

Chapter 2--Scientific Methods in Psychology

Student: _____

1. The goal of scientific research is to establish comprehensive explanations of observable events. These explanations are called

- A. theories.
- B. facts.
- C. predictions.
- D. hypotheses.

2. A solid theory would be one that

- A. predicts many observations.
- B. makes many assumptions.
- C. is not falsifiable.
- D. avoids independent variables.

3. Which of the following is a desirable feature of a scientific theory?

- A. The theory simply restates the facts it is supposed to explain.
- B. The theory is based on illusory correlations.
- C. The theory makes complex assumptions.
- D. The theory is falsifiable.

4. To say that a theory is falsifiable means that

- A. evidence is already available that contradicts the theory.
- B. one can imagine evidence that would contradict the theory.
- C. various scientists disagree on whether the theory is correct.
- D. the theory depends on assumptions that are not parsimonious.

5. To say that a theory is falsifiable is to say that

- A. it is based on results that are not replicable.
- B. investigators have replaced it with a simpler or more accurate theory.
- C. we can imagine results that would contradict it.
- D. it is so vague that it fits any and all possible results.

6. A falsifiable theory is one that

- A. makes clear, easily tested predictions.
- B. disagrees with well-established evidence.
- C. makes unnecessary assumptions.
- D. is too vague to be useful.

7. A falsifiable theory

- A. disagrees with known, replicable data.
- B. makes clear, unambiguous predictions.
- C. is widely debated and disputed.
- D. has not yet been tested.

8. If a theory is "falsifiable," then it

- A. makes specific, testable predictions.
- B. contradicts other well-established theories.
- C. contradicts common sense.
- D. requires more new assumptions than necessary.

9. "Falsifiability" is considered a desirable characteristic for a scientific theory because a falsifiable theory

- A. avoids independent variables.
- B. makes clear, testable predictions.
- C. disagrees with common sense.
- D. relies on anecdotal evidence.

10. Which of the following would NOT be falsifiable?

- A. "Children who spend much time in day care centers before age one year develop about the same personality as those reared at home by their parents."
- B. "Dreams are motivated by wish fulfillment and are usually disguised to hide their true meaning."
- C. "Behaviors followed by reinforcement increase in frequency."
- D. "People identify the direction of a sound source by comparing the response in the left ear with the response in the right ear."

11. A psychic claims that he can read the minds of people on the planet Zipton, which is millions of light years away. The main scientific objection is that this claim

- A. confuses correlation with causation.
- B. ignores the role of demand characteristics.
- C. is based on a negative correlation.
- D. is not falsifiable.

12. Which of the following do researchers generally regard as desirable?

- A. illusory correlations
- B. selective attrition
- C. demand characteristics
- D. falsifiable theories

13. In both science and the legal system, the "burden of proof" is on the side that

- A. agrees with common sense.
- B. disagrees with common sense.
- C. should find it possible to present convincing evidence, if in fact it is right.
- D. should find it harder to present convincing evidence, if in fact it is right.

14. In both science and a criminal trial, who has the "burden of proof"—that is, the obligation to demonstrate that their claims are correct?

- A. the side that should be able to produce good evidence, if they are right
- B. the side that has more to lose, if they fail to convince others
- C. the side with more money to spend
- D. the side that is defending the status quo (that is, the current set of beliefs)

15. In both the U.S. legal system and in scientific disputes, the "burden of proof" falls on

- A. someone who has been accused of doing something wrong.
- B. someone who is defending traditional beliefs or values.
- C. someone who is politically unpopular.
- D. someone who should be in the better position to provide convincing evidence.

16. In both our legal system and in science, which side of a dispute bears the "burden of proof"?

- A. the one defending the current state of affairs
- B. the one that should be able to present convincing evidence, if its position is correct
- C. the one that has more to lose, if its position is rejected
- D. the one that has the smaller number of supporters

17. The word *science* derives from a Latin word meaning?

- A. knowledge
- B. test
- C. fact
- D. statistics

18. What is a hypothesis?

- A. a statistical procedure
- B. a testable prediction
- C. an established fact
- D. a method of investigation

19. A testable prediction of what will happen under a specific set of conditions is known as a/an

- A. replication.
- B. hypothesis.
- C. demand characteristic.
- D. correlation.

20. Any scientific study goes through four steps. Which of the following is NOT one of those steps?

- A. hypothesis
- B. interpretation
- C. method
- D. proof

21. A result is replicable if

- A. appropriate research methods are used.
- B. the experimental group behaves the same way as the control group.
- C. it is statistically significant.
- D. researchers who repeat the procedure get similar results.

22. A result is replicable if

- A. the results are statistically significant.
- B. other competent investigators can repeat the results.
- C. the interpretation is consistent with other scientific theories.
- D. it agrees with common sense.

23. Why do investigators sometimes repeat an experiment that other researchers have already completed?

- A. to try to eliminate the independent variables
- B. to check whether the results are replicable
- C. to check whether the explanation is parsimonious
- D. to increase the demand characteristics of the experiment

24. An investigator repeats the procedures of another researcher's experiment but obtains different results. Scientists would say that the results of the first experiment were not

- A. correlational.
- B. parsimonious.
- C. statistically significant.
- D. replicable.

25. Several years ago, researchers examined the effect of listening to music from Mozart on psychological test performance. It appeared that those people who had listened to Mozart performed better on tasks of spatial reasoning than did those people who listened to a relaxation tape or had experienced silence. Later research revealed some problems with these findings. Specifically,

- A. the results were not consistently replicable.
- B. no control group had been used.
- C. the original study was a double-blind study.
- D. the independent variable was not operationally defined.

26. Which of the following is a highly desirable feature of a scientific study?

- A. selective attrition
- B. demand characteristics
- C. replicability
- D. illusory correlation

27. Suppose some unscrupulous researcher made up results and got them published. In the long run, people will not take them seriously because presumably the false results will not be

- A. parsimonious.
- B. replicable.
- C. falsifiable
- D. psychoanalytic.

28. Psychologists have the greatest confidence in their results if the results have been

- A. replicated using the same method in multiple studies.
- B. replicated using multiple methods in multiple studies.
- C. replicated using the same method in a single study.
- D. falsified using the same method in multiple studies.

29. If competent researchers consistently get similar results whenever they follow a particular procedure, then the results are

- A. replicable.
- B. correlational.
- C. representative.
- D. operational.

30. The preference of scientists for the theory that makes the fewest unfamiliar or untested assumptions is known as the principle of

- A. parsimony.
- B. statistical significance.
- C. normal distribution.
- D. informed consent.

31. To determine whether a theory is parsimonious, psychologists pay attention to whether

- A. its assumptions are simple and consistent with those of other theories.
- B. the results on which it is based are statistically significant.
- C. it has the potential to lead to practical applications.
- D. investigators have replicated the results on which it is based.

32. According to the principle of parsimony, we should prefer the theory that

- A. is most popular among the population as a whole.
- B. makes fewer or simpler assumptions.
- C. fits any data that we could possibly imagine.
- D. relies on anecdotal evidence.

33. Judy cannot remember anything that happened during her 8:00 am psychology class. Her roommate Juanita suggests that perhaps Judy slept throughout class. Judy, however, suggests that her brain was temporarily kidnapped by aliens from outer space. Most psychologists would prefer Juanita's explanation because it is more

- A. statistical.
- B. correlational.
- C. psychoanalytic.
- D. parsimonious.

34. Scientists usually prefer the more "parsimonious" explanation because it is:

- A. based on common sense.
- B. more interesting.
- C. based on higher levels of mathematics.
- D. simpler.

35. Clever Hans was

- A. a dog that seemed to speak in German.
- B. Clever Gretel's brother.
- C. a horse that seemed to do arithmetic.
- D. a psychic who was popular in the 1930s.

36. We would find it difficult to accept the idea of a horse performing algebraic equations because we regard it as

- A. unparsimonious.
- B. falsifiable.
- C. replicable.
- D. insignificant.

37. What evidence did Oskar Pfungst present to indicate that Clever Hans was not doing mathematical calculations?

- A. Hans was correct no more often than we would expect for chance guessing.
- B. Hans could answer a question correctly only if the questioner knew the correct answer.
- C. Hans could answer correctly only if the questioner made subtle sounds while he was answering.
- D. Hans could answer correctly only if his owner, Mr. von Osten, was present.

38. The horse named Clever Hans that seemed to answer mathematical questions, got the answers from?

- A. unintentional facial expressions.
- B. signals from his owner, Mr. von Osten.
- C. subtle sounds that spectators made.
- D. extrasensory perception.

39. Clever Hans could answer a question correctly only if he

- A. heard the questioner during the answer.
- B. gave his trainer flashing signals.
- C. saw the questioner during the answer.
- D. had practiced that particular question previously.

40. Some investigators claim they have taught monkeys to understand spoken English, but another scientist argues that the results might be due to a Clever Hans effect. What does this mean?

- A. The procedure works only if training begins during infancy.
- B. The procedure works only with a few carefully selected and especially bright individuals.
- C. The monkeys might be responding to subtle visual cues accidentally given by the investigators.
- D. The results are not replicable.

41. How did Clever Hans solve arithmetic problems?

- A. with ESP
- B. by taking advantage of coincidence
- C. by watching the examiner for subtle cues
- D. by using his native abilities to do arithmetic

42. In one word, why did most scientists resist the belief that Clever Hans could do complex mathematics, even before they had a good explanation of what he was actually doing?

- A. parsimony
- B. randomness
- C. statistics
- D. correlation

43. An anecdote is a

- A. medicine that reverses the effect of a poison.
- B. professional psychic.
- C. measurement of the variation in results within a group.
- D. report of an isolated event or occurrence.

44. Jane describes a dream she had that came true the next day. This is an example of

- A. an anecdote.
- B. an experimental result.
- C. selective truth.
- D. a correlational result.

45. One problem with using anecdotes as evidence for ESP (or for anything else) is that anecdotes are, by their very nature,

- A. highly technical.
- B. not replicable.
- C. falsifiable.
- D. experimental.

46. "The Amazing Kreskin" is a professional psychic who demonstrates his powers by finding his paycheck hidden somewhere in the audience. If he doesn't find it, he doesn't get paid, but he is almost always successful. The most parsimonious explanation for this trick is that

- A. he genuinely possesses psychic abilities.
- B. he reads subtle cues, much like Clever Hans.
- C. it is a coincidence that he keeps finding his check.
- D. audience members send delta waves that lead him to his check.

47. When "The Amazing Kreskin," the professional psychic, finds his check hidden somewhere in the audience, he uses the same method used by
- A. Wilhelm Wundt.
 - B. Clever Hans.
 - C. Oskar Pfungst.
 - D. Mary Calkins.
48. The ganzfeld procedure, used to investigate claims of extrasensory perception, has been
- A. used to create homeopathic medical techniques.
 - B. shown to be a nonreplicable finding.
 - C. demonstrated to be the only true, reliable ESP phenomenon.
 - D. responsible for remarkable cures for phobic individuals.
49. A proponent of ESP claims that ESP shows up only when the vibrations are right and that there is no way to know whether the vibrations are right except to see whether ESP shows up. What is wrong with this theory from a scientific standpoint?
- A. It relies too heavily on operational definitions.
 - B. It relies too heavily on negative correlations.
 - C. It is not falsifiable.
 - D. It has too many dependent variables.
50. One of the main objections raised against ESP is that
- A. the theory of ESP is falsifiable.
 - B. the experiments that reportedly produced positive results have not been replicable.
 - C. the claims for it are based entirely on anecdotes.
 - D. none of the experiments on ESP has produced statistically significant results.
51. Two serious objections to claims of extrasensory perception are that the explanations are not _____ and that the results are not _____.
- A. parsimonious...replicable
 - B. statistical...correlational
 - C. significant...independent
 - D. double-blind...random
52. An operational definition is a definition that
- A. explains where the term came from.
 - B. describes the underlying cause of something.
 - C. gives synonyms or antonyms.
 - D. tells us how to produce or measure something.

53. The benefit of using an operational definition is that it

- A. provides a compromise between competing viewpoints.
- B. explains what the term means to the average person.
- C. enables investigators to measure a phenomenon.
- D. offers a theoretical explanation of the causes of a phenomenon.

54. Which of the following is an operational definition of "grief"?

- A. synonym for bereavement
- B. a feeling of sadness and loneliness
- C. the consequence of the loss of a loved one
- D. the number of tears shed per day

55. Which of the following is an operational definition of "anxiety"?

- A. a vague sensation that "something dangerous might happen"
- B. an experience like fear, but more prolonged
- C. the amount of muscle tension after hearing a loud noise
- D. the opposite of relaxation

56. Which of the following is an operational definition of "confusion"?

- A. an unpleasant feeling of not understanding something
- B. the result of receiving several kinds of contradictory information
- C. the opposite of "decisiveness"
- D. number of seconds delay before answering a question

57. Which of the following could be an operational definition of "curiosity"?

- A. the mental activity experienced by a child in the presence of brightly colored objects
- B. the number of unassigned books that someone reads during a month
- C. discomfort provoked by recognizing that one does not understand something
- D. a desire to gain knowledge for its own sake

58. A convenience sample is

- A. representative of the population.
- B. a group in which every individual in the population has an equal chance of being selected.
- C. a group chosen because of its ease of study.
- D. the most likely to represent the mean of the population.

59. Participants who volunteer for an experiment would most likely be in a _____ sample.

- A. convenience
- B. representative
- C. random
- D. cross-cultural

60. A survey team asks questions of a group of people who have been carefully selected to be sure that they include the same percentages of male and female; old and young; and black, white, Asian, and Hispanic as the population as a whole. This group of people constitute a

- A. representative sample.
- B. random sample.
- C. convenience sample.
- D. longitudinal sample.

61. A survey company that wants to know the views of the average person sends an agent to a shopping mall to interview anyone who is available. The people who are interviewed constitute a

- A. representative sample.
- B. convenience sample.
- C. random sample.
- D. cross-cultural sample.

62. An investigator who wishes to study the attitudes of people in Illinois identifies 1,000 people in Illinois, taking care that the percentages of male and female, black and white, young and old are the same in the sample as in the total population of the state. What kind of sample is the investigator trying to obtain?

- A. an independent sample
- B. a convenience sample
- C. a random sample
- D. a representative sample

63. A sample that is selected to resemble the entire population in its percentage of males and females, blacks and whites, and other factors is said to be a

- A. random sample.
- B. representative sample.
- C. normal distribution.
- D. control group.

64. A researcher conducts a survey of the Canadian population, interviewing 1000 people with the same distribution of men and women, old and young, urban and rural people as the whole Canadian population. Of the following terms, this sample is best described as

- A. convenient.
- B. distorted.
- C. random.
- D. representative.

65. If every individual in the population has an equal chance of being selected for a sample, the sample is said to be a/an _____ sample.

- A. representative
- B. random
- C. independent
- D. stratified

66. In order to study the attitudes of the people who live in Tennessee, I obtain a copy of the census of that state and interview every 1,000th person on that list. My procedure will provide an approximately

- A. normal sample.
- B. experimental sample.
- C. proportional sample.
- D. random sample.

67. If a group has the same percentage of young and old, male and female, and educated and uneducated people as the population as a whole, then this group is a

- A. random sample.
- B. convenience sample.
- C. cross-cultural sample.
- D. representative sample.

68. Which of the following would best describe the kind of research a psychologist would use to study whether facial expressions have the same meaning for various people throughout the world?

- A. longitudinal study
- B. triple-blind study
- C. cross-cultural study
- D. population study

69. Dr. Hoonoes got statistically significant results in her last experiment, but she is worried about experimenter bias. By this she means that the results may have been influenced by

- A. the experimenter's dislike for calculating statistics.
- B. the tendency of an experimenter to distort the experimental results to fit an expected outcome.
- C. the fact that some people quit before the experiment was finished.
- D. a tendency to rank people high on everything or on nothing.

70. The tendency for researchers to believe that they see what they expected to see rather than observing what is really happening, is called

- A. the Clever Hans effect.
- B. the Garcia effect.
- C. experimenter bias.
- D. extrasensory perception.

71. A blind observer is an observer who

- A. has no previous experience with psychological observations.
- B. does not reveal his or her observations to anyone.
- C. does not know what each subject is expected to do.
- D. observes everyone except himself or herself.

72. The use of placebos in research is an attempt to minimize the effects of

- A. dependent variables.
- B. case histories.
- C. experimenter bias.
- D. informed consent.

73. Dr. Wizard randomly assigns people to two groups. Those in the experimental group receive a "subliminal audioteape" that they are told will improve their self-esteem. The other group receives no treatment. Three weeks later Dr. Wizard interviews them and reports that people in the experimental group show higher self-esteem.

What change would IMPROVE the procedure for this research?

- A. Eliminate the independent variables
- B. Use a convenience sample of people
- C. Include more demand characteristics
- D. Make the procedure double-blind

74. A placebo is a

- A. member of the control group.
- B. pill with effects opposite to those of an experimental drug.
- C. nonblind observer.
- D. pill with no important biological effects.

75. The best way to describe a double-blind study is to say that

- A. the observer does not know which is the control group and which is the experimental group.
- B. neither the observer nor the participants know which group is the experimental group and which is the control group.
- C. the participants do not know who is in the experimental group and who is in the control group.
- D. both the observer and the participants know which is the control group and which is the experimental group.

76. In a double-blind study,

- A. participants are assigned randomly to both the control group and the experimental group.
- B. the experimenter manipulates neither the independent variable nor the dependent variable.
- C. both the experimental group and the control group receive placebos.
- D. neither the observer nor the participants know which group is the experimental group and which is the control group.

77. An investigator wishes to conduct a double-blind study to determine the effect of an experimental drug on memory. The investigator gives the drug to members of the experimental group and a _____ to members of the control group.

- A. demand characteristic
- B. random sample
- C. placebo
- D. mode

78. The advantage of a double-blind study is that it minimizes the effect of

- A. the expectations by the experimenter and participants.
- B. the dependent variable.
- C. the independent variable.
- D. distracting stimuli.

79. Often the experimental group receives a pill believed to have strong effects, and the control group receives a pill that looks like the other pill, but has no effects, other than those due to expectations. The one given to the control group is called a

- A. synergy.
- B. demand characteristics.
- C. placebo.
- D. transaction.

80. A researcher hypnotizes twenty volunteers and suggests to them that they will become more creative. Later the researcher compares stories these people write to stories written by 20 other people, and reports a difference. The main problem with this study is that it LACKS:

- A. independent variables and demand characteristics.
- B. dependent variables and informed consent.
- C. random samples and blind observations.
- D. hypothesis and correlation.

81. The cues that tell a participant what is expected or what the experimenter hopes to find are known as

- A. independent variables.
- B. correlations.
- C. dependent variables.
- D. demand characteristics.

82. Which of the following procedures would be most likely to reduce the effects of demand characteristics?

- A. Conceal the purpose of the experiment from the participants.
- B. Evaluate the statistical significance of the results.
- C. Discard data from any subject who did not complete the experiment.
- D. Assign participants randomly to groups.

83. An experimenter announces, "This is an experiment on hypnosis." Although the experimenter does not actually hypnotize anyone, most of the participants behave the way they believe hypnotized people do. These results are an apparent example of the effects of

- A. demand characteristics.
- B. an illusory correlation.
- C. random assignment.
- D. experimenter bias.

84. Which of the following would a psychological experimenter try to avoid or minimize?

- A. parsimony
- B. independent variables
- C. demand characteristics
- D. random assignment

85. In one experiment, participants who were told they were in a sensory deprivation experiment (but who really were not) showed the same symptoms as participants who really were kept in sensory deprivation. These results suggest that the experiences reported by the participants were influenced by

- A. placebo effects.
- B. demand characteristics.
- C. illusory correlations.
- D. the Pfungst effect.

86. Which of the following is undesirable for psychological research and theories?

- A. demand characteristics
- B. falsifiability
- C. parsimony
- D. independent variables

87. In many psychological experiments the experimenter will take elaborate steps to conceal the purpose of the experiment from the participants. The purpose of concealing this information is

- A. to make the study more ethical.
- B. to eliminate demand characteristics.
- C. to save time.
- D. to eliminate illusory correlations.

88. People give one answer to a survey question when they are told the survey was sponsored by the Republican Party and a different answer when they are told it was sponsored by the Democratic Party. One possible reason for the difference is

- A. the placebo effect.
- B. illusory correlation.
- C. standard deviation.
- D. demand characteristics.

89. The careful examination of what people or animals do in their normal environments is called

- A. intrusive observation.
- B. naturalistic observation.
- C. double-blind study.
- D. a case history.

90. Naturalistic observation refers to the observation of

- A. animals low on the phylogenetic scale.
- B. people or animals in their natural setting.
- C. plant life.
- D. the way organisms naturally respond to experimental manipulations in the lab.

91. Jane Goodall spent years observing chimpanzees eat, interact, and live in the wild. Her technique would best be described as

- A. experimentation.
- B. correlational analysis.
- C. naturalistic observation.
- D. a case history.

92. Which of the following would be most likely to rely on naturalistic observations?

- A. a learning psychologist studying the effects of reward and punishment
- B. a biopsychologist studying the role of various brain structures in memory
- C. a cognitive psychologist studying memory for concrete versus abstract words
- D. a cross-cultural psychologist studying the way people in different cultures settle disputes

93. Which of these ways of conducting research generally uses the fewest participants?

- A. case history
- B. correlational study
- C. experiment
- D. survey

94. A case history

- A. includes an experimental group and a control group.
- B. necessarily includes the use of inferential statistics.
- C. establishes the strength of the relationship between two variables.
- D. is a detailed description of a single individual.

95. Investigators are most likely to use the case history method when they study

- A. the effects of a drug on behavior.
- B. the frequency of certain attitudes in a large population.
- C. a rare behavior or an unusual person.
- D. two or more independent variables.

96. Lycanthropy is an extremely rare condition in which someone believes he or she is a wolf. An investigator who wished to study this condition would most likely rely on which method?

- A. case history
- B. survey
- C. single-blind experiment
- D. double-blind experiment

97. One of the most common techniques for finding out about people's beliefs or attitudes is to ask a large number of people a series of questions. This technique is called

- A. naturalistic observation.
- B. a case study.
- C. the ganzfeld procedure.
- D. a survey.

98. A survey

- A. usually involves a careful study of a single individual's attitudes.
- B. is one of the best ways to accurately measure mental capacities.
- C. is an efficient method of data collection, because statistical analysis is not required.
- D. is a study based on people's responses to questions about their beliefs, attitudes, or behaviors.

99. If someone plans to administer a survey to determine which event people think is the most important one of the 20th century, the person who administers the survey should definitely

- A. administer the survey to a random sample or representative sample of the population.
- B. invite everyone who wants to answer the questions to be part of the survey.
- C. put the survey on the internet to make it easy for large numbers of people to answer.
- D. give people a few suggestions of possible answers.

100. One of the problems with survey research is

- A. that people are willing to express an opinion even when they have no idea what they are talking about.
- B. that it is very difficult to obtain a sufficient number of participants.
- C. not knowing how to operationally define the independent variables.
- D. the difficulty of finding a convenience sample of participants.

101. The results of a survey are likely to be misleading if

- A. the survey is administrated to a representative sample of people.
- B. the survey is administered to a random sample of people.
- C. the survey involved more than three questions.
- D. you don't know how the questions were phrased.

102. A researcher announces that according to a recent survey, 78% of all American workers say they have cheated their employer in the past year. Before we can interpret these results, which of the following questions would be most important to ask?

- A. How heavily were the results influenced by illusory correlations?
- B. What were the independent variables in this study?
- C. What were the participants told to count as examples of cheating?
- D. Were the participants randomly assigned to groups?

103. According to the results of one survey, 95% of high-school students say they have been sexually harassed. Before you can decide how seriously to take these results, one of the most important questions you should ask is,

- A. did the survey deal with equal numbers of sophomores, juniors, and seniors?
- B. were the results similar the following year?
- C. how did the survey define sexual harassment?
- D. did the survey administrators take precautions against cheating?

104. You give a survey and ask, "Do you support the current laws on abortion?" Ninety-four percent of the respondents answer "no." Based on these results, you

- A. know that those people feel that the laws are too restrictive.
- B. know that those people feel that the laws are not strict enough.
- C. still do not know whether those people feel the laws are too restrictive or not strict enough.
- D. know that at least 94% of the people you surveyed are familiar with the abortion laws.

105. A study of the relationship between two variables that the investigator does not control is known as a

- A. random assignment.
- B. correlational study.
- C. double-blind experiment.
- D. case history.

106. A correlation is a

- A. measurement of the changes in a person's behavior after a treatment.
- B. careful study of a single person over time.
- C. measurement of the difference between experimental and control groups.
- D. measurement of the relationship between two variables.

107. It is found that children who have many friends are generally happier than children who have fewer friends. What kind of research design was probably used in this study?

- A. correlation
- B. anecdote
- C. case history
- D. experiment

108. It has been reported that people who trust other people are generally happier than people who do not trust others. This conclusion is probably based on the results of a

- A. double-blind experiment.
- B. case history.
- C. correlational study.
- D. single-blind experiment.

109. A researcher measures people's blood type and tests whether those with different blood types have different personalities. This type of research is called a

- A. single-blind experiment.
- B. double-blind experiment.
- C. correlation.
- D. case study.

110. A correlation coefficient is a mathematical value that ranges between

- A. -1 and +1.
- B. 0 and infinity.
- C. 0 and 1.
- D. 0 and 100.

111. Suppose we find that how many hours various people have studied their textbook correlates -.60 with their knowledge about current television programs. We could conclude that, in general,

- A. people who study more tend also to know more about television.
- B. people who study more tend to know less about television.
- C. study habits have nothing to do with knowledge of television.
- D. we calculated the correlation coefficient incorrectly.

112. If the correlation between variable A and variable B is $-.5$, then

- A. the relationship between A and B is random.
- B. increases in A are associated with decreases in B.
- C. we can use measurements of A to predict measurements of B perfectly.
- D. measured values of A are lower than measured values of B.

113. Which of the following correlation coefficients indicates that you could use measurements of one variable to predict measurements of a second variable with perfect accuracy?

- A. $.9$
- B. 0
- C. -1
- D. $.5$

114. According to one report, people with higher levels of stress have a greater probability of suffering a heart attack. Therefore the correlation between stress and probability of a heart attack is

- A. uncertain.
- B. negative.
- C. positive.
- D. zero.

115. If the correlation between variable A and variable B is negative, then

- A. the strength of the relationship is growing weaker over time.
- B. A causes B.
- C. B causes A.
- D. increases in A are associated with decreases in B.

116. According to one study, the more hours students spend watching television, the lower their grades in school. This relationship is an example of

- A. an illusory correlation.
- B. a positive correlation.
- C. a zero correlation.
- D. a negative correlation.

117. Which of the following correlation coefficients indicates that two variable have no measurable relationship to each other?

- A. 0
- B. $.5$
- C. 1
- D. -1

118. If the correlation between variables A and B is $+0.7$, then

- A. we can use measurements of A to make moderately accurate predictions of the value of B.
- B. the mean value of B is greater than the mean value of A.
- C. the mean value of A is greater than the mean value of B.
- D. as variable A increases, variable B tends to decrease.

119. If the correlation between variable A and variable B is -0.75 , then

- A. we can use measurements of variable A to make moderately accurate predictions of variable B.
- B. there is no consistent relationship between variables A and B.
- C. there is a relationship between variables A and B, but it has been growing weaker over time.
- D. the mean value of B is less than the mean value of A.

120. If the correlation between variable A and variable B is 0, then

- A. we can use measurements of A to predict measurements of B with high accuracy.
- B. increases in A are associated with decreases in B.
- C. the relationship between A and B is random.
- D. the mean value of A is equal to the mean value of B.

121. An investigator finds no consistent relationship between how much sleep students get at night and their grade point average in school. According to that study, the correlation between sleep and grades is

- A. uncertain.
- B. zero.
- C. positive.
- D. negative.

122. If an increase in one variable is not associated with any consistent increase or decrease in a second variable, then the correlation between the two variables is

- A. positive.
- B. negative.
- C. zero.
- D. uncertain.

123. What can we conclude if the correlation between variable A and variable B is zero?

- A. A and B have the same mean, the same median, and the same distribution.
- B. As A goes up, B does not consistently go either up or down.
- C. If we know the value of A, we can predict the value of B with zero error.
- D. As A goes up, B goes down.

124. If the correlation between variables A and B is zero, then

- A. the relationship between the two variables is random.
- B. increases in A are associated with decreases in B.
- C. predictions of B, based on measurements of A, will be correct less often than chance.
- D. B causes A.

125. An investigator finds that it is possible to use measurements of people's speed of response as a moderately accurate predictor of their grades in school. From this information we can conclude that the correlation between speed of response and grades is

- A. either positive or negative but not zero.
- B. zero.
- C. negative.
- D. positive.

126. Which of the following correlation coefficients indicates the weakest relationship between two variables? That is, which one permits the least accurate predictions of one variable from the other?

- A. $-.5$
- B. $+.1$
- C. $+.5$
- D. 0

127. Which of the following correlation coefficients indicates the strongest relationship between two variables? That is, which one would enable us to make the most accurate predictions of one variable from the other?

- A. 0
- B. $+.5$
- C. $-.9$
- D. $-.5$

128. An illusory correlation is

- A. a correlation that is positive at some times and negative at other times.
- B. an imagined or greatly exaggerated correlation.
- C. a correlation that has been increasing in strength over time.
- D. a correlation between a psychological variable and a physical variable.

129. John believes that Saturdays are more likely to be cloudy or rainy than weekdays are. However, he is relying entirely on casual impressions; he has never collected data systematically to test his hypothesis. His belief is most likely an example of

- A. an illusory correlation.
- B. an independent variable.
- C. a case history.
- D. a placebo.

130. Some people believe that genius is associated with insanity, although they have no scientific evidence to support their claim. This is an example of

- A. a demand characteristic.
- B. an illusory correlation.
- C. a normal distribution
- D. a negative correlation.

131. One reason why illusory correlations arise and persist is that

- A. psychologists test only hypotheses that are falsifiable.
- B. human behavior often fails to follow the normal distribution.
- C. psychologists collect more observations on children than on old people.
- D. people tend to remember examples that fit their expectations.

132. The main reason for the persistence of many illusory correlations is the fact that

- A. many experimenters are not careful when calculating correlation coefficients or use the wrong statistical techniques.
- B. many variables that were strongly correlated in the past have ceased to be correlated.
- C. people intentionally deceive others for their own gain.
- D. people's selectively remember facts that support their expectations.

133. Researchers have found that people who own many books about chess tend to be better chess players than those who own few or none. This conclusion was almost certainly based on what kind of study?

- A. single-blind experiment
- B. double-blind experiment
- C. case study
- D. correlation

134. Parents who frequently beat their children tend to have aggressive children. What, if anything, can we conclude?

- A. Physical punishment causes aggression.
- B. Aggressive children cause parents to use physical punishment.
- C. The children probably inherited a gene for aggressiveness.
- D. We can draw none of these conclusions.

135. If the correlation between variable A and variable B is +1, then

- A. either A causes B or B causes A.
- B. we can say nothing about causation from this information.
- C. B causes A.
- D. A causes B.

136. The correlation between A and B is $+.60$; the correlation between C and D is $-.75$. What do we know about causation based on the above?

- A. We know A causes B, but we don't know if C causes D.
- B. We know C causes D, but we don't know if A causes B.
- C. We know A causes B AND that D causes C.
- D. We don't know anything about causation from the information above.

137. Researchers have found that people who live in crowded cities are more likely than others to develop schizophrenia (a psychological disorder). From these results, which of the following conclusions (if any) can we draw?

- A. Something about life in crowded cities leads to schizophrenia.
- B. People with schizophrenia are more likely than others to move to crowded cities.
- C. The kinds of people who are predisposed to schizophrenia are also likely to choose to live in a crowded city.
- D. The results do not justify any of these conclusions.

138. Researchers have found that people who report having trouble sleeping are more likely than others to become depressed. Which of the following conclusions, if any, follows from these data?

- A. Sleeplessness increases the probability of becoming depressed.
- B. People who are starting to become depressed have trouble sleeping.
- C. Certain genes increase depression and also, independently, lead to sleep troubles.
- D. None of these conclusions follow from the data.

139. Researchers report that people who smile frequently are more likely than other people to have many friends. Which of the following conclusions can we draw, if any?

- A. Smiling increases the probability of making friends.
- B. We can draw none of these conclusions.
- C. Some other factor, such as health, increases both the probability of smiling and the probability of making friends.
- D. Having friends makes one happy and increases the probability of smiling.

140. Researchers find that happy people tend to be healthier than unhappy people. From this kind of information, which of the following (if any) can we conclude?

- A. Happiness improves people's health.
- B. Health improves people's happiness.
- C. The same genes and experiences that aid health also promote happiness.
- D. We can draw no conclusions about cause and effect.

141. Studies find that people who exercise regularly tend to have a more cheerful outlook on life. What conclusion, if any, can we draw from these data?

- A. Exercise improves mood.
- B. Cheerfulness increases one's urge to be active.
- C. People who are young and healthy tend to be cheerful and active.
- D. We can draw none of these conclusions.

142. The main difference between a correlational study and an experiment is that in an experiment,

- A. the participants are aware of the hypothesis being tested.
- B. all individuals receive the same treatment.
- C. the participants are observed without interference in their normal life.
- D. the investigator manipulates the independent variable.

143. The advantage of the experimental method as opposed to correlational studies is that an experiment

- A. is better suited to studies of unique or unusual individuals.
- B. can consist of as little as one observation of a single individual.
- C. can lead to the discovery of cause-and-effect relationships.
- D. is easier to do and poses fewer ethical problems.

144. After using which of the following methods would an experimenter be most confident in making statements about cause and effect?

- A. correlation
- B. experiment
- C. case study
- D. naturalistic observation

145. The main advantage of an experimental study, in contrast to a correlational study, is that an experiment is

- A. less likely to be influenced by independent variables.
- B. quicker and easier to conduct.
- C. more likely to demonstrate cause-and-effect.
- D. less likely to raise ethical questions.

146. The main difference between a correlational study and an experiment is that in a correlational study

- A. individuals are assigned to groups randomly.
- B. the experimenter begins with a hypothesis.
- C. there is an independent variable but no dependent variable.
- D. the investigator does not control either variable.

147. Juanita has a headache one evening so she takes the experimental drug Zenax to eliminate her headache. She goes to sleep and finds her headache gone the next day. Do these results show that Zenax was effective?

- A. Yes, because her headache is gone.
- B. No, because something else could have caused her headache to disappear.
- C. Yes, because the administration of Zenax occurred before her headache disappeared.
- D. No, because there is a negative correlation between Zenax use and mood.

148. A psychologist evaluates 60 people at the start of therapy and again at the end of 8 weeks of therapy. She reports that 55 of the 60 are "improved," and concludes that the therapy was effective. One flaw in this study is that it lacks

- A. descriptive statistics.
- B. a control group.
- C. a dependent variable.
- D. a hypothesis.

149. One group of students who spent the weekend studying for the test got better scores than a group who spent the weekend camping. That statement could be the result of an experiment or a correlational study. To decide whether it was an experiment, we would have to know the answer to the following question:

- A. How many students spent the weekend studying and how many went camping?
- B. Was the difference between the two groups statistically significant?
- C. Were students assigned to the study group and the camping group, or did they decide for themselves what to do with their weekend?
- D. Did any of the students who went camping take their books along with them?

150. An independent variable is one that

- A. is irrelevant to what happens in the experiment.
- B. the experimenter cannot control or measure.
- C. the experimenter changes or controls..
- D. the experimenter measures after the treatment.

151. A dependent variable is a variable that

- A. the participants themselves measure.
- B. the item that an experimenter measures to determine how it was affected.
- C. the experimenter manipulates.
- D. is irrelevant to what happens in the experiment.

152. Professor Taylor provides a review session for half the students taking Psychology 101. Later he compares their scores against those of the other students. What is the independent variable in this experiment?

- A. the test scores of the students
- B. the total number of students
- C. the review session
- D. the difficulty of the test

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- A. the total number of students
- B. the test scores of the students
- C. the review session
- D. the difficulty of the test

154. Dr. Rodentz deprives several rats of food for different lengths of time and then places them at the start of a maze. He records how long each rat takes to reach the food at the end of the maze. The time needed to reach the food is the

- A. dependent variable.
- B. normal distribution.
- C. inferential statistic.
- D. independent variable.

155. An experimenter exposed students to one hour of soft, intermediate, or loud noise and then tested their ability to solve puzzles. What was the independent variable in this experiment?

- A. the loudness of the noise
- B. the students' scores on the puzzles
- C. the motivation of the students
- D. the difficulty of the puzzles

156. An experimenter had participants exercise much, a little, or not at all and then measured how much they ate at dinner two hours later. What was the dependent variable in this experiment?

- A. the delay between exercise and dinner
- B. the amount of exercise
- C. the type of food offered
- D. the amount of food eaten

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- A. the type of food offered
- B. the delay between exercise and dinner
- C. the amount of exercise
- D. the amount of food eaten

158. An experimenter kept students in a hot, neutral, or cold room and then tested their ability to memorize poetry. What was the independent variable in this experiment?

- A. the motivation of the students
- B. the temperature of the room
- C. the difficulty of the poetry
- D. the students' success in memorizing the poetry

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- B. the difficulty of the poetry
- C. the temperature of the room
- D. the students' success in memorizing the poetry

160. An instructor gives weekly tests in one class and just one midterm exam to a second class and then compares performances of students in the two classes when they all take the same final exam. What is the dependent variable in this experiment?

- A. the number of students in each class
- B. the difficulty of the final exam
- C. the number of tests given before the final exam
- D. the students' scores on the final exam

161. An instructor gives weekly tests to one class and just one midterm exam to another class. Both classes get the same final exam. The instructor compares performances on the final exam to see whether the weekly tests affected students' performance. What is the independent variable in this experiment?

- A. the number of tests before the final
- B. the students' performance on the final exam
- C. the difficulty of each test
- D. the number of students in each class

162. The control group in an experiment is a group that

- A. is given an opportunity to decide which experimental group to join.
- B. has some control over the independent variable.
- C. is controlled by the dependent variable.
- D. is treated the same as the experimental group except for the treatment the experiment is designed to test.

163. The experimental group in one study receives a free copy of the study guide so that the experimenter can determine the effect of the study guide on test performance. What will the control group in this experiment do?

- A. help the experimenter write the tests
- B. take all the same tests without using the study guide
- C. use the study guide without taking any tests
- D. help the experimenter decide which students will get the study guide

164. An experimenter tests the reading skills of some 10-year-old children, puts them on a low-fat diet for 6 months, retests their reading skills, and finds that most show a significant improvement in their reading. The experimenter concludes that a low-fat diet improves intellectual development. One major defect in this study is the lack of any

- A. dependent variables.
- B. demand characteristics.
- C. control group.
- D. independent variables.

165. In one study, the experimental group is subjected to loud, unpredictable noises to see whether or not those noises will affect performance on a memory task. What will the control group do?

- A. nothing at all
- B. perform the memory task without noises
- C. listen to the noises but perform no task
- D. control the noises that the experimental group has to listen to

166. Random assignment is a procedure that psychological researchers apply to their

- A. demand characteristics.
- B. dependent variables.
- C. means and medians.
- D. participants.

167. How does an experimenter try to equate the experimental group and the control group at the start of the experiment?

- A. elimination of independent variables
- B. random assignment
- C. demand characteristics
- D. statistical tests

168. Random assignment is

- A. a means of deciding which participants will be in the experimental group.
- B. a means of eliminating the effects of independent variables.
- C. the procedure administered to the control group while the experimental group is receiving the treatment.
- D. a means of keeping the dependent variable constant for all groups.

169. If each subject in an experiment has an equal chance of being in the experimental group, then the experiment has

- A. demand characteristics.
- B. random assignment.
- C. a correlation.
- D. statistical significance.

170. To examine the value of looking at old tests, Professor King hands out copies of old tests to the first 20 students who come to class one day. Later she finds that these students got better grades than the other students in the class. What is wrong with this experiment?

- A. It was triple blind.
- B. There is a lack of random assignment to groups.
- C. There is a lack of demand characteristics.
- D. The Clever Hans effect occurs.

171. To test the value of the study guide, Professor Lewis gives a free copy to the students sitting in the first two rows of class. Later she finds that these students got better grades than the students in the back of the room (who didn't get study guides). What is wrong with this experiment?

- A. lack of an independent variable
- B. confusion of experimentation with correlation
- C. lack of random assignment to groups
- D. lack of a dependent variable

172. The advantage of randomly assigning participants to the experimental group and the control group is that random assignment

- A. guarantees that participants will know what is expected of them in the experiment.
- B. avoids the need to perform statistical tests on the results.
- C. eliminates or reduces the influence of independent variables.
- D. reduces the possibility that the groups differ greatly at the start of the experiment.

173. Professor Middlebrain notes that rats in the first 10 cages, which were injected with salt water, are calm. Rats in the last 10 cages, which were injected with distilled water, are aggressive. He concludes that salt decreases aggressiveness. What is wrong with this study?

- A. lack of random assignment
- B. lack of an independent variable
- C. lack of a dependent variable
- D. presence of demand characteristics

174. To test the effect of an informal atmosphere on class performance, Professor Hall dresses in shorts and bare feet for his morning class and in conventional clothing for his afternoon class. He then counts the number of "intelligent questions" in each class and reports more in the class for which he wore shorts. What are the two things wrong with this experiment?

- A. lack of random assignment and lack of blind observations
- B. differential survival and lack of an independent variable
- C. lack of blind observations and lack of a dependent variable
- D. lack of random assignment and lack of an independent variable

175. To test the effects of eating on learning, Professor Lee permits her morning class to bring snacks to class but forbids her afternoon class from bringing snacks. To measure performance, she counts the number of "intelligent questions" asked by students in each class, and reports getting more such questions in the morning class. What are two serious flaws in this experiment?

- A. too many dependent variables and lack of an independent variable
- B. lack of blind observations and lack of a dependent variable
- C. lack of random assignment and lack of blind observations
- D. demand characteristics and presence of too many independent variables

176. Which cause-and-effect conclusion, if any, can we draw from the correlational studies of watching violent television?

- A. Watching violence on television causes aggressive behavior.
- B. Watching violence on television reduces aggressive behavior.
- C. Watching violence on television has no effect on aggressive behaviors.
- D. We can draw none of these conclusions.

177. Research participants viewed either violent or nonviolent films for four consecutive nights. On the fifth night, half the participants were told by the experimenter that their performance was terrible and the other half were told they had done well on some task. What group showed the most hostility on the fifth night?

- A. the group that watched violence and were told their performance was good
- B. the group that watched violence and were told their performance was terrible
- C. all participants who watched violence, no matter what they were told
- D. all participants who were told their performance was terrible, no matter what they had watched

178. Researchers collected information from 500 children on the amount of violent TV they watched. They also collected ratings of how aggressive these children were. The researchers measured TV watching and aggressiveness when these same subjects more than fifteen years later. The highest correlation was observed between

- A. childhood violent TV watching and childhood aggression
- B. adult violent TV watching and adult aggression
- C. childhood violent TV watching and adult aggression
- D. adult violent TV watching and childhood aggression

179. Which of the following is the BEST conclusion from the research discussed on the effects of watching television violence and aggressive behavior?

- A. Experiments and correlational studies both indicate that viewing violence is associated with greater aggressiveness.
- B. Experiments and correlational studies time both indicate that viewing violence is associated with a reduction in aggressiveness.
- C. Experiments have demonstrated short-term increases in aggressiveness, but correlational studies have found no relation between viewing violence and aggression.
- D. Correlational studies have demonstrated positive correlations between violence and aggression, but experiments have not demonstrated any link between viewing violence and aggression.

180. Psychology experiments have typically shown that

- A. those who watch violent movies will not act aggressively because they have had the chance to "let off steam".
- B. watching violent movies and TV programs effectively teaches children the dangers of violent behavior.
- C. most children who watch violence on TV will commit major crimes later in life.
- D. watching violent films increases aggressive behavior, at least slightly and temporarily.

181. The main ethical principle guiding psychology experiments with human participants is

- A. start by telling the participants the theory behind the research.
- B. include only procedures that participants would agree to experience.
- C. never repeat an experiment that has already been done by someone else.
- D. participants should always be compensated, based on the amount of time and effort involved in the experiment.

182. Before conducting any experiment on humans, a psychological investigator must obtain

- A. demand characteristics.
- B. permission from the American Psychological Association.
- C. a normal distribution.
- D. informed consent.

183. What does an Institutional Review Board do?

- A. It provides lists of people who are willing to serve as volunteers in psychological experiments.
- B. It maintains statistics on the number and type of experiments conducted at an institution.
- C. It helps experimenters evaluate the statistical significance of their data.
- D. It judges whether proposed experiments are ethical.

184. Ethical standards for the treatment of participants

- A. have been established by the APA.
- B. are left up to the individual experimenter.
- C. exist for human participants, but not for animal participants.
- D. are followed by only a small minority of psychological researchers.

185. Animal research is responsible for much of what we know about all the following areas EXCEPT

- A. the functioning of the brain.
- B. how drugs affect behavior.
- C. how sensory systems operate.
- D. the stages of cognitive development.

186. Which of the following is ethical behavior?

- A. A clinical psychologist writes a prescription for tranquilizers for a client with anxiety.
- B. A psychologist conducts an experiment on humans without first obtaining their informed consent.
- C. An investigator submits a report to a laboratory animal care committee before conducting an experiment on animals.
- D. An investigator refuses to allow human volunteers to withdraw from an experiment after they find out what is required.

187. Which of the following is the BEST conclusion regarding the ethical treatment of animals in research?

- A. Psychologists now take the position of progress: animal research is necessary and ethical issues have now been resolved.
- B. Psychologists now take the position of protection: animal research is unethical and the animals must be protected.
- C. Psychologists' attitudes vary on this issue, and there is no agreement as to what ethical treatment of animals should involve.
- D. Psychologists' attitudes vary on this issue, but there are agreed upon guidelines for the proper care and use of animals in research.

188. Mathematical summaries of data are known as

- A. descriptive statistics.
- B. inferential statistics.
- C. conclusions.
- D. predictions.

189. The Greenville College soccer team scored 1, 1, 2, 3, and 8 goals (a total of 15 goals) in their first five games. What was their mean number of goals?

- A. 1
- B. 2
- C. 3
- D. 8

190. Adding all the scores together in a set of scores and dividing by the number of scores would give you the

- A. standard deviation.
- B. median.
- C. mode.
- D. mean.

191. The Lizard Lick State Fighting Nematodes scored 50, 50, 55, 60, and 85 points in their first five basketball games. What was their mean score?

- A. 50
- B. 55
- C. 60
- D. 85

192. In a normal distribution, most scores cluster around the

- A. range.
- B. mean.
- C. standard deviation.
- D. high and low extremes.

193. Which of the following is true of all normal distributions?

- A. They are symmetrical.
- B. They have a standard deviation of zero.
- C. They have a mean equal to the standard deviation.
- D. They have a mean of zero.

194. You apply for a job selling diet marshmallows because an ad says that the average company employee earns \$50,000 a year. Later you discover that the company has a president, a sales manager, and 30 salespeople; you also learn that each salesperson earns \$14,000 a year. How can the company's claim be correct?

- A. The median is \$50,000 because of high salaries for the president and sales manager.
- B. The mean is \$50,000 because of high salaries for the president and sales manager.
- C. The median is higher than the mean.
- D. The mode is \$50,000 because of the high salaries for the president and sales manager.

195. The Lizard Lick State Fighting Nematodes scored 50, 50, 55, 60, and 85 points in their first five basketball games. What was their median score?

- A. 50
- B. 55
- C. 60
- D. 85

196. The _____ is the middle score in an ordered set of values.

- A. standard deviation
- B. median
- C. mode
- D. mean

197. Under which of the following circumstances is the median a much better indicator of most people's scores than the mean is?

- A. Most scores were low but a few scores were very high.
- B. The scores follow the normal distribution.
- C. The mean score is larger than the standard deviation.
- D. The mean is equal to the mode.

198. In what situation is the median a preferred measure of central tendency over the mean?

- A. when all of the scores cluster around the mean
- B. when the scores are arranged in a normal distribution
- C. when there are some extreme scores
- D. when there are no very low or very high scores

199. A group of seven students receive the following scores on a test: 87, 88, 89, 86, 85, 90, and 35. What is the median score?

- A. 35
- B. 87
- C. 86
- D. 90

200. The _____ is the most common score in a set of scores.

- A. standard deviation
- B. median
- C. mode
- D. mean

201. Often we want to describe what the "average" person did. For this purpose the mean and median give similar results UNLESS

- A. the sample has a small standard deviation.
- B. the population being studied is extremely large.
- C. the sample has a normal distribution centered around a mean of zero.
- D. a few individuals in the sample are extreme, unlike the others.

202. A pre-school teacher records the height of all of her students and their parents. The distribution of these measures would be called a

- A. bimodal distribution.
- B. symmetrical distribution.
- C. logarithmic distribution.
- D. standard distribution.

203. A survey asked how many sex partners you hope to have in the future. The majority of men answered 1, 2, or 3, yet the mean was 64. How can that be?

- A. The mean could be 64, but only if the median were even higher than 64.
- B. The mean is influenced by extreme scores (i.e., very high numbers).
- C. Inferential statistics are misleading.
- D. There were no independent variables in the study.

204. Which of the following is used in calculating a standard deviation?

- A. mean
- B. range
- C. mode
- D. median

205. The standard deviation is a statistic that measures

- A. the average score.
- B. the difference between two groups.
- C. mistakes made by the experimenter.
- D. the amount of variation.

206. If most scores are very close to the mean, then the standard deviation is

- A. impossible to determine.
- B. very small.
- C. very large.
- D. about the same size as the mean.

207. If the standard deviation is small, then

- A. most scores are close to the mean.
- B. the results are probably not statistically significant.
- C. the mean is high.
- D. the median is larger than the mean.

208. The mean, median, range, and standard deviation are all examples of

- A. inferential statistics.
- B. descriptive statistics.
- C. correlations.
- D. tests of significance.

209. Mathematical summaries of results are called _____ statistics, while statistics that inform about the entire population, based on information collected from small samples, are called _____ statistics.

- A. inferential...descriptive
- B. inferential...correlational
- C. correlational...descriptive
- D. descriptive...inferential

210. What does it mean to say that " $p < .05$ "?

- A. The correlation between two variables is very low, almost random.
- B. The probability that the experiment was done correctly is less than 5%.
- C. Fewer than 5% of all scientists agree with the theory.
- D. The probability of getting such a pattern of results by accident is less than 5%.

211. Which of the following is an example of an inferential statistic?

- A. the p value from a statistical test
- B. the mean
- C. the median
- D. the standard deviation

212. A particular research study compares an experimental group with a control group. An analysis of the results reveals that " $p < .05$." Therefore,

- A. the difference between the experimental group and the control group is less than 5%.
- B. there is less than a 5% chance that the results are statistically significant.
- C. the chance of getting the observed difference by accident is less than 5%.
- D. fewer than 5% of psychologists would agree with the conclusions.

213. An investigator analyzes the results of an experiment and determines that $p < .05$. Why does the investigator want to know the value of p ?

- A. to determine whether the results are statistically significant
- B. to determine whether participants were randomly assigned to the two groups
- C. to determine whether the results are replicable
- D. to determine whether to use the mean or the median

214. The statement " $p < .05$ " refers to

- A. the amount of change in some behavior over time.
- B. the amount of agreement among psychologists.
- C. how accurately we can predict one variable from measurements of another one.
- D. the probability of getting a result by chance.

215. If $p < .05$, then the difference in results between the experimental group and the control group is probably

- A. difficult to replicate.
- B. due to a correlation, not a causation.
- C. statistically significant.
- D. too small to measure.

216. A psychologist conducts an experiment and reports that $p < .05$. What is the relationship between the value of p and the statistical significance of the results?

- A. The results are significant if the value of p is very low.
- B. The value of p has no relationship to the significance of the results.
- C. The closer p is to .05, the more significant the results.
- D. The higher the value of p , the more significant the results.

217. In the statistical expression " $p < .05$," the " p " represents

- A. the amount of difference between the independent variable and the dependent variable.
- B. the correlation between two measured variables.
- C. the percentage of psychologists who agree with the conclusion.
- D. the probability of accidentally obtaining results similar to the obtained results.

218. Which of the following would (as a rule) indicate that a result is statistically significant?

- A. $p < .05$
- B. $\text{mean} = \text{standard deviation}$
- C. $\text{correlation} = .1$
- D. $\text{mean} > \text{median}$

219. An investigator decides to consider the results of an experiment to be statistically significant if $p < .05$. An analysis of the result indicates that $p = .09$. What conclusion, if any, can the investigator draw?
- A. The results do not justify any conclusion.
 - B. The results are statistically significant.
 - C. The results are significant for the control group but not for the experimental group.
 - D. Although the results are not statistically significant, they are replicable.
220. An investigator wishes to determine whether the difference between two groups of participants is statistically significant. To answer that question, the investigator must first determine the difference between the means of the two groups, the number of participants in each group, and
- A. the age of participants in each group.
 - B. the duration of the experiment in hours.
 - C. the amount of variation in each group.
 - D. the strength of motivation by members of each group.
221. An investigator conducts a statistical test to determine whether the difference between the experimental group and the control group was statistically significant. Other things being equal, the difference is most likely to be significant if
- A. the standard deviation was high for each group.
 - B. the mean of one group was much larger than the mean of the other group.
 - C. both groups had a small number of participants.
 - D. the mean for each group was about the same size as the standard deviation.
222. You wish to determine whether the difference between the experimental group and the control group was statistically significant. To make that determination, you will need to know three of the following types of information. Which one will you NOT need to know?
- A. the number of participants in each group
 - B. the ages of the participants in each group
 - C. the amount of variation among participants within each group
 - D. the difference between the means of the two groups
223. For a variety of reasons, many scientists recommend that instead of (or in addition to) stating the p value, researchers should show the means and:
- A. the mode for each group.
 - B. 95% confidence intervals for each group.
 - C. 85% confidence intervals for each group.
 - D. the median for each group.

Chapter 2--Scientific Methods in Psychology **Key**

1. The goal of scientific research is to establish comprehensive explanations of observable events. These explanations are called

- A.** theories.
- B. facts.
- C. predictions.
- D. hypotheses.

2. A solid theory would be one that

- A.** predicts many observations.
- B. makes many assumptions.
- C. is not falsifiable.
- D. avoids independent variables.

3. Which of the following is a desirable feature of a scientific theory?

- A. The theory simply restates the facts it is supposed to explain.
- B. The theory is based on illusory correlations.
- C. The theory makes complex assumptions.
- D.** The theory is falsifiable.

4. To say that a theory is falsifiable means that

- A. evidence is already available that contradicts the theory.
- B.** one can imagine evidence that would contradict the theory.
- C. various scientists disagree on whether the theory is correct.
- D. the theory depends on assumptions that are not parsimonious.

5. To say that a theory is falsifiable is to say that

- A. it is based on results that are not replicable.
- B. investigators have replaced it with a simpler or more accurate theory.
- C.** we can imagine results that would contradict it.
- D. it is so vague that it fits any and all possible results.

6. A falsifiable theory is one that

- A.** makes clear, easily tested predictions.
- B. disagrees with well-established evidence.
- C. makes unnecessary assumptions.
- D. is too vague to be useful.

7. A falsifiable theory

- A. disagrees with known, replicable data.
- B.** makes clear, unambiguous predictions.
- C. is widely debated and disputed.
- D. has not yet been tested.

8. If a theory is "falsifiable," then it

- A.** makes specific, testable predictions.
- B. contradicts other well-established theories.
- C. contradicts common sense.
- D. requires more new assumptions than necessary.

9. "Falsifiability" is considered a desirable characteristic for a scientific theory because a falsifiable theory

- A. avoids independent variables.
- B.** makes clear, testable predictions.
- C. disagrees with common sense.
- D. relies on anecdotal evidence.

10. Which of the following would NOT be falsifiable?

- A. "Children who spend much time in day care centers before age one year develop about the same personality as those reared at home by their parents."
- B.** "Dreams are motivated by wish fulfillment and are usually disguised to hide their true meaning."
- C. "Behaviors followed by reinforcement increase in frequency."
- D. "People identify the direction of a sound source by comparing the response in the left ear with the response in the right ear."

11. A psychic claims that he can read the minds of people on the planet Zipton, which is millions of light years away. The main scientific objection is that this claim

- A. confuses correlation with causation.
- B. ignores the role of demand characteristics.
- C. is based on a negative correlation.
- D.** is not falsifiable.

12. Which of the following do researchers generally regard as desirable?

- A. illusory correlations
- B. selective attrition
- C. demand characteristics
- D.** falsifiable theories

13. In both science and the legal system, the "burden of proof" is on the side that

- A. agrees with common sense.
- B. disagrees with common sense.
- C.** should find it possible to present convincing evidence, if in fact it is right.
- D. should find it harder to present convincing evidence, if in fact it is right.

14. In both science and a criminal trial, who has the "burden of proof"—that is, the obligation to demonstrate that their claims are correct?

- A.** the side that should be able to produce good evidence, if they are right
- B. the side that has more to lose, if they fail to convince others
- C. the side with more money to spend
- D. the side that is defending the status quo (that is, the current set of beliefs)

15. In both the U.S. legal system and in scientific disputes, the "burden of proof" falls on

- A. someone who has been accused of doing something wrong.
- B. someone who is defending traditional beliefs or values.
- C. someone who is politically unpopular.
- D.** someone who should be in the better position to provide convincing evidence.

16. In both our legal system and in science, which side of a dispute bears the "burden of proof"?

- A. the one defending the current state of affairs
- B.** the one that should be able to present convincing evidence, if its position is correct
- C. the one that has more to lose, if its position is rejected
- D. the one that has the smaller number of supporters

17. The word *science* derives from a Latin word meaning?

- A.** knowledge
- B. test
- C. fact
- D. statistics

18. What is a hypothesis?

- A. a statistical procedure
- B. a testable prediction**
- C. an established fact
- D. a method of investigation

19. A testable prediction of what will happen under a specific set of conditions is known as a/an

- A. replication.
- B. hypothesis.**
- C. demand characteristic.
- D. correlation.

20. Any scientific study goes through four steps. Which of the following is NOT one of those steps?

- A. hypothesis
- B. interpretation
- C. method
- D. proof**

21. A result is replicable if

- A. appropriate research methods are used.
- B. the experimental group behaves the same way as the control group.
- C. it is statistically significant.
- D. researchers who repeat the procedure get similar results.**

22. A result is replicable if

- A. the results are statistically significant.
- B. other competent investigators can repeat the results.**
- C. the interpretation is consistent with other scientific theories.
- D. it agrees with common sense.

23. Why do investigators sometimes repeat an experiment that other researchers have already completed?

- A. to try to eliminate the independent variables
- B. to check whether the results are replicable**
- C. to check whether the explanation is parsimonious
- D. to increase the demand characteristics of the experiment

24. An investigator repeats the procedures of another researcher's experiment but obtains different results. Scientists would say that the results of the first experiment were not

- A. correlational.
- B. parsimonious.
- C. statistically significant.
- D.** replicable.

25. Several years ago, researchers examined the effect of listening to music from Mozart on psychological test performance. It appeared that those people who had listened to Mozart performed better on tasks of spatial reasoning than did those people who listened to a relaxation tape or had experienced silence. Later research revealed some problems with these findings. Specifically,

- A.** the results were not consistently replicable.
- B. no control group had been used.
- C. the original study was a double-blind study.
- D. the independent variable was not operationally defined.

26. Which of the following is a highly desirable feature of a scientific study?

- A. selective attrition
- B. demand characteristics
- C.** replicability
- D. illusory correlation

27. Suppose some unscrupulous researcher made up results and got them published. In the long run, people will not take them seriously because presumably the false results will not be

- A. parsimonious.
- B.** replicable.
- C. falsifiable
- D. psychoanalytic.

28. Psychologists have the greatest confidence in their results if the results have been

- A. replicated using the same method in multiple studies.
- B.** replicated using multiple methods in multiple studies.
- C. replicated using the same method in a single study.
- D. falsified using the same method in multiple studies.

29. If competent researchers consistently get similar results whenever they follow a particular procedure, then the results are

- A.** replicable.
- B. correlational.
- C. representative.
- D. operational.

30. The preference of scientists for the theory that makes the fewest unfamiliar or untested assumptions is known as the principle of

- A.** parsimony.
- B. statistical significance.
- C. normal distribution.
- D. informed consent.

31. To determine whether a theory is parsimonious, psychologists pay attention to whether

- A.** its assumptions are simple and consistent with those of other theories.
- B. the results on which it is based are statistically significant.
- C. it has the potential to lead to practical applications.
- D. investigators have replicated the results on which it is based.

32. According to the principle of parsimony, we should prefer the theory that

- A. is most popular among the population as a whole.
- B.** makes fewer or simpler assumptions.
- C. fits any data that we could possibly imagine.
- D. relies on anecdotal evidence.

33. Judy cannot remember anything that happened during her 8:00 am psychology class. Her roommate Juanita suggests that perhaps Judy slept throughout class. Judy, however, suggests that her brain was temporarily kidnapped by aliens from outer space. Most psychologists would prefer Juanita's explanation because it is more

- A. statistical.
- B. correlational.
- C. psychoanalytic.
- D.** parsimonious.

34. Scientists usually prefer the more "parsimonious" explanation because it is:

- A. based on common sense.
- B. more interesting.
- C. based on higher levels of mathematics.
- D.** simpler.

35. Clever Hans was

- A. a dog that seemed to speak in German.
- B. Clever Gretel's brother.
- C. a horse that seemed to do arithmetic.
- D. a psychic who was popular in the 1930s.

36. We would find it difficult to accept the idea of a horse performing algebraic equations because we regard it as

- A. unparsimonious.
- B. falsifiable.
- C. replicable.
- D. insignificant.

37. What evidence did Oskar Pfungst present to indicate that Clever Hans was not doing mathematical calculations?

- A. Hans was correct no more often than we would expect for chance guessing.
- B. Hans could answer a question correctly only if the questioner knew the correct answer.
- C. Hans could answer correctly only if the questioner made subtle sounds while he was answering.
- D. Hans could answer correctly only if his owner, Mr. von Osten, was present.

38. The horse named Clever Hans that seemed to answer mathematical questions, got the answers from?

- A. unintentional facial expressions.
- B. signals from his owner, Mr. von Osten.
- C. subtle sounds that spectators made.
- D. extrasensory perception.

39. Clever Hans could answer a question correctly only if he

- A. heard the questioner during the answer.
- B. gave his trainer flashing signals.
- C. saw the questioner during the answer.
- D. had practiced that particular question previously.

40. Some investigators claim they have taught monkeys to understand spoken English, but another scientist argues that the results might be due to a Clever Hans effect. What does this mean?

- A. The procedure works only if training begins during infancy.
- B. The procedure works only with a few carefully selected and especially bright individuals.
- C. The monkeys might be responding to subtle visual cues accidentally given by the investigators.
- D. The results are not replicable.

41. How did Clever Hans solve arithmetic problems?

- A. with ESP
- B. by taking advantage of coincidence
- C.** by watching the examiner for subtle cues
- D. by using his native abilities to do arithmetic

42. In one word, why did most scientists resist the belief that Clever Hans could do complex mathematics, even before they had a good explanation of what he was actually doing?

- A.** parsimony
- B. randomness
- C. statistics
- D. correlation

43. An anecdote is a

- A. medicine that reverses the effect of a poison.
- B. professional psychic.
- C. measurement of the variation in results within a group.
- D.** report of an isolated event or occurrence.

44. Jane describes a dream she had that came true the next day. This is an example of

- A.** an anecdote.
- B. an experimental result.
- C. selective truth.
- D. a correlational result.

45. One problem with using anecdotes as evidence for ESP (or for anything else) is that anecdotes are, by their very nature,

- A. highly technical.
- B.** not replicable.
- C. falsifiable.
- D. experimental.

46. "The Amazing Kreskin" is a professional psychic who demonstrates his powers by finding his paycheck hidden somewhere in the audience. If he doesn't find it, he doesn't get paid, but he is almost always successful. The most parsimonious explanation for this trick is that

- A. he genuinely possesses psychic abilities.
- B.** he reads subtle cues, much like Clever Hans.
- C. it is a coincidence that he keeps finding his check.
- D. audience members send delta waves that lead him to his check.

47. When "The Amazing Kreskin," the professional psychic, finds his check hidden somewhere in the audience, he uses the same method used by

- A. Wilhelm Wundt.
- B. Clever Hans.**
- C. Oskar Pfungst.
- D. Mary Calkins.

48. The ganzfeld procedure, used to investigate claims of extrasensory perception, has been

- A. used to create homeopathic medical techniques.
- B. shown to be a nonreplicable finding.**
- C. demonstrated to be the only true, reliable ESP phenomenon.
- D. responsible for remarkable cures for phobic individuals.

49. A proponent of ESP claims that ESP shows up only when the vibrations are right and that there is no way to know whether the vibrations are right except to see whether ESP shows up. What is wrong with this theory from a scientific standpoint?

- A. It relies too heavily on operational definitions.
- B. It relies too heavily on negative correlations.
- C. It is not falsifiable.**
- D. It has too many dependent variables.

50. One of the main objections raised against ESP is that

- A. the theory of ESP is falsifiable.
- B. the experiments that reportedly produced positive results have not been replicable.**
- C. the claims for it are based entirely on anecdotes.
- D. none of the experiments on ESP has produced statistically significant results.

51. Two serious objections to claims of extrasensory perception are that the explanations are not _____ and that the results are not _____.

- A. parsimonious...replicable**
- B. statistical...correlational
- C. significant...independent
- D. double-blind...random

52. An operational definition is a definition that

- A. explains where the term came from.
- B. describes the underlying cause of something.
- C. gives synonyms or antonyms.
- D. tells us how to produce or measure something.**

53. The benefit of using an operational definition is that it

- A. provides a compromise between competing viewpoints.
- B. explains what the term means to the average person.
- C.** enables investigators to measure a phenomenon.
- D. offers a theoretical explanation of the causes of a phenomenon.

54. Which of the following is an operational definition of "grief"?

- A. synonym for bereavement
- B. a feeling of sadness and loneliness
- C. the consequence of the loss of a loved one
- D.** the number of tears shed per day

55. Which of the following is an operational definition of "anxiety"?

- A. a vague sensation that "something dangerous might happen"
- B. an experience like fear, but more prolonged
- C.** the amount of muscle tension after hearing a loud noise
- D. the opposite of relaxation

56. Which of the following is an operational definition of "confusion"?

- A. an unpleasant feeling of not understanding something
- B. the result of receiving several kinds of contradictory information
- C. the opposite of "decisiveness"
- D.** number of seconds delay before answering a question

57. Which of the following could be an operational definition of "curiosity"?

- A. the mental activity experienced by a child in the presence of brightly colored objects
- B.** the number of unassigned books that someone reads during a month
- C. discomfort provoked by recognizing that one does not understand something
- D. a desire to gain knowledge for its own sake

58. A convenience sample is

- A. representative of the population.
- B. a group in which every individual in the population has an equal chance of being selected.
- C.** a group chosen because of its ease of study.
- D. the most likely to represent the mean of the population.

59. Participants who volunteer for an experiment would most likely be in a _____ sample.

- A. convenience
- B. representative
- C. random
- D. cross-cultural

60. A survey team asks questions of a group of people who have been carefully selected to be sure that they include the same percentages of male and female; old and young; and black, white, Asian, and Hispanic as the population as a whole. This group of people constitute a

- A. representative sample.
- B. random sample.
- C. convenience sample.
- D. longitudinal sample.

61. A survey company that wants to know the views of the average person sends an agent to a shopping mall to interview anyone who is available. The people who are interviewed constitute a

- A. representative sample.
- B. convenience sample.
- C. random sample.
- D. cross-cultural sample.

62. An investigator who wishes to study the attitudes of people in Illinois identifies 1,000 people in Illinois, taking care that the percentages of male and female, black and white, young and old are the same in the sample as in the total population of the state. What kind of sample is the investigator trying to obtain?

- A. an independent sample
- B. a convenience sample
- C. a random sample
- D. a representative sample

63. A sample that is selected to resemble the entire population in its percentage of males and females, blacks and whites, and other factors is said to be a

- A. random sample.
- B. representative sample.
- C. normal distribution.
- D. control group.

64. A researcher conducts a survey of the Canadian population, interviewing 1000 people with the same distribution of men and women, old and young, urban and rural people as the whole Canadian population. Of the following terms, this sample is best described as

- A. convenient.
- B. distorted.
- C. random.
- D.** representative.

65. If every individual in the population has an equal chance of being selected for a sample, the sample is said to be a/an _____ sample.

- A. representative
- B.** random
- C. independent
- D. stratified

66. In order to study the attitudes of the people who live in Tennessee, I obtain a copy of the census of that state and interview every 1,000th person on that list. My procedure will provide an approximately

- A. normal sample.
- B. experimental sample.
- C. proportional sample.
- D.** random sample.

67. If a group has the same percentage of young and old, male and female, and educated and uneducated people as the population as a whole, then this group is a

- A. random sample.
- B. convenience sample.
- C. cross-cultural sample.
- D.** representative sample.

68. Which of the following would best describe the kind of research a psychologist would use to study whether facial expressions have the same meaning for various people throughout the world?

- A. longitudinal study
- B. triple-blind study
- C.** cross-cultural study
- D. population study

69. Dr. Hoonoes got statistically significant results in her last experiment, but she is worried about experimenter bias. By this she means that the results may have been influenced by

- A. the experimenter's dislike for calculating statistics.
- B.** the tendency of an experimenter to distort the experimental results to fit an expected outcome.
- C. the fact that some people quit before the experiment was finished.
- D. a tendency to rank people high on everything or on nothing.

70. The tendency for researchers to believe that they see what they expected to see rather than observing what is really happening, is called

- A. the Clever Hans effect.
- B. the Garcia effect.
- C.** experimenter bias.
- D. extrasensory perception.

71. A blind observer is an observer who

- A. has no previous experience with psychological observations.
- B. does not reveal his or her observations to anyone.
- C.** does not know what each subject is expected to do.
- D. observes everyone except himself or herself.

72. The use of placebos in research is an attempt to minimize the effects of

- A. dependent variables.
- B. case histories.
- C.** experimenter bias.
- D. informed consent.

73. Dr. Wizard randomly assigns people to two groups. Those in the experimental group receive a "subliminal audiotope" that they are told will improve their self-esteem. The other group receives no treatment. Three weeks later Dr. Wizard interviews them and reports that people in the experimental group show higher self-esteem.

What change would IMPROVE the procedure for this research?

- A. Eliminate the independent variables
- B. Use a convenience sample of people
- C. Include more demand characteristics
- D.** Make the procedure double-blind

74. A placebo is a

- A. member of the control group.
- B. pill with effects opposite to those of an experimental drug.
- C. nonblind observer.
- D.** pill with no important biological effects.

75. The best way to describe a double-blind study is to say that

- A. the observer does not know which is the control group and which is the experimental group.
- B.** neither the observer nor the participants know which group is the experimental group and which is the control group.
- C. the participants do not know who is in the experimental group and who is in the control group.
- D. both the observer and the participants know which is the control group and which is the experimental group.

76. In a double-blind study,

- A. participants are assigned randomly to both the control group and the experimental group.
- B. the experimenter manipulates neither the independent variable nor the dependent variable.
- C. both the experimental group and the control group receive placebos.
- D.** neither the observer nor the participants know which group is the experimental group and which is the control group.

77. An investigator wishes to conduct a double-blind study to determine the effect of an experimental drug on memory. The investigator gives the drug to members of the experimental group and a _____ to members of the control group.

- A. demand characteristic
- B. random sample
- C.** placebo
- D. mode

78. The advantage of a double-blind study is that it minimizes the effect of

- A.** the expectations by the experimenter and participants.
- B. the dependent variable.
- C. the independent variable.
- D. distracting stimuli.

79. Often the experimental group receives a pill believed to have strong effects, and the control group receives a pill that looks like the other pill, but has no effects, other than those due to expectations. The one given to the control group is called a

- A. synergy.
- B. demand characteristics.
- C. placebo.
- D. transaction.

80. A researcher hypnotizes twenty volunteers and suggests to them that they will become more creative. Later the researcher compares stories these people write to stories written by 20 other people, and reports a difference. The main problem with this study is that it LACKS:

- A. independent variables and demand characteristics.
- B. dependent variables and informed consent.
- C. random samples and blind observations.
- D. hypothesis and correlation.

81. The cues that tell a participant what is expected or what the experimenter hopes to find are known as

- A. independent variables.
- B. correlations.
- C. dependent variables.
- D. demand characteristics.

82. Which of the following procedures would be most likely to reduce the effects of demand characteristics?

- A. Conceal the purpose of the experiment from the participants.
- B. Evaluate the statistical significance of the results.
- C. Discard data from any subject who did not complete the experiment.
- D. Assign participants randomly to groups.

83. An experimenter announces, "This is an experiment on hypnosis." Although the experimenter does not actually hypnotize anyone, most of the participants behave the way they believe hypnotized people do. These results are an apparent example of the effects of

- A. demand characteristics.
- B. an illusory correlation.
- C. random assignment.
- D. experimenter bias.

84. Which of the following would a psychological experimenter try to avoid or minimize?

- A. parsimony
- B. independent variables
- C. demand characteristics**
- D. random assignment

85. In one experiment, participants who were told they were in a sensory deprivation experiment (but who really were not) showed the same symptoms as participants who really were kept in sensory deprivation. These results suggest that the experiences reported by the participants were influenced by

- A. placebo effects.
- B. demand characteristics.**
- C. illusory correlations.
- D. the Pfungst effect.

86. Which of the following is undesirable for psychological research and theories?

- A. demand characteristics**
- B. falsifiability
- C. parsimony
- D. independent variables

87. In many psychological experiments the experimenter will take elaborate steps to conceal the purpose of the experiment from the participants. The purpose of concealing this information is

- A. to make the study more ethical.
- B. to eliminate demand characteristics.**
- C. to save time.
- D. to eliminate illusory correlations.

88. People give one answer to a survey question when they are told the survey was sponsored by the Republican Party and a different answer when they are told it was sponsored by the Democratic Party. One possible reason for the difference is

- A. the placebo effect.
- B. illusory correlation.
- C. standard deviation.
- D. demand characteristics.**

89. The careful examination of what people or animals do in their normal environments is called

- A. intrusive observation.
- B. naturalistic observation.**
- C. double-blind study.
- D. a case history.

90. Naturalistic observation refers to the observation of

- A. animals low on the phylogenetic scale.
- B. people or animals in their natural setting.**
- C. plant life.
- D. the way organisms naturally respond to experimental manipulations in the lab.

91. Jane Goodall spent years observing chimpanzees eat, interact, and live in the wild. Her technique would best be described as

- A. experimentation.
- B. correlational analysis.
- C. naturalistic observation.**
- D. a case history.

92. Which of the following would be most likely to rely on naturalistic observations?

- A. a learning psychologist studying the effects of reward and punishment
- B. a biopsychologist studying the role of various brain structures in memory
- C. a cognitive psychologist studying memory for concrete versus abstract words
- D. a cross-cultural psychologist studying the way people in different cultures settle disputes**

93. Which of these ways of conducting research generally uses the fewest participants?

- A. case history**
- B. correlational study
- C. experiment
- D. survey

94. A case history

- A. includes an experimental group and a control group.
- B. necessarily includes the use of inferential statistics.
- C. establishes the strength of the relationship between two variables.
- D. is a detailed description of a single individual.**

95. Investigators are most likely to use the case history method when they study

- A. the effects of a drug on behavior.
- B. the frequency of certain attitudes in a large population.
- C. a rare behavior or an unusual person.
- D. two or more independent variables.

96. Lycanthropy is an extremely rare condition in which someone believes he or she is a wolf. An investigator who wished to study this condition would most likely rely on which method?

- A. case history
- B. survey
- C. single-blind experiment
- D. double-blind experiment

97. One of the most common techniques for finding out about people's beliefs or attitudes is to ask a large number of people a series of questions. This technique is called

- A. naturalistic observation.
- B. a case study.
- C. the ganzfeld procedure.
- D. a survey.

98. A survey

- A. usually involves a careful study of a single individual's attitudes.
- B. is one of the best ways to accurately measure mental capacities.
- C. is an efficient method of data collection, because statistical analysis is not required.
- D. is a study based on people's responses to questions about their beliefs, attitudes, or behaviors.

99. If someone plans to administer a survey to determine which event people think is the most important one of the 20th century, the person who administers the survey should definitely

- A. administer the survey to a random sample or representative sample of the population.
- B. invite everyone who wants to answer the questions to be part of the survey.
- C. put the survey on the internet to make it easy for large numbers of people to answer.
- D. give people a few suggestions of possible answers.

100. One of the problems with survey research is

- A. that people are willing to express an opinion even when they have no idea what they are talking about.
- B. that it is very difficult to obtain a sufficient number of participants.
- C. not knowing how to operationally define the independent variables.
- D. the difficulty of finding a convenience sample of participants.

101. The results of a survey are likely to be misleading if
- A. the survey is administrated to a representative sample of people.
 - B. the survey is administered to a random sample of people.
 - C. the survey involved more than three questions.
 - D.** you don't know how the questions were phrased.

102. A researcher announces that according to a recent survey, 78% of all American workers say they have cheated their employer in the past year. Before we can interpret these results, which of the following questions would be most important to ask?
- A. How heavily were the results influenced by illusory correlations?
 - B. What were the independent variables in this study?
 - C.** What were the participants told to count as examples of cheating?
 - D. Were the participants randomly assigned to groups?

103. According to the results of one survey, 95% of high-school students say they have been sexually harassed. Before you can decide how seriously to take these results, one of the most important questions you should ask is,
- A. did the survey deal with equal numbers of sophomores, juniors, and seniors?
 - B. were the results similar the following year?
 - C.** how did the survey define sexual harassment?
 - D. did the survey administrators take precautions against cheating?

104. You give a survey and ask, "Do you support the current laws on abortion?" Ninety-four percent of the respondents answer "no." Based on these results, you
- A. know that those people feel that the laws are too restrictive.
 - B. know that those people feel that the laws are not strict enough.
 - C.** still do not know whether those people feel the laws are too restrictive or not strict enough.
 - D. know that at least 94% of the people you surveyed are familiar with the abortion laws.

105. A study of the relationship between two variables that the investigator does not control is known as a
- A. random assignment.
 - B.** correlational study.
 - C. double-blind experiment.
 - D. case history.

106. A correlation is a

- A. measurement of the changes in a person's behavior after a treatment.
- B.** careful study of a single person over time.
- C. measurement of the difference between experimental and control groups.
- D. measurement of the relationship between two variables.

107. It is found that children who have many friends are generally happier than children who have fewer friends. What kind of research design was probably used in this study?

- A.** correlation
- B. anecdote
- C. case history
- D. experiment

108. It has been reported that people who trust other people are generally happier than people who do not trust others. This conclusion is probably based on the results of a

- A. double-blind experiment.
- B. case history.
- C.** correlational study.
- D. single-blind experiment.

109. A researcher measures people's blood type and tests whether those with different blood types have different personalities. This type of research is called a

- A. single-blind experiment.
- B. double-blind experiment.
- C.** correlation.
- D. case study.

110. A correlation coefficient is a mathematical value that ranges between

- A.** -1 and +1.
- B. 0 and infinity.
- C. 0 and 1.
- D. 0 and 100.

111. Suppose we find that how many hours various people have studied their textbook correlates -.60 with their knowledge about current television programs. We could conclude that, in general,

- A. people who study more tend also to know more about television.
- B.** people who study more tend to know less about television.
- C. study habits have nothing to do with knowledge of television.
- D. we calculated the correlation coefficient incorrectly.

112. If the correlation between variable A and variable B is $-.5$, then

- A. the relationship between A and B is random.
- B.** increases in A are associated with decreases in B.
- C. we can use measurements of A to predict measurements of B perfectly.
- D. measured values of A are lower than measured values of B.

113. Which of the following correlation coefficients indicates that you could use measurements of one variable to predict measurements of a second variable with perfect accuracy?

- A. $.9$
- B. 0
- C.** -1
- D. $.5$

114. According to one report, people with higher levels of stress have a greater probability of suffering a heart attack. Therefore the correlation between stress and probability of a heart attack is

- A. uncertain.
- B. negative.
- C.** positive.
- D. zero.

115. If the correlation between variable A and variable B is negative, then

- A. the strength of the relationship is growing weaker over time.
- B. A causes B.
- C. B causes A.
- D.** increases in A are associated with decreases in B.

116. According to one study, the more hours students spend watching television, the lower their grades in school. This relationship is an example of

- A. an illusory correlation.
- B. a positive correlation.
- C. a zero correlation.
- D.** a negative correlation.

117. Which of the following correlation coefficients indicates that two variable have no measurable relationship to each other?

- A.** 0
- B. $.5$
- C. 1
- D. -1

118. If the correlation between variables A and B is $+0.7$, then

- A. we can use measurements of A to make moderately accurate predictions of the value of B.
- B. the mean value of B is greater than the mean value of A.
- C. the mean value of A is greater than the mean value of B.
- D. as variable A increases, variable B tends to decrease.

119. If the correlation between variable A and variable B is -0.75 , then

- A. we can use measurements of variable A to make moderately accurate predictions of variable B.
- B. there is no consistent relationship between variables A and B.
- C. there is a relationship between variables A and B, but it has been growing weaker over time.
- D. the mean value of B is less than the mean value of A.

120. If the correlation between variable A and variable B is 0, then

- A. we can use measurements of A to predict measurements of B with high accuracy.
- B. increases in A are associated with decreases in B.
- C. the relationship between A and B is random.
- D. the mean value of A is equal to the mean value of B.

121. An investigator finds no consistent relationship between how much sleep students get at night and their grade point average in school. According to that study, the correlation between sleep and grades is

- A. uncertain.
- B. zero.
- C. positive.
- D. negative.

122. If an increase in one variable is not associated with any consistent increase or decrease in a second variable, then the correlation between the two variables is

- A. positive.
- B. negative.
- C. zero.
- D. uncertain.

123. What can we conclude if the correlation between variable A and variable B is zero?

- A. A and B have the same mean, the same median, and the same distribution.
- B. As A goes up, B does not consistently go either up or down.
- C. If we know the value of A, we can predict the value of B with zero error.
- D. As A goes up, B goes down.

124. If the correlation between variables A and B is zero, then

- A. the relationship between the two variables is random.
- B. increases in A are associated with decreases in B.
- C. predictions of B, based on measurements of A, will be correct less often than chance.
- D. B causes A.

125. An investigator finds that it is possible to use measurements of people's speed of response as a moderately accurate predictor of their grades in school. From this information we can conclude that the correlation between speed of response and grades is

- A. either positive or negative but not zero.
- B. zero.
- C. negative.
- D. positive.

126. Which of the following correlation coefficients indicates the weakest relationship between two variables? That is, which one permits the least accurate predictions of one variable from the other?

- A. -.5
- B. +.1
- C. +.5
- D. 0

127. Which of the following correlation coefficients indicates the strongest relationship between two variables? That is, which one would enable us to make the most accurate predictions of one variable from the other?

- A. 0
- B. +.5
- C. -.9
- D. -.5

128. An illusory correlation is

- A. a correlation that is positive at some times and negative at other times.
- B. an imagined or greatly exaggerated correlation.
- C. a correlation that has been increasing in strength over time.
- D. a correlation between a psychological variable and a physical variable.

129. John believes that Saturdays are more likely to be cloudy or rainy than weekdays are. However, he is relying entirely on casual impressions; he has never collected data systematically to test his hypothesis. His belief is most likely an example of

- A.** an illusory correlation.
- B. an independent variable.
- C. a case history.
- D. a placebo.

130. Some people believe that genius is associated with insanity, although they have no scientific evidence to support their claim. This is an example of

- A. a demand characteristic.
- B.** an illusory correlation.
- C. a normal distribution
- D. a negative correlation.

131. One reason why illusory correlations arise and persist is that

- A. psychologists test only hypotheses that are falsifiable.
- B. human behavior often fails to follow the normal distribution.
- C. psychologists collect more observations on children than on old people.
- D.** people tend to remember examples that fit their expectations.

132. The main reason for the persistence of many illusory correlations is the fact that

- A. many experimenters are not careful when calculating correlation coefficients or use the wrong statistical techniques.
- B. many variables that were strongly correlated in the past have ceased to be correlated.
- C. people intentionally deceive others for their own gain.
- D.** people's selectively remember facts that support their expectations.

133. Researchers have found that people who own many books about chess tend to be better chess players than those who own few or none. This conclusion was almost certainly based on what kind of study?

- A. single-blind experiment
- B. double-blind experiment
- C. case study
- D.** correlation

134. Parents who frequently beat their children tend to have aggressive children. What, if anything, can we conclude?

- A. Physical punishment causes aggression.
- B. Aggressive children cause parents to use physical punishment.
- C. The children probably inherited a gene for aggressiveness.
- D.** We can draw none of these conclusions.

135. If the correlation between variable A and variable B is +1, then

- A. either A causes B or B causes A.
- B.** we can say nothing about causation from this information.
- C. B causes A.
- D. A causes B.

136. The correlation between A and B is +.60; the correlation between C and D is -.75. What do we know about causation based on the above?

- A. We know A causes B, but we don't know if C causes D.
- B. We know C causes D, but we don't know if A causes B.
- C. We know A causes B AND that D causes C.
- D.** We don't know anything about causation from the information above.

137. Researchers have found that people who live in crowded cities are more likely than others to develop schizophrenia (a psychological disorder). From these results, which of the following conclusions (if any) can we draw?

- A. Something about life in crowded cities leads to schizophrenia.
- B. People with schizophrenia are more likely than others to move to crowded cities.
- C. The kinds of people who are predisposed to schizophrenia are also likely to choose to live in a crowded city.
- D.** The results do not justify any of these conclusions.

138. Researchers have found that people who report having trouble sleeping are more likely than others to become depressed. Which of the following conclusions, if any, follows from these data?

- A. Sleeplessness increases the probability of becoming depressed.
- B. People who are starting to become depressed have trouble sleeping.
- C. Certain genes increase depression and also, independently, lead to sleep troubles.
- D.** None of these conclusions follow from the data.

139. Researchers report that people who smile frequently are more likely than other people to have many friends. Which of the following conclusions can we draw, if any?

- A. Smiling increases the probability of making friends.
- B.** We can draw none of these conclusions.
- C. Some other factor, such as health, increases both the probability of smiling and the probability of making friends.
- D. Having friends makes one happy and increases the probability of smiling.

140. Researchers find that happy people tend to be healthier than unhappy people. From this kind of information, which of the following (if any) can we conclude?

- A. Happiness improves people's health.
- B. Health improves people's happiness.
- C. The same genes and experiences that aid health also promote happiness.
- D.** We can draw no conclusions about cause and effect.

141. Studies find that people who exercise regularly tend to have a more cheerful outlook on life. What conclusion, if any, can we draw from these data?

- A. Exercise improves mood.
- B. Cheerfulness increases one's urge to be active.
- C. People who are young and healthy tend to be cheerful and active.
- D.** We can draw none of these conclusions.

142. The main difference between a correlational study and an experiment is that in an experiment,

- A. the participants are aware of the hypothesis being tested.
- B. all individuals receive the same treatment.
- C. the participants are observed without interference in their normal life.
- D.** the investigator manipulates the independent variable.

143. The advantage of the experimental method as opposed to correlational studies is that an experiment

- A. is better suited to studies of unique or unusual individuals.
- B. can consist of as little as one observation of a single individual.
- C.** can lead to the discovery of cause-and-effect relationships.
- D. is easier to do and poses fewer ethical problems.

144. After using which of the following methods would an experimenter be most confident in making statements about cause and effect?

- A. correlation
- B. experiment**
- C. case study
- D. naturalistic observation

145. The main advantage of an experimental study, in contrast to a correlational study, is that an experiment is

- A. less likely to be influenced by independent variables.
- B. quicker and easier to conduct.
- C. more likely to demonstrate cause-and-effect.**
- D. less likely to raise ethical questions.

146. The main difference between a correlational study and an experiment is that in a correlational study

- A. individuals are assigned to groups randomly.
- B. the experimenter begins with a hypothesis.
- C. there is an independent variable but no dependent variable.
- D. the investigator does not control either variable.**

147. Juanita has a headache one evening so she takes the experimental drug Zenax to eliminate her headache. She goes to sleep and finds her headache gone the next day. Do these results show that Zenax was effective?

- A. Yes, because her headache is gone.
- B. No, because something else could have caused her headache to disappear.**
- C. Yes, because the administration of Zenax occurred before her headache disappeared.
- D. No, because there is a negative correlation between Zenax use and mood.

148. A psychologist evaluates 60 people at the start of therapy and again at the end of 8 weeks of therapy. She reports that 55 of the 60 are "improved," and concludes that the therapy was effective. One flaw in this study is that it lacks

- A. descriptive statistics.
- B. a control group.**
- C. a dependent variable.
- D. a hypothesis.

149. One group of students who spent the weekend studying for the test got better scores than a group who spent the weekend camping. That statement could be the result of an experiment or a correlational study. To decide whether it was an experiment, we would have to know the answer to the following question:

- A. How many students spent the weekend studying and how many went camping?
- B. Was the difference between the two groups statistically significant?
- C.** Were students assigned to the study group and the camping group, or did they decide for themselves what to do with their weekend?
- D. Did any of the students who went camping take their books along with them?

150. An independent variable is one that

- A. is irrelevant to what happens in the experiment.
- B. the experimenter cannot control or measure.
- C.** the experimenter changes or controls..
- D. the experimenter measures after the treatment.

151. A dependent variable is a variable that

- A. the participants themselves measure.
- B.** the item that an experimenter measures to determine how it was affected.
- C. the experimenter manipulates.
- D. is irrelevant to what happens in the experiment.

152. Professor Taylor provides a review session for half the students taking Psychology 101. Later he compares their scores against those of the other students. What is the independent variable in this experiment?

- A. the test scores of the students
- B. the total number of students
- C.** the review session
- D. the difficulty of the test

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- A. the total number of students
- B.** the test scores of the students
- C. the review session
- D. the difficulty of the test

154. Dr. Rodentz deprives several rats of food for different lengths of time and then places them at the start of a maze. He records how long each rat takes to reach the food at the end of the maze. The time needed to reach the food is the

- A.** dependent variable.
- B. normal distribution.
- C. inferential statistic.
- D. independent variable.

155. An experimenter exposed students to one hour of soft, intermediate, or loud noise and then tested their ability to solve puzzles. What was the independent variable in this experiment?

- A.** the loudness of the noise
- B. the students' scores on the puzzles
- C. the motivation of the students
- D. the difficulty of the puzzles

156. An experimenter had participants exercise much, a little, or not at all and then measured how much they ate at dinner two hours later. What was the dependent variable in this experiment?

- A. the delay between exercise and dinner
- B. the amount of exercise
- C. the type of food offered
- D.** the amount of food eaten

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- A. the type of food offered
- B. the delay between exercise and dinner
- C.** the amount of exercise
- D. the amount of food eaten

158. An experimenter kept students in a hot, neutral, or cold room and then tested their ability to memorize poetry. What was the independent variable in this experiment?

- A. the motivation of the students
- B.** the temperature of the room
- C. the difficulty of the poetry
- D. the students' success in memorizing the poetry

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- A. the motivation of the students
- B. the difficulty of the poetry
- C. the temperature of the room
- D.** the students' success in memorizing the poetry

160. An instructor gives weekly tests in one class and just one midterm exam to a second class and then compares performances of students in the two classes when they all take the same final exam. What is the dependent variable in this experiment?

- A. the number of students in each class
- B. the difficulty of the final exam
- C. the number of tests given before the final exam
- D.** the students' scores on the final exam

161. An instructor gives weekly tests to one class and just one midterm exam to another class. Both classes get the same final exam. The instructor compares performances on the final exam to see whether the weekly tests affected students' performance. What is the independent variable in this experiment?

- A.** the number of tests before the final
- B. the students' performance on the final exam
- C. the difficulty of each test
- D. the number of students in each class

162. The control group in an experiment is a group that

- A. is given an opportunity to decide which experimental group to join.
- B. has some control over the independent variable.
- C. is controlled by the dependent variable.
- D.** is treated the same as the experimental group except for the treatment the experiment is designed to test.

163. The experimental group in one study receives a free copy of the study guide so that the experimenter can determine the effect of the study guide on test performance. What will the control group in this experiment do?

- A. help the experimenter write the tests
- B.** take all the same tests without using the study guide
- C. use the study guide without taking any tests
- D. help the experimenter decide which students will get the study guide

164. An experimenter tests the reading skills of some 10-year-old children, puts them on a low-fat diet for 6 months, retests their reading skills, and finds that most show a significant improvement in their reading. The experimenter concludes that a low-fat diet improves intellectual development. One major defect in this study is the lack of any

- A. dependent variables.
- B. demand characteristics.
- C. control group.**
- D. independent variables.

165. In one study, the experimental group is subjected to loud, unpredictable noises to see whether or not those noises will affect performance on a memory task. What will the control group do?

- A. nothing at all
- B. perform the memory task without noises**
- C. listen to the noises but perform no task
- D. control the noises that the experimental group has to listen to

166. Random assignment is a procedure that psychological researchers apply to their

- A. demand characteristics.
- B. dependent variables.
- C. means and medians.
- D. participants.**

167. How does an experimenter try to equate the experimental group and the control group at the start of the experiment?

- A. elimination of independent variables
- B. random assignment**
- C. demand characteristics
- D. statistical tests

168. Random assignment is

- A. a means of deciding which participants will be in the experimental group.**
- B. a means of eliminating the effects of independent variables.
- C. the procedure administered to the control group while the experimental group is receiving the treatment.
- D. a means of keeping the dependent variable constant for all groups.

169. If each subject in an experiment has an equal chance of being in the experimental group, then the experiment has

- A. demand characteristics.
- B.** random assignment.
- C. a correlation.
- D. statistical significance.

170. To examine the value of looking at old tests, Professor King hands out copies of old tests to the first 20 students who come to class one day. Later she finds that these students got better grades than the other students in the class. What is wrong with this experiment?

- A. It was triple blind.
- B.** There is a lack of random assignment to groups.
- C. There is a lack of demand characteristics.
- D. The Clever Hans effect occurs.

171. To test the value of the study guide, Professor Lewis gives a free copy to the students sitting in the first two rows of class. Later she finds that these students got better grades than the students in the back of the room (who didn't get study guides). What is wrong with this experiment?

- A. lack of an independent variable
- B. confusion of experimentation with correlation
- C.** lack of random assignment to groups
- D. lack of a dependent variable

172. The advantage of randomly assigning participants to the experimental group and the control group is that random assignment

- A. guarantees that participants will know what is expected of them in the experiment.
- B. avoids the need to perform statistical tests on the results.
- C. eliminates or reduces the influence of independent variables.
- D.** reduces the possibility that the groups differ greatly at the start of the experiment.

173. Professor Middlebrain notes that rats in the first 10 cages, which were injected with salt water, are calm. Rats in the last 10 cages, which were injected with distilled water, are aggressive. He concludes that salt decreases aggressiveness. What is wrong with this study?

- A.** lack of random assignment
- B. lack of an independent variable
- C. lack of a dependent variable
- D. presence of demand characteristics

174. To test the effect of an informal atmosphere on class performance, Professor Hall dresses in shorts and bare feet for his morning class and in conventional clothing for his afternoon class. He then counts the number of "intelligent questions" in each class and reports more in the class for which he wore shorts. What are the two things wrong with this experiment?

- A. lack of random assignment and lack of blind observations
- B. differential survival and lack of an independent variable
- C. lack of blind observations and lack of a dependent variable
- D. lack of random assignment and lack of an independent variable

175. To test the effects of eating on learning, Professor Lee permits her morning class to bring snacks to class but forbids her afternoon class from bringing snacks. To measure performance, she counts the number of "intelligent questions" asked by students in each class, and reports getting more such questions in the morning class. What are two serious flaws in this experiment?

- A. too many dependent variables and lack of an independent variable
- B. lack of blind observations and lack of a dependent variable
- C. lack of random assignment and lack of blind observations
- D. demand characteristics and presence of too many independent variables

176. Which cause-and-effect conclusion, if any, can we draw from the correlational studies of watching violent television?

- A. Watching violence on television causes aggressive behavior.
- B. Watching violence on television reduces aggressive behavior.
- C. Watching violence on television has no effect on aggressive behaviors.
- D. We can draw none of these conclusions.

177. Research participants viewed either violent or nonviolent films for four consecutive nights. On the fifth night, half the participants were told by the experimenter that their performance was terrible and the other half were told they had done well on some task. What group showed the most hostility on the fifth night?

- A. the group that watched violence and were told their performance was good
- B. the group that watched violence and were told their performance was terrible
- C. all participants who watched violence, no matter what they were told
- D. all participants who were told their performance was terrible, no matter what they had watched

178. Researchers collected information from 500 children on the amount of violent TV they watched. They also collected ratings of how aggressive these children were. The researchers measured TV watching and aggressiveness when these same subjects more than fifteen years later. The highest correlation was observed between

- A. childhood violent TV watching and childhood aggression
- B. adult violent TV watching and adult aggression
- C. childhood violent TV watching and adult aggression
- D. adult violent TV watching and childhood aggression

179. Which of the following is the BEST conclusion from the research discussed on the effects of watching television violence and aggressive behavior?

- A.** Experiments and correlational studies both indicate that viewing violence is associated with greater aggressiveness.
- B. Experiments and correlational studies time both indicate that viewing violence is associated with a reduction in aggressiveness.
- C. Experiments have demonstrated short-term increases in aggressiveness, but correlational studies have found no relation between viewing violence and aggression.
- D. Correlational studies have demonstrated positive correlations between violence and aggression, but experiments have not demonstrated any link between viewing violence and aggression.

180. Psychology experiments have typically shown that

- A. those who watch violent movies will not act aggressively because they have had the chance to "let off steam".
- B. watching violent movies and TV programs effectively teaches children the dangers of violent behavior.
- C. most children who watch violence on TV will commit major crimes later in life.
- D.** watching violent films increases aggressive behavior, at least slightly and temporarily.

181. The main ethical principle guiding psychology experiments with human participants is

- A. start by telling the participants the theory behind the research.
- B.** include only procedures that participants would agree to experience.
- C. never repeat an experiment that has already been done by someone else.
- D. participants should always be compensated, based on the amount of time and effort involved in the experiment.

182. Before conducting any experiment on humans, a psychological investigator must obtain

- A. demand characteristics.
- B. permission from the American Psychological Association.
- C. a normal distribution.
- D.** informed consent.

183. What does an Institutional Review Board do?

- A. It provides lists of people who are willing to serve as volunteers in psychological experiments.
- B. It maintains statistics on the number and type of experiments conducted at an institution.
- C. It helps experimenters evaluate the statistical significance of their data.
- D.** It judges whether proposed experiments are ethical.

184. Ethical standards for the treatment of participants

- A. have been established by the APA.
- B. are left up to the individual experimenter.
- C. exist for human participants, but not for animal participants.
- D. are followed by only a small minority of psychological researchers.

185. Animal research is responsible for much of what we know about all the following areas EXCEPT

- A. the functioning of the brain.
- B. how drugs affect behavior.
- C. how sensory systems operate.
- D. the stages of cognitive development.

186. Which of the following is ethical behavior?

- A. A clinical psychologist writes a prescription for tranquilizers for a client with anxiety.
- B. A psychologist conducts an experiment on humans without first obtaining their informed consent.
- C. An investigator submits a report to a laboratory animal care committee before conducting an experiment on animals.
- D. An investigator refuses to allow human volunteers to withdraw from an experiment after they find out what is required.

187. Which of the following is the BEST conclusion regarding the ethical treatment of animals in research?

- A. Psychologists now take the position of progress: animal research is necessary and ethical issues have now been resolved.
- B. Psychologists now take the position of protection: animal research is unethical and the animals must be protected.
- C. Psychologists' attitudes vary on this issue, and there is no agreement as to what ethical treatment of animals should involve.
- D. Psychologists' attitudes vary on this issue, but there are agreed upon guidelines for the proper care and use of animals in research.

188. Mathematical summaries of data are known as

- A. descriptive statistics.
- B. inferential statistics.
- C. conclusions.
- D. predictions.

189. The Greenville College soccer team scored 1, 1, 2, 3, and 8 goals (a total of 15 goals) in their first five games. What was their mean number of goals?

- A. 1
- B. 2
- C.** 3
- D. 8

190. Adding all the scores together in a set of scores and dividing by the number of scores would give you the

- A. standard deviation.
- B. median.
- C. mode.
- D.** mean.

191. The Lizard Lick State Fighting Nematodes scored 50, 50, 55, 60, and 85 points in their first five basketball games. What was their mean score?

- A. 50
- B. 55
- C.** 60
- D. 85

192. In a normal distribution, most scores cluster around the

- A. range.
- B.** mean.
- C. standard deviation.
- D. high and low extremes.

193. Which of the following is true of all normal distributions?

- A.** They are symmetrical.
- B. They have a standard deviation of zero.
- C. They have a mean equal to the standard deviation.
- D. They have a mean of zero.

194. You apply for a job selling diet marshmallows because an ad says that the average company employee earns \$50,000 a year. Later you discover that the company has a president, a sales manager, and 30 salespeople; you also learn that each salesperson earns \$14,000 a year. How can the company's claim be correct?

- A. The median is \$50,000 because of high salaries for the president and sales manager.
- B.** The mean is \$50,000 because of high salaries for the president and sales manager.
- C. The median is higher than the mean.
- D. The mode is \$50,000 because of the high salaries for the president and sales manager.

195. The Lizard Lick State Fighting Nematodes scored 50, 50, 55, 60, and 85 points in their first five basketball games. What was their median score?

- A. 50
- B. 55**
- C. 60
- D. 85

196. The _____ is the middle score in an ordered set of values.

- A. standard deviation
- B. median**
- C. mode
- D. mean

197. Under which of the following circumstances is the median a much better indicator of most people's scores than the mean is?

- A. Most scores were low but a few scores were very high.**
- B. The scores follow the normal distribution.
- C. The mean score is larger than the standard deviation.
- D. The mean is equal to the mode.

198. In what situation is the median a preferred measure of central tendency over the mean?

- A. when all of the scores cluster around the mean
- B. when the scores are arranged in a normal distribution
- C. when there are some extreme scores**
- D. when there are no very low or very high scores

199. A group of seven students receive the following scores on a test: 87, 88, 89, 86, 85, 90, and 35. What is the median score?

- A. 35
- B. 87**
- C. 86
- D. 90

200. The _____ is the most common score in a set of scores.

- A. standard deviation
- B. median
- C. mode**
- D. mean

201. Often we want to describe what the "average" person did. For this purpose the mean and median give similar results UNLESS

- A. the sample has a small standard deviation.
- B. the population being studied is extremely large.
- C. the sample has a normal distribution centered around a mean of zero.
- D.** a few individuals in the sample are extreme, unlike the others.

202. A pre-school teacher records the height of all of her students and their parents. The distribution of these measures would be called a

- A.** bimodal distribution.
- B. symmetrical distribution.
- C. logarithmic distribution.
- D. standard distribution.

203. A survey asked how many sex partners you hope to have in the future. The majority of men answered 1, 2, or 3, yet the mean was 64. How can that be?

- A. The mean could be 64, but only if the median were even higher than 64.
- B.** The mean is influenced by extreme scores (i.e., very high numbers).
- C. Inferential statistics are misleading.
- D. There were no independent variables in the study.

204. Which of the following is used in calculating a standard deviation?

- A.** mean
- B. range
- C. mode
- D. median

205. The standard deviation is a statistic that measures

- A. the average score.
- B. the difference between two groups.
- C. mistakes made by the experimenter.
- D.** the amount of variation.

206. If most scores are very close to the mean, then the standard deviation is

- A. impossible to determine.
- B.** very small.
- C. very large.
- D. about the same size as the mean.

207. If the standard deviation is small, then

- A.** most scores are close to the mean.
- B. the results are probably not statistically significant.
- C. the mean is high.
- D. the median is larger than the mean.

208. The mean, median, range, and standard deviation are all examples of

- A. inferential statistics.
- B.** descriptive statistics.
- C. correlations.
- D. tests of significance.

209. Mathematical summaries of results are called _____ statistics, while statistics that inform about the entire population, based on information collected from small samples, are called _____ statistics.

- A. inferential...descriptive
- B. inferential...correlational
- C. correlational...descriptive
- D.** descriptive...inferential

210. What does it mean to say that " $p < .05$ "?

- A. The correlation between two variables is very low, almost random.
- B. The probability that the experiment was done correctly is less than 5%.
- C. Fewer than 5% of all scientists agree with the theory.
- D.** The probability of getting such a pattern of results by accident is less than 5%.

211. Which of the following is an example of an inferential statistic?

- A.** the p value from a statistical test
- B. the mean
- C. the median
- D. the standard deviation

212. A particular research study compares an experimental group with a control group. An analysis of the results reveals that " $p < .05$." Therefore,

- A. the difference between the experimental group and the control group is less than 5%.
- B. there is less than a 5% chance that the results are statistically significant.
- C.** the chance of getting the observed difference by accident is less than 5%.
- D. fewer than 5% of psychologists would agree with the conclusions.

213. An investigator analyzes the results of an experiment and determines that $p < .05$. Why does the investigator want to know the value of p ?

- A. to determine whether the results are statistically significant
- B. to determine whether participants were randomly assigned to the two groups
- C. to determine whether the results are replicable
- D. to determine whether to use the mean or the median

214. The statement " $p < .05$ " refers to

- A. the amount of change in some behavior over time.
- B. the amount of agreement among psychologists.
- C. how accurately we can predict one variable from measurements of another one.
- D. the probability of getting a result by chance.

215. If $p < .05$, then the difference in results between the experimental group and the control group is probably

- A. difficult to replicate.
- B. due to a correlation, not a causation.
- C. statistically significant.
- D. too small to measure.

216. A psychologist conducts an experiment and reports that $p < .05$. What is the relationship between the value of p and the statistical significance of the results?

- A. The results are significant if the value of p is very low.
- B. The value of p has no relationship to the significance of the results.
- C. The closer p is to .05, the more significant the results.
- D. The higher the value of p , the more significant the results.

217. In the statistical expression " $p < .05$," the " p " represents

- A. the amount of difference between the independent variable and the dependent variable.
- B. the correlation between two measured variables.
- C. the percentage of psychologists who agree with the conclusion.
- D. the probability of accidentally obtaining results similar to the obtained results.

218. Which of the following would (as a rule) indicate that a result is statistically significant?

- A. $p < .05$
- B. mean=standard deviation
- C. correlation=.1
- D. mean>median

219. An investigator decides to consider the results of an experiment to be statistically significant if $p < .05$. An analysis of the result indicates that $p = .09$. What conclusion, if any, can the investigator draw?
- A.** The results do not justify any conclusion.
 - B. The results are statistically significant.
 - C. The results are significant for the control group but not for the experimental group.
 - D. Although the results are not statistically significant, they are replicable.
220. An investigator wishes to determine whether the difference between two groups of participants is statistically significant. To answer that question, the investigator must first determine the difference between the means of the two groups, the number of participants in each group, and
- A. the age of participants in each group.
 - B. the duration of the experiment in hours.
 - C.** the amount of variation in each group.
 - D. the strength of motivation by members of each group.
221. An investigator conducts a statistical test to determine whether the difference between the experimental group and the control group was statistically significant. Other things being equal, the difference is most likely to be significant if
- A. the standard deviation was high for each group.
 - B.** the mean of one group was much larger than the mean of the other group.
 - C. both groups had a small number of participants.
 - D. the mean for each group was about the same size as the standard deviation.
222. You wish to determine whether the difference between the experimental group and the control group was statistically significant. To make that determination, you will need to know three of the following types of information. Which one will you NOT need to know?
- A. the number of participants in each group
 - B.** the ages of the participants in each group
 - C. the amount of variation among participants within each group
 - D. the difference between the means of the two groups
223. For a variety of reasons, many scientists recommend that instead of (or in addition to) stating the p value, researchers should show the means and:
- A. the mode for each group.
 - B.** 95% confidence intervals for each group.
 - C. 85% confidence intervals for each group.
 - D. the median for each group.

Chapter 2A--Scientific Methods in Psychology

Student: _____

1. A falsifiable theory is a theory that scientists have tested and proved to be false.

True False

2. The burden of proof concept argues that it is up to the skeptic to prove that no person can demonstrate psychic abilities.

True False

3. Replicable results are those that anyone can obtain, at least approximately, by following the same procedures.

True False

4. When we are looking at small trends in the data, researchers use a meta-analysis.

True False

5. All else being equal, scientists always prefer the most parsimonious theory.

True False

6. The ganzfeld procedure is one demonstration of psychic abilities that has consistently been replicated in the laboratory.

True False

7. An operational definition for hunger is the number of hours since the person last ate a meal.

True False

8. The smaller the random sample, the smaller the probability that the results will differ significantly from the whole population.

True False

9. A population is the entire group of individuals to be considered.

True False

10. Experimenter bias is the tendency of an experimenter (unintentionally, in most cases) to distort or misperceive the results of an experiment based on the expected outcome.

True False

11. Demand characteristics can be reduced by using a double-blind procedure.

True False

12. Case histories are a type of naturalistic observation that focus on a single individual.

True False

13. A correlation coefficient of $-.7$ represents a stronger relationship between variables than a correlation coefficient of $+.5$.

True False

14. Dr. Jones finds a correlation of $+.5$ between variables A and B. Dr. Jones can logically conclude that changes in variable A caused the changes observed in variable B.

True False

15. Properly conducted experiments allow researchers to draw conclusions about cause and effect.

True False

16. In an experiment on the effects of watching violent television on aggressive behavior, the type of television program viewed would be the dependent variable.

True False

17. Asking participants to give their informed consent prior to participating in a study is no longer required under ethical guidelines.

True False

18. The mean is especially useful if the scores approximate the normal distribution.

True False

19. Consider the following set of scores on a quiz: 2, 2, 3, 5, 8. The mean for this set of scores is 3.

True False

20. Consider the following set of scores on a quiz: 2, 2, 3, 5, 8. The mode for this set of scores is 2.

True False

21. Consider the following set of scores on a quiz: 2, 2, 3, 5, 8. The median for this set of scores is 4.

True False

22. Group A receives the following scores: 14, 15, 15, 15, 16. Group B receives the following scores: 4, 8, 12, 16, 20. The standard deviation for Group B is higher than it is for Group A.

True False

23. Professor Smith conducts a study, and he finds that his results are not statistically significant. This means that Professor Smith must conclude that his hypothesis was wrong.

True False

24. In general, the smaller the p value, the more impressive the results.

True False

25. The goal of scientific research is to establish comprehensive explanations of observable events. These explanations are called _____.

26. A _____ theory is one that makes clear, easily tested predictions.

27. The word *science* derives from a Latin word meaning _____.

28. _____ is a highly desirable feature of a scientific study.

29. To say that a theory is _____ is to say that it makes simple, acceptable assumptions.

30. Two serious objections to claims of extrasensory perception are that the explanations are not _____ and that the results are not _____.

31. A _____ is the entire group of individuals to be considered.

32. If every individual in the population has an equal chance of being selected for a sample, the sample is said to be a/an _____ sample.

33. A _____ is one of the most difficult to obtain, but is best-suited for generalizing to the whole population?

34. Sometimes an inert pill is given to experimental participants, but they are told that the pill is effective. This pill is called a _____.

35. Participants in an experiment are often kept blind about the condition to which they have been assigned. This will help prevent _____.

36. A _____ study is a procedure in which investigators measure the correlation between two variables without controlling either of them.

37. If an increase in one variable is not associated with any consistent increase or decrease in a second variable, then the correlation between the two variables is _____.

38. The _____ is the item that an experimenter measures to determine how it was affected.

39. A _____ involves selecting so that every individual has an equal chance of being chosen.

40. Before conducting any experiment on humans, a psychological investigator must obtain _____.

41. Mathematical summaries of results are known as _____.

42. The _____ is the sum of all the scores divided by the total number of scores.

43. The _____ is a measurement of the amount of variation among scores in a normal distribution.

44. Statements about a large population based on an inference from a small sample, is called _____.

45. A scientist has formed the following hypothesis; individuals who eat a late lunch consume more food than individuals who eat an early lunch. Once she has constructed her hypothesis, what are the three steps that she should follow to complete her experiment? State the steps and give an example of how to complete each step.

46. After defining the variables involved in a study, scientists have to identify individuals to study. The *population* is the group of individuals to whom we hope our conclusions will apply. Researchers generally hope that their conclusions will apply to a large population, such as all 5-year-olds or all people with schizophrenia. Because it is not practical to examine everyone in the population, researchers study a *sample* of people and assume that the results for the sample apply to the whole population. Briefly define the following types of samples and give one example for each; convenience sample, representative sample, random sample, and cross cultural sample.

47. Describe three examples of the following situations: one in which two variables are positively correlated, one in which two variables are negatively correlated, and one in which there is zero correlation.

48. A mother is attempting to minimize the number of times that her toddler pulls on his kitty's tail. She wants to assess whether different types of discipline have any effect on his behavior. For three weeks during the month, the mother gives the toddler one week of one specific type of discipline. One week the toddler receives time outs, one week he has a toy taken away, and one week he is told to clean the kitty's bowl for each kitty tail pull. At the end of each week, the mother tallies up the number of kitty tail pulls for the week. Identify the independent variable and the dependent variable.

49. Falsifiability, independent variables, dependent variables, blind observers, and demand characteristics are all potential characteristics of an experiment. Which of these would an experimenter try to minimize or avoid and why?

Chapter 2A--Scientific Methods in Psychology **Key**

1. A falsifiable theory is a theory that scientists have tested and proved to be false.

FALSE

2. The burden of proof concept argues that it is up to the skeptic to prove that no person can demonstrate psychic abilities.

FALSE

3. Replicable results are those that anyone can obtain, at least approximately, by following the same procedures.

TRUE

4. When we are looking at small trends in the data, researchers use a meta-analysis.

TRUE

5. All else being equal, scientists always prefer the most parsimonious theory.

TRUE

6. The ganzfeld procedure is one demonstration of psychic abilities that has consistently been replicated in the laboratory.

FALSE

7. An operational definition for hunger is the number of hours since the person last ate a meal.

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8. The smaller the random sample, the smaller the probability that the results will differ significantly from the whole population.

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11. Demand characteristics can be reduced by using a double-blind procedure.

TRUE

12. Case histories are a type of naturalistic observation that focus on a single individual.

TRUE

13. A correlation coefficient of $-.7$ represents a stronger relationship between variables than a correlation coefficient of $+.5$.

TRUE

14. Dr. Jones finds a correlation of $+.5$ between variables A and B. Dr. Jones can logically conclude that changes in variable A caused the changes observed in variable B.

FALSE

15. Properly conducted experiments allow researchers to draw conclusions about cause and effect.

TRUE

16. In an experiment on the effects of watching violent television on aggressive behavior, the type of television program viewed would be the dependent variable.

FALSE

17. Asking participants to give their informed consent prior to participating in a study is no longer required under ethical guidelines.

FALSE

18. The mean is especially useful if the scores approximate the normal distribution.

TRUE

19. Consider the following set of scores on a quiz: 2, 2, 3, 5, 8. The mean for this set of scores is 3.

FALSE

20. Consider the following set of scores on a quiz: 2, 2, 3, 5, 8. The mode for this set of scores is 2.

TRUE

21. Consider the following set of scores on a quiz: 2, 2, 3, 5, 8. The median for this set of scores is 4.

FALSE

22. Group A receives the following scores: 14, 15, 15, 15, 16. Group B receives the following scores: 4, 8, 12, 16, 20. The standard deviation for Group B is higher than it is for Group A.

TRUE

23. Professor Smith conducts a study, and he finds that his results are not statistically significant. This means that Professor Smith must conclude that his hypothesis was wrong.

FALSE

24. In general, the smaller the p value, the more impressive the results.

FALSE

25. The goal of scientific research is to establish comprehensive explanations of observable events. These explanations are called _____.

theories

26. A _____ theory is one that makes clear, easily tested predictions.

falsifiable

27. The word *science* derives from a Latin word meaning _____.
knowledge

28. _____ is a highly desirable feature of a scientific study.
Replicability

29. To say that a theory is _____ is to say that it makes simple, acceptable assumptions.
parsimonious

30. Two serious objections to claims of extrasensory perception are that the explanations are not _____ and that the results are not _____.
parsimonious; replicable

31. A _____ is the entire group of individuals to be considered.
population

32. If every individual in the population has an equal chance of being selected for a sample, the sample is said to be a/an _____ sample.
random

33. A _____ is one of the most difficult to obtain, but is best-suited for generalizing to the whole population?
random sample

34. Sometimes an inert pill is given to experimental participants, but they are told that the pill is effective. This pill is called a _____.
placebo

35. Participants in an experiment are often kept blind about the condition to which they have been assigned. This will help prevent _____.
demand characteristics

36. A _____ study is a procedure in which investigators measure the correlation between two variables without controlling either of them.

correlational

37. If an increase in one variable is not associated with any consistent increase or decrease in a second variable, then the correlation between the two variables is _____.

zero or

0

38. The _____ is the item that an experimenter measures to determine how it was affected.

dependent variable

39. A _____ involves selecting so that every individual has an equal chance of being chosen.

random sample

40. Before conducting any experiment on humans, a psychological investigator must obtain _____.

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41. Mathematical summaries of results are known as _____.

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42. The _____ is the sum of all the scores divided by the total number of scores.

mean

43. The _____ is a measurement of the amount of variation among scores in a normal distribution.

standard deviation

44. Statements about a large population based on an inference from a small sample, is called _____.

inferential statistics

45. A scientist has formed the following hypothesis; individuals who eat a late lunch consume more food than individuals who eat an early lunch. Once she has constructed her hypothesis, what are the three steps that she should follow to complete her experiment? State the steps and give an example of how to complete each step.

The first step is to devise a method to test the hypothesis. One way to test the effects of time of day on calorie consumption would be to ask participants to fast in the morning and have one group eat lunch at 11:00 a.m. and the other group eat lunch at 2:00 p.m.

The next step is to collect results. The scientist would first need to define the variable of interest. In this example, counting calorie consumption at each dining time would be one option.

The final step is to interpret the data and determine what the results mean. If the participants eating early lunch consume more calories, the scientist should either abandon or modify the original hypothesis. If the participants eating early lunch consume fewer calories (matching the prediction), investigators gain confidence in their hypothesis, and may consider other hypotheses that fit the results.

46. After defining the variables involved in a study, scientists have to identify individuals to study. The *population* is the group of individuals to whom we hope our conclusions will apply. Researchers generally hope that their conclusions will apply to a large population, such as all 5-year-olds or all people with schizophrenia. Because it is not practical to examine everyone in the population, researchers study a *sample* of people and assume that the results for the sample apply to the whole population. Briefly define the following types of samples and give one example for each; convenience sample, representative sample, random sample, and cross cultural sample.

Convenience Sample: a group chosen because of its ease of study. An example is the use of lab rats to study maze learning

Representative Sample: closely resembles the population in its percentage of males and females, Blacks and Whites, young and old, city dwellers and farmers, or other characteristics are likely to affect the results. An example is recruiting individuals that resemble the population in terms of highest grade completed.

Random Sample: every individual in the population has an equal chance of being selected. Example: to study the sleeping patterns of preschoolers in Austin, TX, an investigator might get a listing of all preschools in the city, select a certain number of preschools at random, and randomly choose one preschooler from each of those preschools.

Cross-Cultural Sample: groups of people from at least two cultures. Example: to study the assignment of domestic responsibilities in a household, researchers may want to study families in Mexico and in the United States.

47. Describe three examples of the following situations: one in which two variables are positively correlated, one in which two variables are negatively correlated, and one in which there is zero correlation.

Positively correlated: The greater the number of coffees consumed in a day, the greater the number of hours spent awake in a day.

Negatively correlated: The greater the number of days in a month spent exercising, the fewer the number of sick days used.

Zero correlation: Individuals who drink coffee are neither more nor less likely to own a home gym than are non-coffee drinkers.

48. A mother is attempting to minimize the number of times that her toddler pulls on his kitty's tail. She wants to assess whether different types of discipline have any effect on his behavior. For three weeks during the month, the mother gives the toddler one week of one specific type of discipline. One week the toddler receives time outs, one week he has a toy taken away, and one week he is told to clean the kitty's bowl for each kitty tail pull. At the end of each week, the mother tallies up the number of kitty tail pulls for the week. Identify the independent variable and the dependent variable.

The independent variable is the discipline method. The dependent variable is the number of kitty tail pulls.

49. Falsifiability, independent variables, dependent variables, blind observers, and demand characteristics are all potential characteristics of an experiment. Which of these would an experimenter try to minimize or avoid and why?

An experimenter would try to minimize or avoid demand characteristics since these are cues that tell a participant what is expected of him or her and what the experimenter hopes to find. This is because the experimenter would like the experimental manipulation in a study to lead to the different outcomes rather than expectations of the experimenter.