Chapter 1: Uncommon Sense and the Scientific Method

Test Bank

# Multiple Choice

1. The scientific method relies upon *\_\_\_\_\_\_* way of obtaining information.

A. intuition

B. legal reasoning

C. empirical

D. jurisprudence

Ans: C

Learning Objective: 1-2: To combat heuristic biases, the scientific method identifies a set of rules, procedures, and techniques that together form a unified conceptual framework--a formal way of thinking about a problem, idea, or question.

Cognitive Domain: Knowledge

Answer Location: The Scientific Method  
Difficulty Level: Medium

2. The question of whether marijuana should be legalized in the United States is an example of a(n) \_\_\_\_\_\_.

A. “is” question

B. “ought” question

C. “theoretical” question

D. “how” question

Ans: B

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Knowledge

Answer Location: What Is a Scientific Question?  
Difficulty Level: Easy

3. Denise plans to systematically investigate a research question through careful observation and experimentation. The toolbox of rules she will follow is called \_\_\_\_\_\_.

A. a cross-examination

B. an anecdotal procedure

C. journalism

D. the scientific method

Ans: D

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Application

Answer Location: The Power of Observation  
Difficulty Level: Hard

4. A prediction that researchers make before collecting data is called a(n) \_\_\_\_\_\_.

A. theory

B. a priori hypothesis

C. post hoc hypothesis

D. variable

Ans: B

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Knowledge

Answer Location: From Theory to Testable Hypothesis  
Difficulty Level: Easy

5. A highly representative sample is important because it allows researchers to \_\_\_\_\_\_.

A. generalize to a wider sample

B. generalize to a wider population

C. cherry pick specific participants

D. maximize the homogeneity of their sample

Ans: B

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Comprehension

Answer Location: Sampling and Populations   
Difficulty Level: Medium

6. If a study is reliable this means that the study produces \_\_\_\_\_\_ results.

A. meaningful

B. unbiased

C. replicable

D. accurate

Ans: C

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Comprehension

Answer Location: Reliability and Validity  
Difficulty Level: Medium

7. A confound provides a(n) \_\_\_\_\_\_.

A. method for improving a study’s internal validity

B. method for improving a study’s external validity

C. necessary effect on the dependent variable

D. alternative explanation for a study’s results

Ans: D

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Knowledge

Answer Location: Reliability and Validity  
Difficulty Level: Easy

8. Danny measures couples’ feelings of closeness in a dark or a brightly lit room. In this study, the room’s brightness is the \_\_\_\_\_\_.

A. control variable

B. independent variable

C. dependent variable

D. confound

Ans: B

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Application

Answer Location: Variables as the Language of Research  
Difficulty Level: Hard

9. As part of an experiment on prosocial behavior, Kyle compliments or insults each participant and then measures how much time they are willing to donate to help the research project. In this example, the amount of time that the participants are willing to help is the \_\_\_\_\_\_ variable.

A. confound

B. independent

C. dependent

D. control

Ans: C

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Application

Answer Location: Variables as the Language of Research  
Difficulty Level: Hard

10. All statistics are based on the logic of \_\_\_\_\_\_.

A. probability

B. pseudoscience

C. observation

D. chance

Ans: A

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Comprehension

Answer Location: Evaluating Evidence and Theory   
Difficulty Level: Medium

11. A sample statistic is an estimate of \_\_\_\_\_\_.

A. reliability

B. cultural values

C. population statistic

D. randomness

Ans: C

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Knowledge

Answer Location: Sampling and Populations   
Difficulty Level: Easy

12. A theory performs three major functions. Which of the following is NOT one of the main functions?

A. organization

B. evaluation

C. explanation

D. prediction

Ans: B

Learning Objective: 1-2: To combat heuristic biases, the scientific method identifies a set of rules, procedures, and techniques that together form a unified conceptual framework--a formal way of thinking about a problem, idea, or question.

Cognitive Domain: Knowledge

Answer Location: What Is a Scientific Question?   
Difficulty Level: Easy

13. Statistics provide a set of quantitative tools that allow us to rule out \_\_\_\_\_\_ as an explanation for the phenomenon under study.

A. confirmatory bias

B. confounding variables

C. null hypothesis

D. randomness

Ans: D

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Comprehension

Answer Location: Evaluating Evidence and Theory   
Difficulty Level: Medium

14. Serendipity effect is \_\_\_\_\_\_.

A. falsely rejecting the null hypothesis

B. the confounding variable skewing the correlation

C. accidentally discovering something fortunate

D. having valid yet unreliable data

Ans: C

Learning Objective: 1-1: Our minds are susceptible to systematic errors of thinking, reasoning, decision making, and judgment, known as heuristic biases.

Cognitive Domain: Knowledge

Answer Location: Curiosity and Imagination   
Difficulty Level: Easy

15. A heuristic is a \_\_\_\_\_\_.

A. simplifying algorithm

B. simple form of bias

C. simplifying mental shortcut

D. simplifying decision process

Ans: C

Learning Objective: 1-1: Our minds are susceptible to systematic errors of thinking, reasoning, decision making, and judgment, known as heuristic biases.

Cognitive Domain: Knowledge

Answer Location: Intuition  
Difficulty Level: Easy

16. A hypothesis is NOT \_\_\_\_\_\_.

A. derived from a theory

B. a statement of relationship

C. testable

D. levels of the independent variable

Ans: D

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Comprehension

Answer Location: From Theory to Testable Hypothesis   
Difficulty Level: Medium

17. Passing from generation to generation, the specific ways in which groups of people interact with each other, behave, and understand the world is called \_\_\_\_\_\_.

A. culture

B. genes

C. society

D. biases

Ans: A

Learning Objective: 1-1: Our minds are susceptible to systematic errors of thinking, reasoning, decision making, and judgment, known as heuristic biases.

Cognitive Domain: Comprehension

Answer Location: Sampling and Populations  
Difficulty Level: Medium

18. Unlike cultural psychology, cross-cultural psychology focuses on \_\_\_\_\_\_.

A. how culture influences psychological phenomena

B. the universality of psychological processes

C. how culture influences thinking

D. how thinking influences culture

Ans: B

Learning Objective: 1-2: To combat heuristic biases, the scientific method identifies a set of rules, procedures, and techniques that together form a unified conceptual framework--a formal way of thinking about a problem, idea, or question.

Cognitive Domain: Comprehension

Answer Location: Sampling and Populations  
Difficulty Level: Medium

19. A statistical term that means “to come before” is \_\_\_\_\_\_.

A. post hoc

B. apropos

C. a priori

D. preceding

Ans: C

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Knowledge

Answer Location: From Theory to Testable Hypothesis  
Difficulty Level: Easy

20. Transparency of a study’s methods and procedures enhances the study’s \_\_\_\_\_\_.

A. validity

B. replicability

C. generalizability

D. empiricism

Ans: B

Learning Objective: 1-5: Psychological research today plays a critical role in rooting out error and myth and it is used to combat pseudoscientific beliefs. Pseudoscience preys on our naturally evolved and universal tendency for confirmatory bias.

Cognitive Domain: Comprehension

Answer Location: Science Versus Pseudoscience  
Difficulty Level: Medium

21. Pseudoscientific “findings” are often believed because humans have difficulty thinking in probabilities, so they instead rely on mental shortcuts or \_\_\_\_\_\_.

A. heuristics

B. cognitive illusions

C. confirmatory biases

D. empiricism

Ans: A

Learning Objective: 1-5: Psychological research today plays a critical role in rooting out error and myth and it is used to combat pseudoscientific beliefs. Pseudoscience preys on our naturally evolved and universal tendency for confirmatory bias.

Cognitive Domain: Comprehension

Answer Location: Why Pseudoscience?   
Difficulty Level: Medium

22. Scientists should adopt a doctrine of falsification when analyzing their results as a safeguard against \_\_\_\_\_\_.

A. the self-correcting nature of science

B. the confirmatory bias

C. disproving their theory

D. falsely rejecting their hypotheses

Ans: B

Learning Objective: 1-5: Psychological research today plays a critical role in rooting out error and myth and it is used to combat pseudoscientific beliefs. Pseudoscience preys on our naturally evolved and universal tendency for confirmatory bias.

Cognitive Domain: Comprehension

Answer Location: Why Pseudoscience?   
Difficulty Level: Medium

23. Epistemology is the branch of philosophy that explores \_\_\_\_\_\_.

A. cognitive illusions

B. ways of knowing

C. logic

D. probability theory

Ans: B

Learning Objective: 1-5: Psychological research today plays a critical role in rooting out error and myth and it is used to combat pseudoscientific beliefs. Pseudoscience preys on our naturally evolved and universal tendency for confirmatory bias.

Cognitive Domain: Knowledge

Answer Location: Science Versus Pseudoscience  
Difficulty Level: Easy

24. By using the scientific method, researchers work to produce reliable and valid results while avoiding \_\_\_\_\_\_.

A. peer review

B. self-correction

C. connectivity

D. selective observation

Ans: D

Learning Objective: 1-5: Psychological research today plays a critical role in rooting out error and myth and it is used to combat pseudoscientific beliefs. Pseudoscience preys on our naturally evolved and universal tendency for confirmatory bias.

Cognitive Domain: Comprehension

Answer Location: Why Pseudoscience?  
Difficulty Level: Medium

# True/False

1. If a study is reliable, it must also be valid.

Ans: F

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Knowledge

Answer Location: Reliability and Validity   
Difficulty Level: Medium

2. If a study is valid, it must be reliable.

Ans: T

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Knowledge

Answer Location: Reliability and Validity   
Difficulty Level: Medium

3. Researchers try to maximize generalizability and minimize sample bias.

Ans: T

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Comprehension

Answer Location: Sampling and Populations   
Difficulty Level: Medium

4. Compared to a priori hypotheses, post hoc hypotheses are preferable.

Ans: F

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Comprehension

Answer Location: From Theory to Testable Hypothesis   
Difficulty Level: Medium

5. High quality experimental research typically controls all extraneous variables.

Ans: F

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Comprehension

Answer Location: Reliability and Validity  
Difficulty Level: Medium

6. When a researcher rules out all possible alternative explanations, a study is said to have high external validity.

Ans: F

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Comprehension

Answer Location: Reliability and Validity   
Difficulty Level: Medium

7. Focusing primarily on evidence that supports a hypothesis and not addressing evidence that refutes a hypothesis is an example of confirmatory bias.

Ans: T

Learning Objective: 1-5: Psychological research today plays a critical role in rooting out error and myth and it is used to combat pseudoscientific beliefs. Pseudoscience preys on our naturally evolved and universal tendency for confirmatory bias.

Cognitive Domain: Knowledge

Answer Location: Why Pseudoscience?   
Difficulty Level: Easy

8. The doctrine of falsification reflects the tendency of pseudoscientific studies to falsify results.

Ans: F

Learning Objective: 1-5: Psychological research today plays a critical role in rooting out error and myth and it is used to combat pseudoscientific beliefs. Pseudoscience preys on our naturally evolved and universal tendency for confirmatory bias.

Cognitive Domain: Knowledge

Answer Location: Why Pseudoscience?   
Difficulty Level: Easy

9. The study of a specific construct using the scientific method requires that it can be objectively measured.

Ans:

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Knowledge

Answer Location: Conclusion  
Difficulty Level: Easy

10. The scientific method tells us that a research question is fully answered once an empirical study has documented its results.

Ans: F

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Comprehension

Answer Location: Evaluating Evidence and Theory  
Difficulty Level: Medium

# Essay

1. What is sample bias and why is it a problem in psychological research?

Ans: Varies.

Sample bias is a specific form of bias in which certain members of a population are less likely than others to be included in a study. Sample bias can produce misleading results (e.g., when researchers “cherry pick” participants who support their viewpoint) and can negatively affect the extent to which a study’s findings can be generalized to a wider population.

Learning Objective: 1-2: To combat heuristic biases, the scientific method identifies a set of rules, procedures, and techniques that together form a unified conceptual framework--a formal way of thinking about a problem, idea, or question.

Cognitive Domain: Comprehension

Answer Location: Sampling and Populations  
Difficulty Level: Medium

2. What is culture and why most researchers consider culture when investigating psychological questions?

Ans: Varies.

Culture refers to the collective beliefs, symbols, traditions, and ways of understanding the world that are specific to a society or group of individuals. Researchers must be aware that not all cultures think and behave in the same way. When researchers sample individuals from one culture (usually their own), they must understand that this can limit the generalizability of their findings. Ensuring that our samples of research participants are representative of the diversity of the population is an important consideration in designing research.

Learning Objective: 1-2: To combat heuristic biases, the scientific method identifies a set of rules, procedures, and techniques that together form a unified conceptual framework--a formal way of thinking about a problem, idea, or question.

Cognitive Domain: Comprehension

Answer Location: Sampling and Populations  
Difficulty Level: Medium

3. Control is an important part of many empirical investigations. Define control and discuss how it relates to internal validity and generalizability.

Ans: Varies.

Control refers to a researcher’s ability to measure or account for extraneous variables that could invalidate a study’s conclusions. Control, therefore, increases a study’s internal validity by reducing alternative explanations for a study’s results. At the same time, control can limit generalizability. For example, researchers who control for gender by surveying only women cannot then generalize its results to men.

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Comprehension

Answer Location: Variables as the Language of Research  
Difficulty Level: Medium

4. Define population and sample. Why do psychologists study samples rather than populations?

Ans: Varies.

A population is a complete set of units (people, animals, plants, or things). Usually, we do not have the ability to access a complete population when investigating a psychological question nor do we need to collect data from the entire population in order to understand the population. Instead, we select a sample--a group of units--from the population and use the characteristics of this sample to infer characteristics of the population. Provided that a sample is representative, this is an efficient way to understand the population.

Learning Objective: 1-3: Scientific questions are commonly framed in reference to a particular theory, which in turn generates a hypothesis that is tested by collecting empirical data from unbiased samples.

Cognitive Domain: Application

Answer Location: Sampling and Populations  
Difficulty Level: Hard

5. What is pseudoscience and why is it easy to fall prey to the allure of pseudoscientific findings?

Ans: Varies.

Pseudoscience is a field of study such as astrology or handwriting analysis that provides compelling and fascinating claims that people believe; however, these claims cannot withstand scientific scrutiny. Pseudoscience takes advantage of basic flaws in human reasoning, such as cognitive illusions, reliance on heuristics, and biases toward confirming evidence.

Learning Objective: 1-5: Psychological research today plays a critical role in rooting out error and myth and it is used to combat pseudoscientific beliefs. Pseudoscience preys on our naturally evolved and universal tendency for confirmatory bias.

Cognitive Domain: Comprehension

Answer Location: Science Versus Pseudoscience  
Difficulty Level: Medium

6. What is the scientific method and how does the scientific method affect research information?

Ans: Varies.

The scientific method identifies a set of rules, procedures, and techniques that together form a unified conceptual framework--a formal way of thinking about a problem, idea, or question. The scientific method lays out a foundation for how information is collected, measured, examined, and evaluated.

Learning Objective: 1-2: To combat heuristic biases, the scientific method identifies a set of rules, procedures, and techniques that together form a unified conceptual framework--a formal way of thinking about a problem, idea, or question.

Cognitive Domain: Comprehension

Answer Location: The Scientific Method  
Difficulty Level: Medium

7. Compare and contrast reliability and validity (as they pertain to research studies) and discuss how reliability and validity are related.

Ans: Varies.

Reliability refers to the consistency of a study’s data. A reliable study produces data that can be replicated. A valid study is a study that is answering the question it is asking. In other words, a valid study produces results that tell us about the specific phenomena under investigation. Think of reliability and validity as two related but distinct standards that you should use to evaluate research. A reliable study may not necessarily be valid, but a valid study has to be reliable.

Learning Objective: 1-4: A research study aims to measure the effects of an independent variable on a dependent variable and often includes control variables to reduce effects of unwanted confounds.

Cognitive Domain: Application

Answer Location: Reliability and Validity   
Difficulty Level: Hard

8. Why is the gold standard for an unbiased sample one that is formed via a random process?

Ans: Varies.

The closer the process for creating a sample is to purely random, the greater likelihood that the sample will be representative of a larger group. The objective is to maximize what is referred to as generalizability, which means the extent to which findings that are derived from a sample can be applied to a wider population. Remember, a major reason for the scientific method is to combat bias, and a key source of potential bias can originate from how a sample is selected.

Learning Objective: 1-2: To combat heuristic biases, the scientific method identifies a set of rules, procedures, and techniques that together form a unified conceptual framework--a formal way of thinking about a problem, idea, or question.

Cognitive Domain: Application

Answer Location: Sampling and Populations  
Difficulty Level: Hard