Chapter 2

Multiple Choice Questions

1.   A theory is a(n)
a.   a plausible or scientifically acceptable, well-substantiated explanation of some aspect of the natural world.
b.   a well-substantiated explanation of some aspect of the natural world.
c.   an organized system of accepted knowledge that applies in a variety of circumstances to explain a specific set of phenomena and predict the characteristics of as yet unobserved phenomena.
d.   all the above
Answer: d

2.   A tentative explanation for an observation, phenomenon, or scientific problem that can be tested by further investigation is called a(n)
a.   fact.
b.   theory.
c.   hypothesis.
d.   assertion.
Answer: c

3.   Scientific hypotheses must be posed in a form that allows them to be
a.   rejected.
b.   proven true.
c.   accepted because they seem to make sense.
d.   convincing.
Answer: a

4.   Hypotheses and theories differ in that hypotheses are
a.   not well substantiated.
b.   relatively simple.
c.   more limited in scope.
d.   all the above
Answer: d

5.   Unlike a hypothesis, a theory accounts for changes in a phenomenon
a.   with a single, simple statement.
b.   by stating unequivocally that a relationship exists.
c.   by specifying the action and interaction of a system of variables.
d.   without the need for empirical testing.
Answer: c

6.   A theory that has been substantially verified is sometimes called a
a.   law.
b.   model.

c. descriptive theory.
d. none of these
Answer: a

7. Scientific laws are usually
a. empirically verified quantitative relationships between two or more variables.
b. not subject to the disconfirmation that theories are.
c. both a and b
d. broken by habitual offenders.
Answer: c

8. In most cases, a model is
a. the same as a theory.
b. a specific implementation of a more general theoretical view.
c. a less specific implementation of a more general theoretical view.
d. a general application of a specific theoretical view.
Answer: b

9. A model can be a(n)
a. specific implementation of a more general theoretical view.
b. application of a general theory to a specific situation.
c. synonym for a theory.
d. all of these
Answer: d

10. An advantage of building a computer model to test a theory is that
a. attempting to build the model may help reveal inconsistencies or unspoken assumptions of the theory.
b. the computer model eliminates ambiguity.
c. the model can be used to make predictions that would be difficult to derive by verbally tracing the implications of the theory.
d. all of these
Answer: d

11. A _____ explanation describes the physical components and the chain of cause and effect through which conditions act to produce behavior.
a. mechanistic
b. functional
c. mechanical
d. descriptive
 Answer: a

12. A _____ explanation describes an attribute of something in terms of what it does.
a. mechanistic
b. functional
c. mechanical

d. descriptive

Answer: b

13. Given the choice between a mechanistic explanation and a functional one, you should
a. prefer the mechanistic one.
b. prefer the functional one.
c. not care which one you adopt.
d. flip a coin.

Answer: a

14. A(n) _____ theory is a theory that is expressed in mathematical terms.
a. qualitative
b. analogical
c. quantitative
d. algebraic

Answer: c

15. A quantitative theory
a. relates numerical representations of variables and constants to one another.
b. uses analogies to physical systems for its base.
c. is stated in purely verbal terms.
d. none of these

Answer: a

16. A qualitative theory
a. relates numerical representations of variables and constants to one another.
b. uses analogies to physical systems for its base.
c. is stated in purely verbal terms.
d. none of these

Answer: c

17. A theory that provides only a description of a phenomenon and makes no attempt to explain it is a(n) _____ theory.
a. analogical
b. informational
c. fundamental
d. descriptive

Answer: d

18. Most descriptive theories
a. use analogy to explain relationships.
b. are simply proposed generalizations from observations.
c. adequately explain phenomena within their scopes.
d. none of these

Answer: b

19. A potential pitfall of constructing descriptive theories is that
a. you may actually over-explain a phenomenon.
b. most analogies fail.
c. you may fall into the trap of circular reasoning.
d. description of a phenomenon is useless.
Answer: c

20. Proposing a theory of motivation that likens motivational control systems to a home heating system is an example of a(n) _____ theory.
a. analogical
b. descriptive
c. fundamental
d. modeling
Answer: a

21. A problem with analogical theories is that
a. analogies are sometimes hard to come by.
b. they merely describe phenomena.
c. they cannot be adequately tested.
d. analogies can be taken only so far before they begin to break down.
Answer: d

22. Fundamental theories
a. require and rely heavily on analogy.
b. are the lowest form of theory because they do not explain phenomena.
c. seek to model an underlying reality that produces the observed relationships among the variables.
d. cannot be developed to explain psychological phenomena.
Answer: c

23. Fundamental theories
a. do not rely on analogy to explain phenomena.
b. propose a new structure that directly relates variables and constants within a system.
c. are the highest form of theory.
d. all of these
Answer: d

24. Fundamental theories are rare in psychology because
a. psychology is not a true science.
b. psychological phenomena are complex, involving variables that are difficult to control adequately.
c. they are too general to account for psychological phenomena.
d. all of these
Answer: b

25. The _____ of a theory concerns the range of situations to which it applies.

a. applicability
b. generality
c. domain
d. broadness
Answer: c

26. Freud's theory of personality gave us deep insight into the operation of the unconscious mind. This is an example of a theory
a. adding confusion to an already confused issue.
b. predicting events accurately.
c. having limited application.
d. helping us understand a complex phenomenon.
Answer: d

27. Which of the following was listed in your text as a role of theory in science?
a. increasing publication rates
b. providing a way to predict the behavior of systems
c. validating new dependent variables
d. all of these
Answer: b

28. Dr. Jones proposed a theory of helping behavior that turned out to be wrong. However, it did serve as a catalyst for a fruitful research area. This illustrates the _____ value of a theory.
a. heuristic
b. catalytic
c. predictive
d. organizational
Answer: a

29. Because of the failure of theories of learning, Skinner (1949) suggested that
a. researchers be more careful when developing theories.
b. researchers rely more heavily on analogical theories than on fundamental theories.
c. research should be guided more by the search for functional relationships than by theory.
d. theories are useless.
Answer: a

30. For a theory to be of value, it must
a. be able to account for data within its scope.
b. give good reason to believe that a phenomenon would occur under the specified conditions.
c. be testable.
d. all of these
Answer: d

31. If a theory gives good reason to believe that a phenomenon would occur under the conditions specified by the theory, the theory is said to have
a.   strong inference capacity.
b.   explanatory relevance.
c.   testability.
d.   predictability.
Answer: b

32. According to the text, Freud's theory of personality lacks
a.   explanatory relevance.
b.   predictability.
c.   heuristic value.
d.   testability.
Answer: d

33. A theory is _____ if it is capable of failing an empirical test.
a.   sound
b.   relevant
c.   testable
d.   controvertible
Answer: c

34. If a theory can account for a phenomenon, no matter what the phenomenon is, then the theory
a.   is probably untestable.
b.   lacks explanatory relevance.
c.   has too wide a scope.
d.   lacks heuristic value.
Answer: a

35. With respect to predicting events,
a.   a good theory need only predict phenomena within its scope.
b.   a theory need not predict events within its scope.
c.   a theory should predict phenomena beyond its original scope as well as those within its scope.
d.   none of these
Answer: c

36. Theory A explains a behavior with 10 propositions. Theory B explains the same behavior with 5 propositions. With respect to Theory A, Theory B
a.   has greater explanatory relevance.
b.   has a narrower scope.
c.   has greater heuristic value.
d.   is more parsimonious.
Answer: d

37. A(n) _____ explains a phenomenon with as few statements as possible.
a. explanatory relevant theory
b. theory with high heuristic value
c. parsimonious theory
d. strong theory
Answer: c

38. According to the text, the collapse of the Hull–Spence theory of learning occurred because the theory
a. lacked heuristic value.
b. was no longer parsimonious.
c. lacked explanatory relevance.
d. was too limited in scope.
Answer: b

39. When data support your theory, it means that
a. you can have more confidence in the theory's ability to explain and predict phenomena within its scope.
b. the theory has been proven correct.
c. the theory has been disconfirmed.
d. the theory will not be proven incorrect later on.
Answer: a

40. It is difficult to prove a theory correct because
a. at the present time our experimental techniques are too crude to provide the ultimate test of a theory.
b. a theory is a general statement, and it is a logical fallacy to try to prove a general statement correct.
c. theories usually have mechanisms built into them to prevent them from being proven correct.
d. none of these; a theory can be proven correct.
Answer: b

41. If a theory is disconfirmed by data, it is
a. usually discarded immediately.
b. sometimes modified so that the theory can account for the new data.
c. retained because data from empirical research are usually unreliable.
d. retained without modification until more data come in.
Answer: b

42. The process of developing alternative explanations for a phenomenon, developing predictions based on the alternatives, and testing those predictions is known as
a. strong inference.
b. a confirmational strategy.
c. a disconfirmational strategy.
d. weak inference.

Answer: a

43. Strong inference will work only if
a. a theory is parsimonious.
b. alternative explanations give rise to well-defined predictions.
c. a theory is capable of being confirmed.
d. all of these
Answer: b

44. According to the text, following a confirmational strategy to test a theory is important but has limitations. Which of the following is one of those limitations?
a. Alternative explanations generated often do not give rise to predictions that are specific enough to be confirmed.
b. Current research methods are not well developed enough to firmly confirm a theory.
c. You can gather all the confirmational data in the world, and the theory could still be wrong.
d. all of these
Answer: c

45. If a positive result of an experiment does not support a prediction made by a theory, you are using
a. strong inference.
b. analogical inference.
c. a confirmational strategy.
d. a disconfirmational strategy.
Answer: d

46. According to the text, adequate testing of a theory involves using
a. only a disconfirmational strategy.
b. only a confirmational strategy.
c. both disconfirmational and confirmational strategies.
d. strong inference alone.
Answer: c

47. According to the text, a theory should be developed
a. before any empirical data are collected.
b. after there is an adequate base of empirical data on the phenomenon of interest.
c. only if attempts to find functional relationships via research fail.
d. whenever there is a phenomenon that cannot be adequately explained.
Answer: b

True/False

48. A theory provides the final explanation for a phenomenon.
a. True
b. False

Answer: b

49. A theory is more complex than a hypothesis.
a. True
b. False
Answer: a

50. Scientific laws that express empirically verified, quantitative relationships are generally not subject to the disconfirmation that theories are.
a. True
b. False
Answer: a

51. Quantitative theories express relationships in mathematical terms.
a. True
b. False
Answer: a

52. Any theory that is not quantitative is qualitative.
a. True
b. False
Answer: a

53. Descriptive theories are the highest level of theory.
a. True
b. False
Answer: b

54. Fundamental theories are theories that do not depend on analogy to explain phenomena.
a. True
b. False
Answer: a

55. Cognitive dissonance theory is an example of a theory with a limited domain.
a. True
b. False
Answer: b

56. A good theory helps a researcher organize and understand findings in a research area.
a. True
b. False
Answer: a

57. If a theory is proven to be incorrect, it is totally useless.
a. True

b. False
Answer: b

58. If you find yourself saying, "Ah! Of course!" with respect to a theory, that theory has explanatory relevance.
a. True
b. False
Answer: a

59. A testable theory is one that can potentially fail an empirical test.
a. True
b. False
Answer: a

60. A theory that generates research, even if it is later proven wrong, is a parsimonious theory.
a. True
b. False
Answer: b

61. A danger in using a confirmational strategy is the possibility of affirming the consequence.
a. True
b. False
Answer: a

62. Strong inference will work only if alternative explanations generate well-defined predictions.
a. True
b. False
Answer: a

63. When research generates data that support predictions of a theory, we can safely say that the theory was proven correct.
a. True
b. False
Answer: b

64. The best way to test theories is to use both confirmational and disconfirmational strategies together.
a. True
b. False
Answer: a

65. Interest in the Hull–Spence theory of learning died because the theory had become too complex.

a. True
b. False
Answer: a

66. Theories should be developed even before a good base of empirical data exists.
a. True
b. False
Answer: b

67. Experimentation without theory can lead to a significant amount of irrelevant data.
a. True
b. False
Answer: a

Essay Questions

68. Compare and contrast theory, hypothesis, and law. Define each and tell how they relate to one another.

69. What is the difference between a mechanistic explanation and a functional explanation? Which is better and why?

70. Define what is meant by descriptive, analogical, and fundamental theories. What are the defining characteristics, strengths, and weaknesses of each?

71. Discuss the various roles that theory plays in science. Where applicable, give examples.

72. Outline the characteristics of a good theory.

73. If you wanted to test a particular theory, what strategy would you use and why?