QUIZ CH2

NAME:

1. Which of the following is the best definition of the term ‘data’?
   a. Any number, such as 1, 3, or 10.
   b. Numbers such as 1 and 10 and words such as yes or no.
   c. Any number or other piece of information to which meaning has been attached.
   d. None of the above.
   **ANSWER:** C

2. Which of the following are examples of data?
   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

3. How you determine whether or not to believe a statistic you come across depends on what?
   a. How the data were collected.
   b. How the data were measured.
   c. How the data were summarized.
   d. All of the above.
   **ANSWER:** D

4. Which of the following is true about statistics?
   a. Numbers don’t lie. All statistics have to be believed.
   b. Statistics can be made to say whatever you want them to say. No statistic should be believed.
   c. Any statistic that is based on data is likely to be correct.
   d. All statistics should be carefully scrutinized before determining whether or not they can be believed. Some are correct, and some are not.
   **ANSWER:** D

5. __________ is a collection of numbers or other pieces of information to which meaning has been attached (such as your height in inches or your gender).
   **ANSWER:** DATA

6. Give one example of where a news story involving a statistical study can originate.
   **ANSWER:** ANY OF THE FOLLOWING ARE OK: ACADEMIC CONFERENCES; SCHOLARLY JOURNALS; PRESS RELEASES.

7. One source of news stories about statistical studies involves in-depth research reports provided by government and private agencies. Name one disadvantage of these types of reports.
   **ANSWER:** THEY ARE NOT NECESSARILY PEER-REVIEWED OR CHECKED BY NEUTRAL EXPERTS ON THE TOPIC.

8. Which of the following describes possible origins of news stories?
   a. Academic conferences
   b. Scholarly journals
   c. Government and private agency reports
   d. All of the above
   **ANSWER:** D
9. How do reporters find stories based on statistical studies in their areas of interest?
   a. Routinely reading scholarly journals.
   b. Attending academic conferences.
   c. Watching for government reports.
   d. All of the above.
   ANSWER: D

10. Every academic discipline holds a(n) __________, usually annually, in which researchers can share their results with others. Reporters routinely attend them to look for interesting news stories.
    ANSWER: CONFERENCE

11. Explain why it is important to find out not only who conducted a study, but also who funded the study.
    ANSWER: IF THE STUDY WAS FUNDED BY AN ORGANIZATION THAT WOULD LIKELY HAVE A STRONG PREFERENCE FOR A CERTAIN OUTCOME, THERE MAY BE A CONFLICT OF INTEREST THAT COMPROMISES THE RESULTS. YOU MUST BE SURE PROPER SCIENTIFIC PROCEDURES WERE CONDUCTED.

12. In the case of a cola taste test, explain why it is important that both the researchers and the participants be blind as to which brands are which.
    ANSWER: ANY CLUES MIGHT BIASE THE RESPONDENTS TO CHOOSE THE BRAND THAT (THEY THINK) THE RESEARCHERS WANT THEM TO CHOOSE.

13. Give an example of how the timing of a survey can easily bias the results of a study.
    ANSWER: ANY ACCEPTABLE ANSWER OK. EXAMPLES: A SURVEY ASKING OPINIONS ON GUN CONTROL IMMEDIATELY FOLLOWING A SCHOOL SHOOTING INCIDENT; EMPLOYMENT SURVEY QUESTIONS ASKED IN A TELEPHONE SURVEY GIVEN BETWEEN 9AM AND 5PM DURING THE WEEK.

14. Why is it important to know how the individuals or objects in a study were selected?
   a. It is important to know to whom the results can be extended.
   b. It is important for determining whether or not there is bias in the results.
   c. Both a) and b) are true.
   d. It is not important to know how the individuals were selected; only the size of the sample matters.
   ANSWER: C

15. Suppose a group of students who reported smoking marijuana was found to have lower test scores than a group of students who reported they don’t smoke marijuana. What is the most that can be concluded with regard to the population of all students?
   a. Smoking marijuana causes lower test scores.
   b. Smoking marijuana may be related to lower test scores.
   c. Students who smoke marijuana have lower test scores than students who don’t.
   d. None of the above.
   ANSWER: B

16. Surveys relying on voluntary responses are likely to be __________ because only those who feel strongly about the issues are likely to respond.
    ANSWER: BIASED
17. A psychology student conducts a study to measure the amount of motivation students have for their math courses. She hands out a survey in every math class at her school on the day before spring break. What is the problem with her sampling process?

**ANSWER:** STUDENTS WHO ARE MOST LIKELY TO BE IN MATH CLASS THE DAY BEFORE SPRING BREAK WILL BE MORE MOTIVATED THAN THOSE WHO ARE GONE THAT DAY. THIS WILL BIASE THE RESULTS.

18. When you see the phrase ‘of those who responded’ in reference to the results of a survey, what do you need to worry about? Explain your answer.

**ANSWER:** YOU NEED TO WORRY ABOUT THE PERCENTAGE OF PEOPLE WHO RESPONDED. IF THE RATE OF RESPONSE IS LOW, THEN THE RESULTS WILL BE BIASED BECAUSE THEY ARE BASED ON PEOPLE WITH STRONG OPINIONS.

19. Why is it important to know about any differences in two groups being compared, in addition to the factor of interest?

a. If the groups are too different, it becomes difficult to see the effects that are due only to the factor of interest.

b. If the groups are too similar, then any difference found in the factor must be simply due to chance.

c. Unless there is a big difference in the results, it doesn’t matter whether or not the groups themselves are different.

d. None of the above.

**ANSWER:** A

20. A survey of female readers of a certain women’s magazine showed that of those responding, slightly over 90% answered no to the question: ‘If you had it to do over again, would you marry the same man?’ What does this mean to you, as an educated consumer of data?

a. It means that the overwhelming majority of married women regret marrying their spouse.

b. It means you should find out what percentage of the readers responded before you decide anything.

c. It means little or nothing; this survey is too biased to be credible.

d. None of the above.

**ANSWER:** C

21. The people who are most likely to respond to a volunteer response survey are those who have a strong ______ about the questions being asked.

**ANSWER:** OPINION OR EMOTIONAL RESPONSE

22. Using volunteers for a study introduces problems in the form of ________.

**ANSWER:** BIAS

Narrative: Supermarket pricing
Suppose you are interested in determining which of three local supermarkets has the best prices so you can decide where to shop.

23. {Supermarket pricing narrative} Suppose you are approached by one of the supermarkets and they said they would fund your study if they would be allowed to select the products for price comparison. Which of the seven critical components of a good study is at issue here?

**ANSWER:** THE SOURCE OF THE FUNDING IS CAUSING A DEFINITE CONFLICT OF INTEREST HERE AND WOULD SERIOUSLY BIASE THE RESULTS.
24. {Supermarket pricing narrative} What are the objects studied in this example?
**ANSWER:** ITEMS IN THE GROCERY STORES FOR WHICH PRICES WILL BE RECORDED.

25. {Supermarket pricing narrative} Discuss one of the issues that would come up when defining the cost of an item in a supermarket and how you would handle it as the researcher.
**ANSWER:** ANY ACCEPTABLE ANSWER OK. EXAMPLE: WHETHER OR NOT TO USE THE SALE PRICE; WHICH SIZE OF THE PRODUCT TO USE; WHETHER OR NOT TO WORRY ABOUT THE BRAND NAME; USING THE ADVERTISED PRICE VS. THE ACTUAL PRICE THAT SHOWS UP ON THE REGISTER (IF DIFFERENT).

26. {Supermarket pricing narrative} Explain briefly how you would use the results of your study to decide where to shop after the study is done.
**ANSWER:** ANY ACCEPTABLE ANSWER OK. EXAMPLES: LOOK AT THE AVERAGE AMOUNT OF MONEY YOU COULD SAVE AT A PARTICULAR STORE OVER A GIVEN YEAR (COMPARED TO A GIVEN DAY); LOOK AT WHICH STORE DOES BEST ON CERTAIN TYPES OF PRODUCTS (FOOD ITEMS, HOUSEHOLD ITEMS, ETC.)

27. Which of the following is a well worded survey question for determining a voter’s opinion on a tax increase for education?
   a. Would you be willing to agree to a small tax increase that would help the education of our children?
   b. Do you agree with a tax increase for education?
   c. How do you feel about a tax increase for education (agree, disagree, neutral)?
   d. All of the above are well worded questions.
**ANSWER:** C

28. What impact can nonrespondents have on survey results?
   a. The nonrespondents will have a negative impact; the results of the survey will be biased toward the opinions of the respondents.
   b. The nonrespondents will have no effect because they didn’t respond to the survey.
   c. The nonrespondents will have a positive impact; without them, the results of the survey will be more dramatic and more likely to be picked up by the news media.
   d. None of the above.
**ANSWER:** A

29. What type of sample would give the most unbiased data?
   b. A random sample.
   c. A sample with a high number of respondents.
   d. None of the above.
**ANSWER:** B

30. The time to consider the seven components of a good statistical study is ________ the study has been (is being) conducted.
**ANSWER:** BEFORE

31. Sometimes jury trials use ________ as expert witnesses to point out strengths or weaknesses in surveys or experiments used as evidence in the trial.
**ANSWER:** STATISTICIANS