Question 1

A professor decides to make his class notes available online. At the end of the quarter, several students mention in the course evaluation that having notes readily available helped them to do well in class. This is an example of:

A. Observational Study
B. An Experiment
C. Neither

Question 2

Researchers in Britain randomly divide a large number of preterm babies into three groups. One received donated breast milk, one received infant formula made for preterm babies, and the third received regular infant formula. Each diet was used for one month as a sole food or as a supplement to mother's milk. Sixteen years later, the children returned and had their blood pressure measured. It was found that diastolic and systolic blood pressure both tended to be lower in the children who were fed breast milk than in the children who were fed formula. This study is an example of:

A. An experiment
B. An Observational study
C. A Census

Question 3

Suppose you would like to determine which age groups in the U.S. (18-29, 30-49, 50-64, or 65 or older) currently identify watching television as their favourite way to spend an evening. The most appropriate statistical study to answer this question would be:

A. A survey
B. An observational study this is not a survey
C. An experiment

Question 4

A zoologist studying adult bears measures a number of different variables. Which of the following possible variables is categorical?

A. The weight in pounds of an adult bear
B. The level of aggression (low, moderate, high) displayed by an adult bear
C. The number of fish an adult bear eats in a particular day.

Question 5

When ordering vinyl replacement windows, the following variables are specified for each window. Which of these variables is quantitative?

A. Window style – double-hung, casement, or awning
B. Area of the window opening in square inches
C. Window style- single-pane or double-pane

Question 6

A professor gave a statistics final to 32 students. Following is a dotplot of the results.

What percentage of students scored above 90?

A. 15.6%
B. 84.4%
C. 12.5%

Question 7

A professor gave a statistics final to 32 students. A dotplot of the result follows.

The center of this distribution is located at approximately

A. 72.5
B. 87.5
C. 80.5

Question 8

A review of voter registration records in a small town yielded the following table of the number of males and females registered as Democrat, Republican, or some other party affiliation.

Which of the following bar graphs represents the distribution of party affiliation among all voters in this town?

Question 9

Which of the following studies would be considered an example of statistical inference?

A. Before this season's Super Bowl, a newspaper prints a bar graph displaying the distribution of past Super Bowl Most Valuable Players by position.
B. A study involving a large number of heart bypass patients found that the patients who took vitamin E supplements for several weeks prior to their operation had significantly better heart function after the procedure than the patients who took placebo (sham) supplements.
C. A news magazine tabulates the number of auto accidents, number of related injuries, and number of related fatalities in each year from 1995 to 2005.

Question 10

A researcher wants to study the effect of regular exercise on cholesterol level. The researcher compares the cholesterol levels of 50 people who belong to a local gym and exercise their regularly with the cholesterol levels of 50 people from the same community who do not exercise regularly. The cholesterol levels of the gym members are substantially lower. The researcher can conclude that

A. Belonging to a gym reduces cholesterol level
B. Exercising regularly at a gym reduces cholesterol level
C. Members of a local gym who exercise their regularly have lower cholesterol levels than people in the community who do not exercise regularly

Question 1

The stem-and-leaf diagram below gives the distribution of the ages in years of 20 participants at a family reunion. Which of the following statements about the distribution is correct?

A. The mean is larger than the median.
B. The distribution is strongly skewed to the left.
C. It makes the most sense to use the mean and standard deviation as a numerical summary of the centre and spread of this distribution.

Question 2

Independently selected groups of middle-school children were given a poem to memorize. After a certain period of time, they were asked to recall as much of the poem as they could. A back-to-back stemplot of the distribution of the number of words each group of children could correctly remember is displayer below.

Which of the following statements about this graph is false?

A. The Group 2 distribution contains an outlier, but the Group 1 Distribution does not.
B. On average, children in Group 2 were able to recall more words than children in Group 1.
C. The third quartile of the Group 1 distribution is larger than the maximum value of the Group 2 distribution (that is, 25% of the Group 1 values are larger than any Group 2 value).

Question 3

A statistics teacher asks her students how many hours, on average; they spend working for pay each week. The responses are: 21, 30, 0, 0, 15, 0, 15, 12, 10, 32.5, 0, 15, 10, 15, 5, and 25. A histogram starting at 0 hours and using bar widths of 10 would look like which of the following?

Question 4

Data for daily values of the Dow Jones industrial stock market average for the last part of 2005 and the first part of 2006 are displayed in the following time plot.

This plot displays

A. A trend.
B. Seasonal variation (cycles).
C. Both (A) and (B).

Question 5

Suppose that a particular set of observations has the ogive (cumulative relative frequency graph) shown below. Recall that each point (x, y) in the ogive, x = the left endpoint of a class, and y= the percentage of observations in all classes below that class.

The median of the distribution is located

A. In the class from 6 up to but not including 8.
B. In the class from 14 up to but not
C. In the class from 16 up to but not including 18.

Question 6

In which of the following situations would a pie chart be an appropriate graph to use to summarize your data?

A. You want to display the distribution of favourite color for the students in your statistics class.
B. You are giving a talk on "the decay of the American family" and want to show in a graph how the number of divorces in American marriages has increased between 1960 and 1998.
C. You want to compare the life expectancies of different professions by displaying and comparing graphs of ages at death for random samples of famous scientists, authors, actors, and politicians.

Question 7

From March 1981 to February 1983, the number of burglaries committed each month in a Georgia town was recorded. The numbers are given in the following chart. Between months 12 and 13, a law was enacted requiring citizens to own a gun. Town officials felt this law might decrease the number of burglaries by acting to deter criminals.

The mean number of burglaries per month for months 13 to 24 (the months after the law was enacted) is

A. 2.50
B. 3.375.
C. 2.83.

Question 8

You receive a fax with six bids (in millions of dollars): 1.3, 1.9, 1.2, 2.2, 2.4, and x, where x is some number that is too blurry to read. Without knowing what x is, what can we say about the median of this data set?

A. It is 1.9.
B. It must be between 1.3 and 2.2.
C. It could be any number between 1.2 and 2.4.

Question 9

A sample was taken of the salaries of employees at a large company. Following are the salaries (in thousands of dollars) earned by 20 employees this past year.

Suppose each employee in the company receives a $3000 raise for next year (that is, each employee's salary is increased by $3000). Which of the following will then occur?

A. The sample standard deviation will increase by 3000.
B. The sample mean will remain unchanged.
C. The interquartile range (IQR) will remain unchanged.

Question 10

You determine that the standard deviation of a set of data is equal to 0. This result tells you that

A. The mean must also be equal to 0.
B. You must have made an arithmetic mistake in your calculations.
C. All the observations have the same value.

Question 11

According to the "1.5 x IQR" rule, how many outliers are there in the data set 110, 144, 115, 123, 114, 118, 72, 156?

A. None.
B. One.
C. Two.

Question 12

From the side-by-side boxplots shown below, which of the following statements is true? (None that data set 1 corresponds to "var1" on the vertical axis and data set 2 corresponds to "var2" on the vertical axis.)

A. The IQR of data set 1 is smaller than that of data set 2.
B. The range of data set 1 is larger than that of data set 2.
C. The median of data set 1 is larger than that of data set 2.