**Crown Institute of Higher Education**



**BUS104 Statistics for Business**

**Online quiz 3 (weighting = 5%)**

**Due: Week 12, Friday, 23.55 pm**

***Instruction: (i) 20 minutes to complete, (ii) each question worth 1/2 mark and (iii) one attempt only.***

1. In the linear regression equation ' y = a + bx'; the coefficient is:

1. y
2. x
3. b
4. a

Consider the information given in the table to answer question 2.

|  |  |
| --- | --- |
| **Advertising $000** | **Sales ($00)** |
| 3 | 50 |
| 5 | 250 |
| 7 | 700 |
| 6 | 450 |
| 6.5 | 600 |
| 8 | 1000 |
| 3.5 | 75 |
| 4 | 150 |
| 6.5 | 200 |
| 7 | 750 |

2. In the information given, the sales is:

1. Dependent variable
2. Independent variable
3. Variable of interest
4. Sample

3.Consider the Scatter-plot graph presented below to answer question 3.

3. Which of the following statement is incorrect?

1. Advertising and sales variables are inversely related
2. Advertising and sales are positively related
3. Increase in adverting is likely to increase the sales
4. Decrease in advertising is likely to decrease the sales
5. Bar graph

Consider the regression statistics to answer question 4 and 5.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Regression Statistics*** | |  |  |  |  |
| Multiple R | 0.895767 |  |  |  |  |
| R Square | 0.802399 |  |  |  |  |
| Adjusted R Square | 0.777699 |  |  |  |  |
| Standard Error | 154.2329 |  |  |  |  |
| Observations | 10 |  |  |  |  |
| ANOVA |  |  |  |  |  |
|  | ***df*** | ***SS*** | ***MS*** | ***F*** | ***Significance F*** |
| Regression | 1 | 772760.1 | 772760.1 | 32.48556 | 0.0004546 |
| Residual | 8 | 190302.4 | 23787.8 |  |  |
| Total | 9 | 963062.5 |  |  |  |
|  |  |  |  |  |  |
|  | ***Coefficients*** | ***Standard Error*** | ***t Stat*** | ***P-value*** |  |
| Intercept | -560.578 | 179.2447 | -3.12744 | 0.01407 |  |
| X Variable 1 | 173.9961 | 30.52771 | 5.699611 | 0.000455 |  |

4. What is the best the least square to fit the 10 data points presented above?

1. 173.9963 + -560.578x
2. -560.578+173.9963x
3. 30.52771+173.9961x
4. 173.9961+179.2447x

5. Which of the following statements is correct?

1. The coefficient is statistically significant
2. The model is reasonably robust and reliable
3. Almost 80% of changes in sales is explained by the changes in advertising
4. All of the above

6. Finding the centre four - quarter moving average in this way helps us identify the:

1. Cyclical component
2. Seasonal component
3. Trend component
4. Irregular component

7. When we use an approach, which implies that the forecast for the next time period should take into account the observed error in the earlier forecast for the current time period, then we are using:

1. Trend analysis
2. Decision tree analysis
3. Regression analysis
4. Exponential smoothing

8. Which of the following is a major problem for forecasting especially when using regression analysis?

1. The past cannot be known
2. Future may not follow the patterns of the past
3. The future exactly follows the pattern of the past
4. The future is entirely certain

9. The index number is used:

1. To measure changes in a variable over time
2. To measure changes in demand
3. To measure changes in price
4. To measure changes in quality

10. A simple aggregate price index:

1. Compares absolute prices to absolute quantities
2. Ignores relative quantities
3. Compares relative quantities to relative prices
4. Considers relative quantities