sample

38) Determine which of the following describes quantitative data. 38) _____

i). the name of a chemical sample
ii). the mass of a chemical sample
iii). the color of a chemical sample

A) i and ii only B) ii only C) i only D) i, ii, and iii

39) Inferential statistics is based on probability. 39) _____

A) False B) True

40) Determine which of the following describes nominal data. 40) _____

i. My favorite days of the week are Friday, Saturday, and Tuesday.
ii. My favorite day of the week is Friday, my second-favorite is Saturday, and third-favorite is Tuesday.

A) neither i nor ii B) i only
C) ii only D) both i and ii

41) A person's hair color would be an example of a quantitative variable. 41) _____

A) True B) False

42) In a true experimental study, the subjects should be assigned to groups randomly. If this is not possible and a researcher uses intact groups, they are performing a _____. 42) _____

A) convoluted study
B) observational study
C) dependent study
D) quasi-experimental study

43) Which one of the following data are discrete? 43) _____

A) the speed of the boat's propeller, in revolutions per minute
B) the latitude and longitude of a boat at sea
C) the latitude and longitude of the boat's port of departure
D) the number of crew members on the boat

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

44) _____ is a decision-making process for evaluating claims about a population, based on information obtained from samples. 44) _____

45) _____ sampling is used when the population is large and it includes subjects residing over a large geographic area. 45) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

46) Classifying the fruit in a basket as apple, orange, or banana, is an example of the _____ level of measurement? 46) _____

A) ordinal
B) interval
C) nominal
D) ratio

47) When rolling two six-sided dice, your total roll ranges from 2 (double ones) to 12 (double sixes).Characterize the nature of the roll total. 47) _____

A) qualitative and continuous
B) quantitative and discrete
C) qualitative and discrete
D) quantitative and continuous

48) In which branch of statistics would a researcher acquire twenty-five 2000 Toyota Celicas, drive them until they had a major mechanical failure, record the final mileage, and then write a report for *Car and Driver*? 48) _____

A) inferential statistics
B) predictive statistics
C) descriptive statistics
D) differential statistics

49) When running an experimental study, the group that is manipulated can be called the treatment group. 49) _____

A) False
B) True

50) Determine which of the following describes ordinal data. 50) _____

i. My best friends are Georgia, Amithaba, and Raphael.

ii. My favorite numbers are 2, 7 and 13.

A) neither i nor ii B) both i and ii

C) i only D) ii only

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

51) One advantage of a(n) _____ study is that it occurs in a natural setting without intervention by the researcher. 51) _____

52) In an experimental study, manipulation of the_____ variable is studied to see if it leads to changes in the _____variable. 52) _____

53) The _____ level of measurement classifies data into categories that can be ranked; however, precise differences between the ranks do not exist. 53) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

54) An advertisement for a pick-up truck states that it is 30% more powerful. This is an example of _____. 54) _____

A) changing the subject B) detached statistics

C) ambiguous averages D) suspect samples

55) The number of birds in a tree is an example of a continuous variable. 55) _____

A) False B) True

56) The amount of time needed to run the Boston marathon is an example of which type of variable? 56) _____

A) discrete B) temporal C) continuous D) qualitative

57) Which branch of statistics would employ probability to predict how many miles one should be able to drive a 2000 Toyota Celica during its lifetime? 57) _____

A) descriptive statistics B) inferential statistics

C) time series statistics D) differential statistics

58) Determine which of the following describes quantitative data. 58) _____

i). the length of an object in feet

ii). the speed of an object in meters per second

iii). the number of objects that are blue

A) i, ii, and iii B) i and ii only C) iii only D) i only

59) Which of the following is the best description of a double-blind experiment? 59) _____

A) an experiment in which the subjects are blindfolded so they cannot see which treatment is applied to them

B) an experiment in which neither the investigators nor the subjects know the others' names

C) an experiment in which neither the investigators nor the subjects know how the treatments have been assigned

D) an experiment in which both the investigators and the subjects are hidden from the others' views

60) A middle school student passes out leaflets to the adults at a school function. The leaflets ask the recipient to indicate whether they believe in anthropogenic global warming. The bottom of the leaflet indicates that the completed leaflet should be returned to the student. Identify the kind of sample that is being used. 60) _____

A) cluster sample B) sample of convenience

C) systematic sample D) stratified sample

61) A pollster randomly samples 135 Democrats, 164 Republicans and 16 Independents (all registered voters) in Metro City and asks each poll participant which mayorial candidate he or she prefers. Identify the kind of sample that the pollster is using. 61) _____

A) stratified sample B) voluntary response sample

C) cluster sample D) sample of convenience

62) Variables with values that are determined by chance are called _____. 62) _____

A) random variables. B) erratic variables.

C) inconsistent variables. D) specialized.

63) What level of measurement allows for the ranking of data, a precise difference between units of measure, and also includes a true zero? 63) _____

A) interval B) ratio C) ordinal D) nominal

64) Rating a restaurant by a number of stars is an example of an ordinal level of measurement. 64) _____

A) False B) True

65) Statistics is the science of conducting studies to 65) _____

A) solve a system of equations.

B) hypothesize, experiment, and form conclusions.

C) collect, organize, summarize, analyze, and draw conclusions from data.

D) monitor, study, and report on a subject.

66) Determine which of the following describes qualitative data. 66) _____

i). the volume of a shipping container, in gallons

ii). the name of the material from which the container is made

iii). the shape of the container

A) ii and iii only B) i and ii only C) i, ii, and iii D) i and iii only

1) A
2) D
3) B
4) A
5) C
6) B
7) C
8) C
9) D
10) B
11) A
12) D
13) D
14) B
15) C
16) discrete
17) D
18) A
19) D
20) A
21) the interval level of measurement
22) ratio-level
23) Statistics are used to analyze the results of surveys. It is important to understand the terms and concepts so that one can understand exactly what is being represented (or misrepresented) by a given statement.
24) B
25) B
26) population
27) B
28) A
29) B
30) D
31) C
32) A
33) C
34) A
35) B
36) C
37) D
38) B
39) B
40) B
41) B

42) D
43) D
44) Hypothesis testing
45) Cluster
46) C
47) B
48) C
49) B
50) A
51) observational
52) independent or explanatory; dependent or outcome
53) ordinal
54) B
55) A
56) C
57) B
58) A
59) C
60) B
61) A
62) A
63) B
64) B
65) C
66) A