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NPTEL

reviewer1@nptel.iitm.ac.in ▼

Courses » Design and Analysis of Experiments

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## Unit 4 - Week 3

### Course outline

How to access the portal

Week 1

Week 2

Week 3

- Lecture 13: Analysis of Variance (ANOVA)
- Lecture 14: Analysis of Variance (ANOVA) (Contd.)
- Lecture 15: ANOVA - Estimation of Model parameters and Adequacy Test
- Lecture 16: ANOVA - Pair-wise comparisons; Tukey's Test and Fisher's LSD Test
- Lecture 17: Two-way ANOVA
- Lecture 18: Multi-way ANOVA
- Lecture 19: Determination of Sample Size for ANOVA

Quiz : Week\_3\_Assignment\_3

Week 4

Week 5

### Week\_3\_Assignment\_3

The due date for submitting this assignment has passed. **Due on 2018-02-14, 23:59 IST.**

#### Submitted assignment

Questions 1- 5 are based on the following case:

A manufacturer of television sets is interested in the effect of tube conductivity of four different types of coating for color picture tubes. The following conductivity data are obtained (Use  $\alpha=0.05$ )

Coating Type	Conductivity			
1	143	141	150	146
2	152	149	137	143
3	134	136	132	127
4	129	127	132	129

1) The mean square of the model is

2 points

- (i) 281.56
- (ii) 844.69
- (iii) 19.69
- (iv) 236.25

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

**(i) 281.56**

2) Degree of freedom of the model is

2 points

- (i) 12
- (ii) 3
- (iii) 13
- (iv) 4

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

**(ii) 3**

3) Degree of freedom of the error is

2 points

- (i) 12
- (ii) 3
- (iii) 13
- (iv) 4

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

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**No, the answer is incorrect.****Score: 0****Accepted Answers:***(i) 12*4) The mean square of the error is **2 points**

- (i) 281.56  
 (ii) 844.69  
 (iii) 19.69  
 (iv) 236.25

**No, the answer is incorrect.****Score: 0****Accepted Answers:***(iii) 19.69*5) Treatment effect for the first coating type is **2 points**

- (i) 7.3125  
 (ii) 7.0625  
 (iii) 7.0178  
 (iv) 7.5423

**No, the answer is incorrect.****Score: 0****Accepted Answers:***(ii) 7.0625***Questions 6- 10 are based on the following case:**

The response time in milliseconds was determined for three different types of circuits that could be used in an automatic valve shutoff mechanism. The results are shown in the following table. (Use  $\alpha=0.01$ )

Circuit Type	Response Time				
	1	9	12	10	8
2	20	21	23	17	30
3	6	5	8	16	7

6) The sum-square total of the data set is **2 points**

- (i) 271.80  
 (ii) 16.90  
 (iii) 746.40  
 (iv) 202.80

**No, the answer is incorrect.****Score: 0****Accepted Answers:***(iii) 746.40*7) The mean square value of the error is **2 points**

- (i) 271.80  
 (ii) 16.90  
 (iii) 543.60  
 (iv) 202.80

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(ii) 16.90*

8) The degree of freedom of the circuit type is

**2 points**

- (i) 2
- (ii) 12
- (iii) 14
- (iv) 3

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(i) 2*

9) The degree of freedom of the error is

**2 points**

- (i) 2
- (ii) 12
- (iii) 14
- (iv) 3

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(ii) 12*

10) The mean square value of the circuit type is

**2 points**

- (i) 271.80
- (ii) 16.90
- (iii) 543.60
- (iv) 202.80

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*(i) 271.80*

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