1. Explain why even the simplest kind of measurement, such as finding your height, still presents complicated issues.
   ANSWER: ANY REASONABLE ANSWER OK. EXAMPLES: THE ACCURACY OF YOUR MEASUREMENT DEPENDS ON YOUR MEASUREMENT TOOL; HOW TALL YOU STAND WHEN YOU MEASURE; WHETHER OR NOT YOU WEAR SHOES, ETC.

2. What can happen if you don’t define your measurement properly?
   a. Your data could contain bias.
   b. Your data could be inaccurate and inconsistent.
   c. Your results could be questioned in a court of law.
   d. All of the above.
   ANSWER: D

3. Which of the following are examples of measurements?
   a. The gender of each member of your statistics class.
   b. Your opinion on whether smoking should be banned in all public places (support, oppose, no opinion).
   c. The number of deaths in each state in a given year due to accidents.
   d. All of the above.
   ANSWER: D

4. Political pollsters, who are only interested in surveying people who will actually vote, learned long ago that to determine whether or not someone is a likely voter, it is useless to simply ask them if they plan to vote. Explain why.
   ANSWER: MOST PEOPLE WILL SAY YES, CREATING BIAS IN THE SUBSEQUENT SURVEY RESULTS.

5. Explain why the ordering of questions on a survey can create bias in the resulting data.
   ANSWER: IF ONE QUESTION REQUIRES RESPONDENTS TO THINK ABOUT SOMETHING THAT THEY MAY NOT HAVE OTHERWISE CONSIDERED, THEN THE ORDER IN WHICH QUESTIONS ARE PRESENTED CAN CHANGE THE RESULTS.

6. Name two of the pitfalls listed in your textbook that you have to watch out for when asking questions in a survey or experiment.
   ANSWER: ANY TWO OF THE FOLLOWING: 1) DELIBERATE BIAS; 2) UNINTENTIONAL BIAS; 3) DESIRE TO PLEASE; 4) ASKING THE UNINFORMED; 5) UNNECESSARY COMPLEXITY; 6) ORDERING OF QUESTIONS; OR 7) CONFIDENTIALITY VS. ANONYMITY.

7. How much can respondents’ answers to survey questions change based on simple changes in wording?
   a. They won’t change much at all; changes in wording have little impact on the data.
   b. Answers can change a great deal, even with small changes in wording.
   c. The wording would have to change in a major way, but if it did, the answers would change as well.
   d. None of the above.
   ANSWER: B
8. Which of the following is not one of the pitfalls that can cause problems when asking questions in a survey or experiment?
   a. Deliberate bias
   b. Desire to please
   c. Ordering of questions
   d. All of the above are pitfalls
   ANSWER: D

9. What motivates a respondent to understate the true response about an undesirable social habit such as smoking?
   a. Wanting to create deliberate bias
   b. Desire to please
   c. Lack of memory
   d. None of the above
   ANSWER: B

10. If a survey is __________ then the researcher cannot possibly attach your name to your survey results.
    ANSWER: ANONYMOUS

11. If a survey is __________ then the researcher can attach your name to your survey results, but promises not to release that information.
    ANSWER: CONFIDENTIAL

12. Suppose you want to set up a survey involving only closed questions. Why is it important to first conduct a pilot survey involving open questions?
    ANSWER: IF YOU DON’T OFFER THE MOST POPULAR POSSIBLE ANSWERS TO YOUR CLOSED QUESTION, EVEN IF YOU INCLUDE AN ALTERNATIVE OF ‘OTHER’, THE RESULTS OF YOUR SURVEY COULD CHANGE DRAMATICALLY, COMPARED TO THE RESULTS OF A SURVEY WITH ONLY OPEN QUESTIONS.

13. Suppose you designed a survey with only closed questions, and for each question you included ‘other’ as one of the possible answers. Suppose for one of the questions you found that 75% of the respondents chose ‘other’. Explain why this is not a good thing, and what could have been done to prevent it.
    ANSWER: THIS IS NOT GOOD BECAUSE THE MOST POPULAR CHOICES WERE NOT OFFERED ON THE SURVEY, AND YOU LOST INFORMATION REGARDING WHAT THOSE CHOICES SHOULD HAVE BEEN. TO PREVENT THIS, CONDUCT A PILOT STUDY BEFOREHAND IN OPEN QUESTION FORM, AND INCLUDE THE MOST POPULAR ANSWERS AS CHOICES ON THE FINAL (CLOSED) VERSION OF THE QUESTION.

14. What is the biggest problem with having open questions on a survey or in an experiment?
   a. The participants’ responses are difficult to summarize or categorize.
   b. You have to worry more about how an open question is worded than how a closed question is worded.
   c. There is no problem with open questions; they provide the most accurate information about how a person really feels.
   d. None of the above.
   ANSWER: A
15. What is the biggest problem with having closed questions on a survey or in an experiment?
   a. The choice of possible answers is critical and if not done properly, can lead to misleading information.
   b. The participants' responses are hard to categorize or summarize.
   c. There is no problem with closed questions; they provide the most accurate information by offering certain explicit choices.
   d. You have to worry more about how a closed question is worded than how an open question is worded.
   **ANSWER:** A

16. Which of the following is an example of an open question?
   a. “Which of the following four issues do you feel is the most important problem facing this country today? If you prefer, you may name a different problem as most important; simply choose ‘other’ and explain your answer.” (Four choices are given, plus ‘other’.)
   b. “Don’t you think it’s time that we faced the fact that unemployment is the biggest problem facing this country today?” (Choices are: yes, no, no opinion.)
   c. “What do you feel is the most important problem facing this country today?” (No choices offered; participant must fill in the blank.)
   d. None of the above.
   **ANSWER:** C

17. Which of the following is an example of a closed question?
   a. “Which of the following four issues do you feel is the most important problem facing this country today? If you prefer, you may name a different problem as most important; simply choose ‘other’ and explain your answer.” (Four choices are given, plus ‘other’.)
   b. “Write down in one or two sentences how you feel about this statement: The biggest problem facing our nation today is a lack of presidential leadership.”
   c. “What do you feel is the most important problem facing this country today?” (No choices offered; participant must fill in the blank.)
   d. None of the above.
   **ANSWER:** A

18. Why do IQ tests continue to be surrounded by controversy as a measure of intelligence?
   **ANSWER:** IT IS VERY DIFFICULT TO DEFINE WHAT IS MEANT BY INTELLIGENCE. IT IS DIFFICULT TO MEASURE SOMETHING IF YOU CAN'T EVEN AGREE ON WHAT IT IS YOU ARE TRYING TO MEASURE.

19. Explain why it is so difficult to measure the amount of stress in someone’s life from a statistical standpoint.
   **ANSWER:** THERE IS NO FIXED DEFINITION OF STRESS. STRESS IS ALSO A RELATIVE MEASURE; WHAT IS HIGH STRESS TO ONE PERSON IS LOW OR MODERATE STRESS TO ANOTHER.

20. How can a measurement lead to misleading results in a survey?
   a. If the measurement leaves out obvious other possible choices.
   b. If the ‘no opinion’ or ‘neutral’ results are combined with either the positive or negative results to make that group appear larger than it really is.
   c. If the questions are worded in a misleading way.
   d. All of the above.
   **ANSWER:** D

21. What is the most common method for trying to measure attitudes and emotions?
   a. Have respondents read certain statements and determine the extent to which they agree/disagree with the statements.
   b. Use totally open ended questions in a face to face interview.
   c. Have participants evaluated by a psychotherapist.
   d. None of the above.
   **ANSWER:** A
22. How important is the wording of the question in terms of getting a good measurement in a survey or experiment?
   a. Extremely important. Poorly worded questions can lead to bias and inaccuracy.
   b. Only somewhat important; it’s the essence of the issue that matters.
   c. It shouldn’t matter at all. A question is a question.
   d. It depends on the situation.
   ANSWER: A

23. The U.S. Government regularly reports the unemployment rate. Which of the following is included in the U.S. government’s definition of what it means for a person to be unemployed?
   a. They don’t have a job.
   b. They have been actively looking for work in the prior four weeks.
   c. They are currently available for work.
   d. All of the above are included in the definition.
   ANSWER: D

24. A good measurement has to be well _________ in order to give accurate and reliable data.
   ANSWER: DEFINED

25. When reading about a statistical study involving the amount of stress in a person’s life, be sure to find out exactly how stress was _________ by the researchers before deciding whether or not these results are credible.
   ANSWER: MEASURED OR DEFINED

26. Give an example of a measurement that is reliable but not valid.
   ANSWER: ONE WHICH GIVES REPEATABLE RESULTS BUT IS NOT AN APPROPRIATE MEASURE. EXAMPLE: USING A VERY PRECISE BATHROOM SCALE TO MEASURE PERCENTAGE OF BODY FAT.

27. What is measurement error?
   ANSWER: THE AMOUNT BY WHICH A MEASUREMENT DIFFERS FROM THE TRUE VALUE.

28. Explain the following statement: “The more variability there is within each group, the more difficult it is to detect a difference between groups.”
   ANSWER: SUPPOSE YOU WERE COMPARING MEN’S HEIGHTS TO WOMEN’S HEIGHTS. IF ALL THE MEN WERE THE SAME HEIGHT, AND ALL THE WOMEN WERE THE SAME HEIGHT, THE ONLY DIFFERENCE IN HEIGHT WOULD BE DUE TO GENDER. BUT BECAUSE OF NATURAL VARIABILITY FROM MAN TO MAN, AND FROM WOMAN TO WOMAN, THIS MAKES IT HARDER TO CLEARLY SEE DIFFERENCES IN HEIGHT BETWEEN MEN AND WOMEN.

29. Give three reasons why variability across measurements can occur.
   ANSWER: 1) MEASUREMENT ERROR; 2) NATURAL VARIABILITY ACROSS INDIVIDUALS AT ANY GIVEN TIME; AND 3) NATURAL VARIABILITY IN A CHARACTERISTIC OF THE SAME INDIVIDUAL ACROSS TIME.

30. Which of the following is not an example of a discrete variable?
   a. The number of coins in a person’s pocket right now.
   b. Your exact age.
   c. The number of heads that could appear on two flips of a fair coin.
   d. All of the above are examples of a discrete variable.
   ANSWER: B
31. If you tried to measure happiness by using an IQ test, which of the following aspects of a good measurement would you be violating?
   a. Validity
   b. Reliability
   c. Unbiasedness
   d. None of the above.
   **ANSWER:** A

32. If you used a 12-inch ruler to measure the distance across a large pond, which of the following aspects of a good measurement would you be violating?
   a. Validity
   b. Reliability
   c. Unbiasedness
   d. None of the above.
   **ANSWER:** B

33. If you weighed yourself using a bathroom scale that always reads five pounds under the actual weight, which of the following aspects of a good measurement would you be violating?
   a. Validity
   b. Reliability
   c. Unbiasedness
   d. None of the above.
   **ANSWER:** C

34. _________ variables are those for which each individual can be placed into a group but the groups may not have any logical ordering.
   **ANSWER:** CATEGORICAL

35. _________ variables are those for which we can record a numerical value and then order the respondents according to those values.
   **ANSWER:** MEASUREMENT OR QUANTITATIVE