Multiple Choice

Identify the choice that best completes the statement or answers the question.

1. The last three days Alexa had a test and ate an energy bar on her way to school that morning, she did well on the test. Today she had a test, so she ate an energy bar on her way to school. Was her decision based on theoretical probability, experimental probability, or subjective judgment?
   a. A combination of theoretical probability and subjective judgment
   b. Theoretical probability
   c. Subjective judgment
   d. Experimental probability

2. Leila arrives at the airport 3 hours before her flight to Chicago because each of the past 4 times she has travelled to the USA, it took her over 1.5 h to get through check-in and security. Is her decision based on theoretical probability, experimental probability, or subjective judgment?
   a. Subjective judgment
   b. Experimental probability
   c. A combination of theoretical probability and subjective judgment
   d. Theoretical probability

3. Haley will not go on a cruise because the boat may sink even though cruise ships are very rarely involved in accidents. Is her decision based on theoretical probability, experimental probability, or subjective judgment?
   a. Subjective judgment
   b. Experimental probability
   c. A combination of theoretical and experimental probability
   d. Theoretical probability

4. According to the weather forecast, there is a 90% chance of rain. Martin had planned to go running but decides to go to the gym instead so he doesn’t get wet. Is his decision based on theoretical probability, experimental probability, or subjective judgment?
   a. Experimental probability
   b. Theoretical probability
   c. A combination of theoretical probability and subjective judgment
   d. Subjective judgment

5. The chance of winning a prize in a lottery was 15%. Claudia was having a lucky day, so she bought a ticket. Was her decision based on theoretical probability, experimental probability, or subjective judgment?
   a. Subjective judgment
   b. Experimental probability
   c. Theoretical probability
   d. A combination of experimental probability and subjective judgment

6. Adam boards the last car of the train because he’s noticed in the past that the last car always has available seats. Is his decision based on theoretical probability, experimental probability, or subjective judgment?
   a. Subjective judgment
   b. Experimental probability
   c. Theoretical probability
   d. A combination of theoretical probability and subjective judgment

7. On a hot sunny day in June, teenagers were surveyed to find out how they feel about the city building a new outdoor ice skating rink. In this survey, which of the following might be a problem?
i) Cultural sensitivity  
ii) Timing  
iii) Use of Language  
iv) Privacy  

8. Omar asked his classmates the following question.  
“Don’t you think apartment buildings should allow residents to have cats?”  
Which of the following might be a problem with his survey?  
i) Timing  
ii) Bias  
iii) Privacy  
iv) Cost  
a. i  
b. iv  
c. ii  
d. iii  

9. A cosmetics company wants to determine which eye shadow colours are preferred by the readers of a certain fashion magazine. What is the population they are interested in surveying?  
i) People who purchase the magazine  
ii) People who wear eye shadow  
iii) People who read the magazine  
iv) Fashion experts featured in the magazine  
a. i  
b. ii  
c. iv  
d. iii  

10. A newspaper company wants to make sure that the pages of its newspaper appear in the correct order. Which population is it interested in testing?  
i) All newspapers printed  
ii) Newspapers delivered to residences  
iii) Newspapers sold at newspaper stands  
iv) Newspapers delivered to businesses  
a. ii  
b. iv  
c. iii  
d. i  

11. A specialty craft store wants to know if customers are satisfied with the product selection. To find out, they interview every 20th person leaving the store for 1 week. Which sampling method does the store use?  
a. Simple random sampling  
b. Systematic sampling  
c. Cluster sampling  
d. Self-selected sampling  

12. A mobile phone company wants to know if its customers would be willing to pay a higher monthly fee for a plan that would cover international calls to Europe. To gather data, they make a list of cell phone numbers that regularly make calls to Europe and use a computer program to randomly select numbers from this list to call and survey. Which sampling method did the company use?  
a. Simple random sampling  
b. Systematic sampling  
c. Self-selected sampling  
d. Convenience sampling  

13. A school’s cafeteria manager wants to know whether changing the cafeteria menu will increase its the number of lunch specials it sells. On Wednesday, the manager surveys as many people in the cafeteria as he can to find out. Which sampling method did he use?  
a. Simple random sampling  
b. Cluster sampling  
c. Convenience sampling  
d. Systematic sampling  

14. A company hires students to fill boxes with cartons of fruit juice. The quality control manager wants to ensure each box contains the same number of each type of juice. For each student, the manager randomly selects and checks a box that the student filled.  
a. Cluster sampling  
b. Stratified random sampling  
c. Systematic sampling  
d. Convenience sampling
15. The administrator of a dance and fitness studio wants to know if there is interest in having more evening classes available. He surveys everyone who participates in yoga classes to see what they think. Which sampling method does he use?

a. Self-selected sampling  
   b. Stratified random sampling  
   c. Simple random sampling  
   d. Cluster sampling
Chapter 9 Self-Test
Answer Section

MULTIPLE CHOICE

1. ANS: D PTS: 1 DIF: Easy REF: 9.1 Probability in Society
   LOC: 9.SP4 TOP: Statistics and Probability (Chance and Uncertainty)
   KEY: Conceptual Understanding

2. ANS: B PTS: 1 DIF: Easy REF: 9.1 Probability in Society
   LOC: 9.SP4 TOP: Statistics and Probability (Chance and Uncertainty)
   KEY: Conceptual Understanding

3. ANS: A PTS: 1 DIF: Easy REF: 9.1 Probability in Society
   LOC: 9.SP4 TOP: Statistics and Probability (Chance and Uncertainty)
   KEY: Conceptual Understanding

4. ANS: A PTS: 1 DIF: Easy REF: 9.1 Probability in Society
   LOC: 9.SP4 TOP: Statistics and Probability (Chance and Uncertainty)
   KEY: Conceptual Understanding

5. ANS: A PTS: 1 DIF: Easy REF: 9.1 Probability in Society
   LOC: 9.SP4 TOP: Statistics and Probability (Chance and Uncertainty)
   KEY: Conceptual Understanding

6. ANS: B PTS: 1 DIF: Moderate REF: 9.1 Probability in Society
   LOC: 9.SP4 TOP: Statistics and Probability (Chance and Uncertainty)
   KEY: Conceptual Understanding

7. ANS: B PTS: 1 DIF: Easy REF: 9.2 Potential Problems with Collecting Data
   LOC: 9.SP1 TOP: Statistics and Probability (Data Analysis)
   KEY: Conceptual Understanding

8. ANS: C PTS: 1 DIF: Easy REF: 9.2 Potential Problems with Collecting Data
   LOC: 9.SP1 TOP: Statistics and Probability (Data Analysis)
   KEY: Conceptual Understanding

9. ANS: D PTS: 1 DIF: Easy REF: 9.3 Using Samples and Populations to Collect Data
   LOC: 9.SP2 TOP: Statistics and Probability (Data Analysis)
   KEY: Conceptual Understanding

10. ANS: D PTS: 1 DIF: Easy REF: 9.3 Using Samples and Populations to Collect Data
    LOC: 9.SP2 TOP: Statistics and Probability (Data Analysis)
    KEY: Conceptual Understanding

11. ANS: B PTS: 1 DIF: Easy REF: 9.4 Selecting a Sample
    LOC: 9.SP2 TOP: Statistics and Probability (Data Analysis)
    KEY: Conceptual Understanding

12. ANS: A PTS: 1 DIF: Easy REF: 9.4 Selecting a Sample
    LOC: 9.SP2 TOP: Statistics and Probability (Data Analysis)
    KEY: Conceptual Understanding

13. ANS: C PTS: 1 DIF: Easy REF: 9.4 Selecting a Sample
    LOC: 9.SP2 TOP: Statistics and Probability (Data Analysis)
    KEY: Conceptual Understanding

14. ANS: B PTS: 1 DIF: Easy REF: 9.4 Selecting a Sample
    LOC: 9.SP2 TOP: Statistics and Probability (Data Analysis)
    KEY: Conceptual Understanding

15. ANS: D PTS: 1 DIF: Easy REF: 9.4 Selecting a Sample