Hypothesis tests

MULTIPLE CHOICE

1. An assumption made about the value of a population parameter is called a
   a. hypothesis
   b. conclusion
   c. confidence
   d. significance

   ANS: A PTS: 1 TOP: Hypothesis Tests

2. In hypothesis testing if the null hypothesis is rejected,
   a. no conclusions can be drawn from the test
   b. the alternative hypothesis is true
   c. the data must have been accumulated incorrectly
   d. the sample size has been too small

   ANS: B PTS: 1 TOP: Hypothesis Tests

3. The average monthly rent for one-bedroom apartments in Chattanooga has been $700. Because of the downturn in the real estate market, it is believed that there has been a decrease in the average rental. The correct hypotheses to be tested are
   a. H_0: $\mu \geq 700$ H_a: $\mu < 700$
   b. H_0: $\mu = 700$ H_a: $\mu \neq 700$
   c. H_0: $\mu > 700$ H_a: $\mu \leq 700$
   d. H_0: $\mu < 700$ H_a: $\mu \geq 700$

   ANS: A PTS: 1 TOP: Hypothesis Tests

4. The average hourly wage of computer programmers with 2 years of experience has been $21.80. Because of high demand for computer programmers, it is believed there has been a significant increase in the average wage of computer programmers. To test whether or not there has been an increase, the correct hypotheses to be tested are
   a. H_0: $\mu < 21.80$ H_a: $\mu \geq 21.80$
   b. H_0: $\mu = 21.80$ H_a: $\mu \neq 21.80$
   c. H_0: $\mu > 21.80$ H_a: $\mu \leq 21.80$
   d. H_0: $\mu \leq 21.80$ H_a: $\mu > 21.80$

   ANS: D PTS: 1 TOP: Hypothesis Tests

5. In the past, 75% of the tourists who visited Chattanooga went to see Rock City. The management of Rock City recently undertook an extensive promotional campaign. They are interested in determining whether the promotional campaign actually **increased** the proportion of tourists visiting Rock City. The correct set of hypotheses is
   a. H_0: $P > 0.75$ H_a: $P \leq 0.75$
   b. H_0: $P < 0.75$ H_a: $P \geq 0.75$
   c. H_0: $P \geq 0.75$ H_a: $P < 0.75$
   d. H_0: $P \leq 0.75$ H_a: $P > 0.75$

   ANS: D PTS: 1 TOP: Hypothesis Tests

6. A soft drink filling machine, when in perfect adjustment, fills the bottles with 12 ounces of soft drink. Any over filling or under filling results in the shutdown and readjustment of the machine. To determine whether or not the machine is properly adjusted, the correct set of hypotheses is
   a. $H_0: \mu < 12$ $H_a: \mu \leq 12$
   b. $H_0: \mu \leq 12$ $H_a: \mu > 12$
   c. $H_0: \mu \neq 12$ $H_a: \mu = 12$
   d. $H_0: \mu = 12$ $H_a: \mu \neq 12$

   ANS: D PTS: 1 TOP: Hypothesis Tests

7. The manager of an automobile dealership is considering a new bonus plan in order to increase sales. Currently, the mean sales rate per salesperson is five automobiles per month. The correct set of hypotheses for testing the effect of the bonus plan is
   a. $H_0: \mu < 5$ $H_a: \mu \leq 5$
   b. $H_0: \mu \leq 5$ $H_a: \mu > 5$
   c. $H_0: \mu > 5$ $H_a: \mu \leq 5$
   d. $H_0: \mu \geq 5$ $H_a: \mu < 5$

   ANS: B PTS: 1 TOP: Hypothesis Tests

8. A weatherman stated that the average temperature during July in Chattanooga is 80 degrees or less. A sample of 32 Julys is taken. The correct set of hypotheses is
   a. $H_0: \mu \geq 80$ $H_a: \mu < 80$
   b. $H_0: \mu \leq 80$ $H_a: \mu > 80$
   c. $H_0: \mu \neq 80$ $H_a: \mu = 80$
   d. $H_0: \mu < 80$ $H_a: \mu > 80$

   ANS: B PTS: 1 TOP: Hypothesis Tests

9. The sum of the values of α and β
   a. always add up to 1.0
   b. always add up to 0.5
   c. is the probability of Type II error
   d. None of these alternatives is correct.

   ANS: D PTS: 1 TOP: Hypothesis Tests

10. The probability of committing a Type I error when the null hypothesis is true is
    a. the confidence level
    b. β
    c. greater than 1
    d. the Level of Significance

    ANS: D PTS: 1 TOP: Hypothesis Tests

11. The level of significance is the
    a. maximum allowable probability of Type II error
    b. maximum allowable probability of Type I error
    c. same as the confidence coefficient
    d. same as the *p*-value

    ANS: B PTS: 1 TOP: Hypothesis Tests