Question

Enter the letter of the item on the right in the box next to the matching item on the left.

a	Y	a. response variable
e	β_0	b. error term
c	β_1	c. slope parameter
d	X	d. predictor variable
b	ε	e. intercept parameter

Check My Answer

Correct.
Y is the response variable and X is the predictor variable. β_0 and β_1 are the intercept parameter and slope parameter, respectively. ε is the error term.

Question

Variable	DF	Parameter Estimate	Standard Error	t Value
Intercept	1	5	1.0	5
X_1	1	10	2.5	4

- a. 5
- b. 135
- c. 115
- d. 0
- e. not enough information

Check My Answer

Correct.
The best guess of y when X_1 = 13 is the intercept plus the slope times X_1:

$$\widehat{Y} = \widehat{\beta}_0 + \widehat{\beta} X_1$$
$$135 = 5 + 10(13)$$

Question

Which one of the following statements is true?

- *a.* A Pearson correlation coefficient is a measure of linear association.
- *b.* A nonsignificant *p*-value for a Pearson correlation means no relationship.
- *c.* A negative Pearson correlation indicates a low degree of linear association.
- *d.* A random scatter of data implies a negative correlation.

Check My Answer

Correct.
The Pearson correlation statistic is a measure of the linear relationship, or association, between two continuous variables. The closer the value is to -1, the stronger the negative linear relationship is between the two variables. The closer the value is to 0, the weaker the linear relationship. A correlation coefficient of 0 means that no linear relationship or association exists between the two variables.

Question

The correlation between tuition and rate of graduation at U.S. colleges is 0.55. What does this mean?

- *a.* The way to increase graduation rates at your college is to raise tuition.
- *b.* Increasing graduation rates is expensive, causing tuition to rise.
- *c.* Students who are wealthier tend to graduate more often than poorer students.
- *d.* None of the above.

Check My Answer

Correct.
Correlation means only that some sort of relationship exists between two variables. The 0.55 correlation is positive, so we know that schools that have higher tuition rates tend to have higher graduation rates. However, we don't know anything about why this is true. Correlation only asks IF a relationship exists.

Question

A statistically conservative multiple comparison test tends to do which of the following?

- *a.* find more significant differences than might otherwise be found without adjustment
- *b.* vary in its findings, depending on the observed data
- *c.* find fewer significant differences than might otherwise be found without adjustment

Check My Answer

Correct.
With a statistically conservative multiple comparison method, such as the Tukey or Dunnett method, you control for the EER, so there's a tendency to find fewer significant differences than might otherwise be found. When you make no adjustments for multiple comparisons, you are likely to find more significant differences than might otherwise be found.

Question

Compared to a multiple comparisons test that controls the experimentwise error rate, what characteristics will a multiple comparisons test that only controls the comparisonwise error rate tend to have? Select all that apply.

- [x] *a.* a higher Type I error rate, but a lower Type II error rate
- [ ] *b.* a lower Type I error rate, but a higher Type II error rate
- [ ] *c.* fewer significant differences than might otherwise be found
- [x] *d.* more significant differences than might otherwise be found

Check My Answer

Correct.
If only the comparisonwise error rate is controlled, the overall risk of a Type I error across all the comparisons is increased (and therefore the risk of Type II error is decreased), so the test might find more significant differences than would otherwise be found.

Question

What is the predictor variable in the following scenario: Do people spend different amounts of money depending on which type of credit card they have, Visa or MasterCard?

- *a.* credit card type
- *b.* people
- *c.* money
- *d.* none of the above

Check My Answer

Correct.
The categorical predictor variable is the type of credit card used, which has two levels, Visa and MasterCard.

Question

What does the R-square value measure? Select all that apply.

- [ ] *a.* the correlation between the independent and dependent variables
- [x] *b.* the proportion of total sum of squares accounted for by the model
- [ ] *c.* model sum of squares over error sum of squares
- [x] *d.* a measure of how well the model fits the data

Check My Answer

Correct.
R-square is a goodness of fit measure. It measures the proportion of variability explained by the model by dividing the model sums of squares by the total sums of squares.

Question

The SAS data set **Cereal** contains the categorical predictor variable **Process** and the continuous response variable **Weight**. Complete the MODEL statement in the program below to perform an one-way ANOVA.

```
proc glm data=cereal;
   class process;
   model [          ] = [          ];
   means process/hovtest;
run;
quit;
```

Show Hint Show Answer

In the MODEL statement, you specify the variables as indicated in the ANOVA model: dependent, or response variable = independent, or predictor variable.

```
model Weight = Process;
```