

Name: _____

Conditional Probability and Tables:

Please answer the following questions. Write the answers in a Word document and send to me via email. Questions involving multiple answers can be listed separated by a comma. Multiple choice answers, you may write the answer choices as A, B, C, and D. First answer choice is A, second is B, and so on...

Question 1

Solve the problem.

What method of data collection would you use to collect data for a study where a drug was given to 40 patients and a placebo to another group of 40 patients to determine if the drug has an effect on a patient's illness?

- ☒ observational study
- ☐ survey
- ☐ published source
- ☐ designed experiment

Question 2

Identify which of these types of sampling is used: random, stratified, systematic, cluster, convenience.

A pollster uses a computer to generate 500 random numbers, then interviews the voters corresponding to those numbers.

- ☐ Systematic
- ☐ Convenience
- ☐ Stratified
- ☐ Cluster
- ☐ Random

Question 3

Solve the problem.

A personnel director studied the eating habits of a company's employees. The director noted whether employees brought their own lunch to work, ate at the company cafeteria, or went out to eat lunch. This type of data collection would best be considered as a(n) _____.

- ☐ designed experiment
- ☐ observational study

Question 4

Solve the problem.

A watchdog group is investigating how people are treated during the foreclosure process. Surveys were mailed to a random sample of 300 people who had recently been threatened with foreclosure. 75 of the surveys were returned by the postal service because the intended recipients had moved and left no forwarding address. What type of problem has occurred?

- ☐ measurement error
- ☐ selection bias
- ☐ nonresponse bias

Question 5

Frances is interested in whether students at his college would like to see a portion of the campus preserved as green space. Using student numbers, he randomly contacts 300 students and receives a response from 75. Of those who responded, 64% favored the preservation of green space on campus. This scenario is describing what type of sampling bias?

- ☐ Voluntary response bias
- ☐ Survey bias
- ☐ Nonresponse bias
- ☐ Measurement bias

Question 6

Determine whether a census is practical in the situation described. Explain your reasoning.

You want to determine the mean salary of all biology instructors at the University of Illinois.

- ☐ A census is practical. The number of biology instructors at the University of Illinois is not very large and it would probably be easy to obtain their salaries through a survey that promised anonymity.
- ☐ A census is not practical. The number of biology instructors at the University of Illinois is too large and it would probably be difficult to obtain their salaries because of privacy issues.

Question 7

Identify the variable of interest in the study.

The highway department paves one section of an Interstate with Type A concrete and an adjoining section with Type B concrete and observes how long it takes until cracks appear in each.

- ☐ Whether Type A concrete provides better traction than Type B concrete
- ☐ The difference between cost of the two types of concrete
- ☐ The difference between the measured length of time it takes for cracks to appear in each type of concrete

Question 8

Determine whether a census is practical in the situation described. Explain your reasoning.

You want to determine the mean length of all the snakes in Illinois.

- ☐ A census is practical. The population is small and it would be simple to measure their lengths.
- ☐ A census is not practical. The number of snakes in Illinois is much too large.

Question 9

Determine whether the statement is based on census data or sample data.

After inspecting all of 55,000 kg of meat stored at the Wurst Sausage Company, it was found that 45,000 kg of the meat was spoiled.

- ☐ Sample data
- ☐ Census data

Question 10

Fill in the blank to complete the statement.

Researchers are interested in learning more about the age of women when they marry for the first time so they survey 500 married or divorced women and ask them how old they were when they first married. The collection of the ages of the 500 women when they first married is a _____.

- ☐ Sample
- ☐ Population
- ☐ Statistic
- ☐ Parameter

Question 11

Solve the problem.

A study in the state of Georgia was conducted to determine the percentage of all community college students who have taken at least one online class. 1500 community college students were contacted and asked if they had taken at least one online class during their time at their community college. These responses were then used to estimate the percentage of all community college students who have taken at least one online class. What type of variable is being collected?

- ☐ quantitative data
- ☐ qualitative data

Question 12

Choose the best wording for the question in the study.

In a survey to assess attitudes toward genetically modified foods, which of the following survey questions will give the most accurate results?

- ☐ Do you agree with increasing the production of genetically modified foods which could be harmful to the environment?
- ☐ How do you feel about allowing untested genetically modified foods to be sold in stores?
- ☐ Do you agree with increasing the production of genetically modified foods to increase the world food supply?
- ☐ How do you feel about genetically modified foods?

Question 13

Select the sample most representative of the population of interest.

The Director of Food Operations at a small college campus wants to determine student concerns about cafeteria food.

- ☐ A randomly selected group of 30 students entering the dining hall before dinner
- ☐ A randomly selected group of 30 registered students
- ☐ A randomly selected group of 30 students who have signed food contracts
- ☐ A randomly selected group of 30 students leaving the dining hall after dinner

Question 14

Identify the variable of interest in the study.

A T.V. show's executives raised the fee for commercials following a report that the show received a "No. 1" rating in a survey of viewers.

- ☐ Whether the show's rating has an effect on the cost of the commercials
- ☐ The responses to the survey question
- ☐ Whether raising the fee for commercials has an effect on the show's rating

Question 15

A company sponsoring a new Internet search engine wants to collect data on the ease of using it. Which is the best way to collect the data?

- ☐ experiment
- ☐ simulation
- ☐ census
- ☐ sample survey
- ☐ observational study