Quiz 1

Please show your work in all the problems.

**Problem 1: True or False**

1. In an observational study the subjects which have the condition whose effects are being studied are the controls.
2. The number of children in a family is a quantitative, continuous variable.
3. Randomized experiments are convenient to minimize the effect of confounding.
4. In a controlled experiment the investigators do not assign the subjects to treatment or control.
5. The value of a population parameter is always known beforehand.
6. In a histogram with the density scale the total area is 100%.

(6 pts (1 each))

**Problem 2:** Some studies find an association between liver cancer and smoking. However alcohol consumption is a confounding variable. This means.

- Alcohol causes liver cancer.
- Drinking is associated with smoking, and alcohol causes liver cancer

Please choose one option and explain briefly.

(3 pts)

**Problem 3:** A survey is carried out at a university to estimate the percentage of smokers undergraduates. What is the population? What is the parameter?

(3 pts)

**Problem 4:** The monthly Gallup Poll opinion survey is based on a sample of about 1,500 persons, “scientifically chosen as a representative cross section of the American public.” The Gallup Poll thinks the sample is representative mainly because:

- it resembles the population with respect to such characteristics as race, sex, age, income and education
- it was chosen using a probability method

Select the correct option and explain briefly.

(3 pts)