Identify the study as observational or experimental.
1) To determine how satisfied its clients are with its facility, a health club sends out surveys to all of its members asking them to rate various aspects of the club.
   A) Observational   B) Experimental

2) In a clinical trial, 780 participants suffering from high blood pressure were randomly assigned to one of three groups. Over a one-month period, the first group received the experimental drug, the second group received a placebo, and the third group received no treatment. The diastolic blood pressure of each participant was measured at the beginning and at the end of the period and the change in blood pressure was recorded. The average change in blood pressure was calculated for each of the three groups and the three averages were compared.
   A) Experimental   B) Observational

3) Twenty volunteers who suffer from sleep apnea are randomly divided in half so that ten receive a new medication to reduce snoring while the remaining ten receive a placebo that looks like the medication. The volunteers are unaware of which group they are in and are observed at a sleep clinic overnight.
   A) Observational   B) Experimental

4) At one hospital, 674 women were diagnosed with breast cancer. Five years later, 88% of the Caucasian women and 83% of the African American women were still alive.
   A) Observational   B) Experimental

Identify the flaw(s) in the experiment or study described.
5) At one hospital, 674 women were diagnosed with breast cancer. Five years later, 88% of the Caucasian women and 83% of the African American women were still alive. A researcher concludes that being Caucasian causes women with breast cancer to have an increased chance of surviving five years. Why is this conclusion not justified?

6) At one hospital, 674 women were diagnosed with breast cancer. Five years later, 88% of the Caucasian women and 83% of the African American women were still alive. A researcher concludes that being Caucasian causes women with breast cancer to have an increased chance of surviving five years. Since there is no random assignment and there may have been lurking variables, this conclusion is not justified. Which of the following are possible lurking variables?
   I: Income
   II: Neighborhood where patient lives
   III: Quality of health care
   IV: Diet
   V: Number of years surviving since diagnosis

7) Researchers reported that going to the gym regularly increases your chance of finding a high paying job. These findings were based on incomes reported by 200 active members of a gym and 200 people who do not belong to a gym. Why is this conclusion not justified?

8) Researchers reported that for men, being unmarried increases the risk of depression. These findings were based on the medical records of 400 married men and 500 unmarried men. Why is this conclusion not justified?
9) Researchers reported that for men, being unmarried increases the risk of depression. These findings were based on the medical records of 400 married men and 500 unmarried men. Since there is no random assignment, this conclusion is not justified because there may be lurking variables. Which of the following are possible lurking variables?

I: Rate of depression
II: Income
III: Type of employment
IV: Age
V: Gender

A) II, IV   B) II, III, IV, V   C) II, III   D) III, IV   E) II, III, IV

Provide an appropriate response.

10) The manager of a natural foods grocery is considering the addition of a play area and would like to know what percentage of its customers shop with children under the age of 8. To obtain an estimate of this percentage, one morning between 9:00 and 11:00 the cashiers record how many of their customers have children under the age of 8 with them. What type of sample does this represent?

A) A convenience sample   B) A volunteer sample
C) A simple random sample   D) A census