

## Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

☐ Estimation, Prediction of Regression Model Residual Analysis

☐ Estimation, Prediction of Regression Model Residual Analysis - II

☐ MULTIPLE REGRESSION MODEL - I

☐ MULTIPLE REGRESSION MODEL-II

☐ Categorical variable regression

☐ Important data Files

☒ Quiz: Week 7: Assignment 7

☐ Solution for Assignment 7

Week 8

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## Week 7: Assignment 7

The due date for submitting this assignment has passed.

Due on 2023-03-15, 23:59 IST.

Assignment submitted on 2023-03-12, 09:45 IST

1) In a regression analysis, the error term is a random variable with a mean or expected value of

1 point

- ☒ zero  
☐ one  
☐ any positive value  
☐ any value

Yes, the answer is correct.

Score: 1

Accepted Answers:

zero

2) If the coefficient of determination is a positive value, then the coefficient of correlation

1 point

- ☐ must also be positive  
☐ must be zero  
☒ can be either negative or positive  
☐ must be larger than 1

Yes, the answer is correct.

Score: 1

Accepted Answers:

can be either negative or positive

3) The interval estimate of the mean value of  $y$  for a given value of  $x$  is

1 point

- ☐ prediction interval estimate  
☒ confidence interval estimate  
☐ average regression  
☐  $x$  versus  $y$  correlation interval

Yes, the answer is correct.

Score: 1

Accepted Answers:

confidence interval estimate

4) Larger values of  $r^2$  imply that the observations are more closely grouped about the

1 point

- ☐ average value of the independent variables  
☐ average value of the dependent variable  
☒ least squares line  
☐ origin

Yes, the answer is correct.

Score: 1

Accepted Answers:

least squares line

5) In a regression analysis, the coefficient of determination is 0.4225. The coefficient of correlation in this situation is

1 point

- ☒  $\pm 0.65$   
☐  $\pm 0.1785$   
☐ any positive value  
☐ any value

Yes, the answer is correct.

Score: 1

Accepted Answers:

$\pm 0.65$

6) In a regression and correlation analysis if  $r^2 = 1$ , then

1 point

- ☐ SSE must also be equal to one  
☒ SSE must be equal to zero  
☐ SSE can be any positive value  
☐ SSE must be negative

Yes, the answer is correct.

Score: 1

Accepted Answers:

SSE must be equal to zero

7) If the coefficient of correlation is 0.8, the percentage of variation in the dependent variable explained by the variation in the independent variable is

1 point

- ☐ 0.80%  
☐ 80%  
☐ 0.64%  
☒ 64%

Yes, the answer is correct.

Score: 1

Accepted Answers:

64%

8) If the coefficient of determination is equal to 1, then the coefficient of correlation

1 point

- ☐ must also be equal to 1
- ☒ can be either -1 or +1
- ☐ can be any value between -1 to +1
- ☐ must be -1

Yes, the answer is correct.

Score: 1

Accepted Answers:

can be either -1 or +1

9) If all the points of a scatter diagram lie on the least squares regression line, then the coefficient of determination for these variables based on these data is

1 point

- ☐ 0
- ☒ 1
- ☐ either 1 or -1, depending upon whether the relationship is positive or negative
- ☐ could be any value between -1 and 1

Yes, the answer is correct.

Score: 1

Accepted Answers:

1

10) A simple linear regression equation ( $y = mx + c$ ) will always pass through the point \_\_\_\_\_

1 point

- ☐ (0,0)
- ☐ (1,1)
- ☐ ( $Y_{\text{mean}}$ ,  $X_{\text{mean}}$ )
- ☒ ( $X_{\text{mean}}$ ,  $Y_{\text{mean}}$ )

Yes, the answer is correct.

Score: 1

Accepted Answers:

( $X_{\text{mean}}$ ,  $Y_{\text{mean}}$ )

