S O L U T I O N S

(1) Fill in the missing words to the quote: "Statistical methods may be described as methods for drawing conclusions about _____ based on _____ computed from the _____ ." **(C)**

(2) Since the population size is always larger than the sample size, then the sample statistic**: (E)**

(3) Which of the variables summarized in Figure 1 could be normally distributed (assuming large sample size)? **(D)**

(4) Molly earned a score of 940 on a national achievement test. The mean test score was 850 with a standard deviation of 100. Which statement characterizes Molly's relative standing among the students who took the test? (Assume that test scores are normally distributed.) **(D)**

(5) A randomized experiment was done by randomly assigning each participant either to walk for half an hour three times a week or to sit quietly reading a book for half an hour three times a week. At the end of a year the change in participants' blood pressure over the year was measured, and the change was compared for the two groups. This is a randomized experiment rather than an observational study because: **(C)**

(6) A national consumer magazine reported the following correlations. The correlation between car weight and car reliability is -0.30. The correlation between car weight and annual maintenance cost is 0.20. Which of the following statements are true? **(E)**

(7) A survey of rural farmers in Burkina Faso had been undertaken in order to measure the impact of fertilizer on cotton yield. Each farmer was asked about average amount of fertilizer he/she used and average yield per plot. These are _____ data that contain _____ variables**. (B)**

(8) Researcher is interested whether individuals with different lifestyles also differ in their dieting habits. The data were collected for 489 individuals on the number of meals they consume per day. The mean of the sample is 2.5 meals per day and standard deviation is equal to 2. What is the most reasonable statement about the shape of the distribution: **(E)**

(9) In a sample of 90 customers who were asked how many times per month they do grocery shopping, the following descriptive statistics have been obtained: mean = 9 and standard deviation = 3. The histogram is bell-shaped. Which statement about the distribution is correct? **(A)**

(10) What is the predicted value of sales if advertising budget is equal to 10 (round to the nearest decimal point). **(C)**

(11) Which of the following conditions is necessary for the population mean to be equal to the population median? **(C)**

(12) The distribution of a random variable W is bell-shaped. If 95% of observations are between 75 and 115, what is the mean of the distribution? **(C)**

(13) For which line would the SSE (sum of the squared errors) be <u>smallest</u>? **(B)**

(14) What is the coefficient of determination? **(A)**

(15) About what percent of observations are between 1 and 2? **(C)**

(16) Given this sample, what is a reasonable inference about the <u>population</u> median? **(A)**

(17) Consider tabulation of a random variable Y. What is the coefficient of variation? (Round to the second decimal point) **(E)**

(18) Approximately how many observations are greater than 6? **(B)**

(19) Rating (event A) and decision to return (event B) are independent events because **(D)**

(20) What is the chance that a customer who rated the restaurant as "poor" will return to that restaurant? **(D)**