1. A public opinion poll surveyed a simple random sample of voters. Respondents were classified by gender (male or female) and by voting preference (Republican, Democrat, or Independent). Results are shown below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Voting Preferences | | | |
|  | Republican | Democrat | Independent | Row total |
| Male | 200 | 150 | 50 | 400 |
| Female | 250 | 300 | 50 | 600 |
| Column total | 450 | 450 | 100 | 1000 |

If you conduct a chi-square test of independence, what is the expected frequency count of male Independents?

(A) 40   
(B) 50   
(C) 60   
(D) 180   
(E) 270

*2.* A pet food manufacturer runs an experiment to determine whether three brands

of dog food are equally preferred by dogs. In the experiment, 150 dogs are individually

presented with three dishes of food, each containing a different brand, and their choices are noted. Tabulations show that 62 dogs go to brand A, and 43 to brand B, and 45 go to brand C. Is this sufficient evidence to say that dogs have preferences among the brands? Test at the 10% level (of significance).

(A) No, with Chi2 = 2.09, there is not sufficient evidence even at the 25% level.

(B) No, with Chi2  = 4.36, there is not sufficient evidence at the 10% level.

(C) No, with Chi2 = 19.0, there is not sufficient evidence even at the 0.1% level.

(D) Yes, with Chi2  = 4.36, there is sufficient evidence at the 10% level.

(E) Yes, with Chi2 = 19.0, there is sufficient evidence even at the 0.1% level.

3. The American Medical Association (AMA) wishes to determine the percentage

of obstetricians who are considering leaving the profession because of the rapidly

increasing number of lawsuits against obstetricians. How large a sample should

be taken to find the answer to within ±3% at the 95% confidence level?

(A) 6 (B) 33 (C) 534 (D) 752 (E) 1068

4. Which of the following are true statements?

I. If there is sufficient evidence to reject a null hypothesis at the 10% level, then

there is sufficient evidence to reject it at the 5% level.

II. If the p-value (the risk of a Type 1-error) is larger than the level of significance (alpha), the null-hypothesis should be accepted.

III. If a hypothesis test is conducted at the 1% level, the value of the test statistic will be ≤1.

(A) I only

(B) II only

(C) III only

(D) I, II, and III

(E) None are true.

5. When carrying out a large sample test about a population proportion p where we are testing H0: p = 0.4 against H1: p < 0.4 and z is the calculated test statistic, we reject H0 at level of significance a (alpha) if and only if

|  |  |
| --- | --- |
| A. | E:\Bowerman_Stuff\Bowerman_Student_Quizzes\Quizzes\b9140001.jpg |
| B. | Z < - Za/2 | |

|  |  |
| --- | --- |
| C. | Z <- Za |

|  |  |
| --- | --- |
| D. | Z > Za |

|  |  |
| --- | --- |
| E. | p-value <a |

|  |  |
| --- | --- |
| F. | Both C and E |

6. We have computed the probability of an event to be 0.001. Which of the following

statements is correct?

(A) The event is unlikely to occur.

(B) We would expect the event to occur about 10 percent of the time.

(C) The event cannot occur.

(D) All of the above.

7. All of the following are assumptions of the error terms in the simple linear regression model except

|  |  |
| --- | --- |
| **A.** | normality. |

|  |  |
| --- | --- |
| **B.** | error terms with a mean of zero. |

|  |  |
| --- | --- |
| **C.** | constant variance. |

|  |  |
| --- | --- |
| **D.** | variance of one. |

8. For a given hypothesis test, if we do not reject H0, and H0 is true,

|  |  |
| --- | --- |
| **A.** | no error has been committed. |

|  |  |
| --- | --- |
| **B.** | type I error has been committed. |

|  |  |
| --- | --- |
| **C.** | type II error has been committed. |

|  |  |
| --- | --- |
| **D.** | type III error has been committed. |

9. What is one way to decrease the width (=size) of a confidence interval?

(a) Increase the sample size

(b) Use a smaller confidence level

(c) Both (a) and (b) are correct

(d) Neither (a) nor (b) are correct

(e) Answer (b) is correct, (a) is wrong

10. For the same set of observations on a specified dependent variable, two different independent variables were used to develop two simple linear regression models. The results are summarized as follows:  
  
**Based on the above results, we can conclude that:

|  |  |
| --- | --- |
| **A.** | The SSE for Model II is smaller than the SSE for Model I. |

|  |  |
| --- | --- |
| **B.** | A prediction based on Model II is likely better than a prediction based on Model I. |

|  |  |
| --- | --- |
| **C.** A Prediction based on Model I is likely better than a prediction based on Model II. |  |

11. If the sample mean of a data set is 15 and the sample standard deviation is 9,

what percent of the data would you expect to fall between 6 and 24, assuming that the

data distribution is fairly symmetric?

(A) 68 percent

(B) 81.5 percent

(C) 95 percent

(D) 99.7 percent