Unit 5 - Week 4

week4_assignment4

The due date for submitting this assignment has passed. **Due on 2018-02-21, 23:59 IST.**

Submitted assignment

Questions 1- 4 are based on the following case:

The tensile strength of a paper product is related to the amount of hardwood in the pulp. Ten samples are produced in the pilot plant, and the data obtained are shown in the following table.

Strength	Percent Hardwood	Strength	Percent Hardwood
160	10	181	20
171	15	188	25
175	15	193	25
182	20	195	28
184	20	200	30

1) The regression equation is *2 points*

- (i) Strength = 144 + 1.88 Hardwood
- (ii) Strength = -144 + 1.88 Hardwood
- (iii) Strength = 144 - 1.88 Hardwood
- (iv) None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) Strength = 144 + 1.88 Hardwood

2) The value of R^2 is *2 points*

- (i) 0.97
- (ii) 0.95
- (iii) 0.98
- (iv) None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) 0.97

3) The value of R^2 (adj) is *2 points*

- (i) 0.95
- (ii) 0.966
- (iii) 0.98
- (iv) None of these

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No, the answer is incorrect.
Score: 0

Accepted Answers:
(ii) 0.966

4) 95 percent confidence interval on the parameter β_1 is *2 points*

- (i) $1.60 < \beta_1 < 2.15$
- (ii) $1.69 < \beta_1 < 2.05$
- (iii) $1.59 < \beta_1 < 2.05$
- (iv) $1.69 < \beta_1 < 2.15$

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) $1.60 < \beta_1 < 2.15$

Questions 5- 7 are based on the following case:

A study was performed on wear of a bearing *y* and its relationship to *x*1 = oil viscosity and *x*2 =load. The following data were obtained.

y	x_1	x_2
193	1.6	851
230	15.5	816
172	22.0	1058
91	43.0	1201
113	33.0	1357
125	40.0	1115

5) The regression equation is *2 points*

- (i) Y = 351 - 1.27 x1 - 0.154 x2
- (ii) Y = 351 + 1.27 x1 + 0.154 x2
- (iii) Y = 351 - 1.27 x1 + 0.154 x2
- (iv) None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) Y = 351 - 1.27 x1 - 0.154 x2

6) The value of R^2 is *2 points*

- (i) 0.862
- (ii) 0.906
- (iii) 0.98
- (iv) None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) 0.862

7) The value of R^2 (adj) is *2 points*

- (i) 0.67
- (ii) 0.77
- (iii) 0.84
- (iv) None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:

(ii) 0.77

8) Hat matrix is **2 points**

(i) $H = X^T(X^TX)^{-1}X$

(ii) $H = X(X^TX)^{-1}X^T$

(iii) $H = X(X^TX)^TX^T$

(iv) $H = X(X^{-1}X)^TX^T$

No, the answer is incorrect.
Score: 0

Accepted Answers:
(ii) $H = X(X^TX)^{-1}X^T$

9) Adjusted R^2 statistics can be defined as **2 points**

(i) $R^2(adj) = 1 - \frac{(n-1)SS_E}{(n-p)SS_T}$

(ii) $R^2(adj) = 1 - \frac{(n-p)SS_E}{(n-1)SS_T}$

(iii) $R^2(adj) = 1 - \frac{(n-1)SS_T}{(n-p)SS_E}$

(iv) $R^2(adj) = 1 - \frac{(n-1)SS_R}{(n-p)SS_T}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) $R^2(adj) = 1 - \frac{(n-1)SS_E}{(n-p)SS_T}$

10) If, SS_E=0.16 and SS_T=0.52, then what is the value of R^2 **2 points**

(i) R^2=0.308
(ii) R^2=0.692
(iii) R^2=0.444
(iv) R^2= 3.25

No, the answer is incorrect.
Score: 0

Accepted Answers:
(ii) R^2=0.692

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