X

Unit 7 - Week 6

Week_6_Assignment_6

The due date for submitting this assignment has passed. **Due on 2018-03-07, 23:59 IST.**

Submitted assignment

An engineer suspects that the surface finish of a metal part is influenced by the depth of cut (A) and the feed rate (B). She selects three feed rates and four depths of cut. She then conducts a factorial experiment and obtains the following data: Use $\alpha = 0.05$.

	Depth of Cut (in)			
Feed Rate (in/min)	0.15	0.18	0.20	0.25
0.20	74	79	82	99
	64	68	88	104
	60	73	92	96
0.25	92	98	99	104
	86	104	108	110
	88	88	95	99
0.30	99	104	108	114
	98	99	110	111
	102	95	99	107

1) The sum of squares of A is: ***2 points***

- (i) 2125.11
- (ii) 2152.11
- (iii) 2100.11
- (iv) None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) 2125.11

2) The mean square value of residual is: ***2 points***

- (i) 28.72
- (ii) 28.99
- (iii) 25.00
- (iv) 26.66

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) 28.72

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3) The mean square value of pure error is: **2 points**

- (i) 28.72
- (ii) 28.74
- (iii) 25.56
- (iv) 27.77

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) 28.72

4) The significant effect(s) is/are: **2 points**

- (i) Only A
- (ii) Only B
- (iii) A and B
- (iv) A, B, and AB

No, the answer is incorrect.
Score: 0

Accepted Answers:
(iv) A, B, and AB

5) The model is: **2 points**

- (i) significant
- (ii) insignificant
- (iii) Data is insufficient
- (iv) Cannot be concluded

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) significant

6) 95% confidence interval estimate of the mean difference in response for feed rates of 0.20 and 0.25 in/min is: **2 points**

- $(i) - 19 \pm 6.032$
- $(ii) - 16 \pm 9.89$
- $(iii) - 16 \pm 9.032$
- $(iv) - 19 \pm 9.302$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$(iii) - 16 \pm 9.032$

Questions 7- 10 are based on the following case:

Johnson and Leone (Statistics and Experimental Design in Engineering and the Physical Sciences, Wiley 1977) describe an experiment to investigate the warping of copper plates. The two factors studies were the copper content (A) and the temperature (B) of the plates. The response variable was a measure of the amount of warping. The data were as follows: Use $\alpha = 0.05$.

	Copper Content (%)			
Temperature (°C)	40	60	80	100
50	17.20	16.21	24.22	28.27
75	12.9	18.13	17.12	27.31
100	16.12	18.21	25.23	30.23
125	21.17	23.21	23.22	29.31

7) The effect of A is: ***2 points***

- (i) significant
- (ii) insignificant
- (iii) data is insufficient
- (iv) cannot be concluded

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) significant

8) The effect of B is: ***2 points***

- (i) significant
- (ii) insignificant
- (iii) data is insufficient
- (iv) cannot be concluded

No, the answer is incorrect.
Score: 0

Accepted Answers:
(i) significant

9) The effect of AB is: ***2 points***

- (i) significant
- (ii) insignificant
- (iii) data is insufficient
- (iv) cannot be concluded

No, the answer is incorrect.
Score: 0

Accepted Answers:
(ii) insignificant

10) The mean square of pure error is: ***2 points***

- (i) 6.58
- (ii) 6.68
- (iii) 6.78
- (iv) 6.88

No, the answer is incorrect.
Score: 0

Accepted Answers:
(iii) 6.78

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