Lab no. 7

The Following table represents the layout of CRD of four treatments.

A (9)	B (14)	D (11)	C (10)
D (8)	A (14)	B (13)	C (16)
B (7)	C (12)	D (5)	A (11)
A (14)	B (12)	C (6)	D (5)

At 5% level of significance test whether there is significant difference between mean of 4 treatments.

Hypothesis:

H_0: There is no significant difference between treatment.

H_1: There is significant difference between treatment.

Alpha = 5%

Test statistics:

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Row 1	4	48	12	6
				9.66666
Row 2	4	46	11.5	7
				17.3333
Row 3	4	44	11	3
Row 4	4	29	7.25	8.25

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
			18.7291	1.81616	0.19784	3.49029
Treatment	56.1875	3	7	2	5	5
Error	123.75	12	10.3125			
	179.937					
Total	5	15				

Decision

Since $F_{cal}<F_{tab}$ so we accept H_0.

Hence we conclude that there is no significance difference between mean of 4 treatments.

Lab no 8:

There are three brands of computers namely dell, Lenovo, and HP. The following are the lifetime of 15 computers in years.

Serial Number	Computer Brand	Lifetime in Years
1	Dell	15
2	Lenovo	10
3	HP	9
4	Dell	12
5	Lenovo	6
6	HP	7
7	Dell	4
8	Lenovo	8
9	HP	13
10	Dell	11
11	HP	5
12	Lenovo	7
13	Dell	3
14	HP	5
15	Lenovo	4

Apply appropriate statistical tests to identify whether the average lifetime (in years) is significantly different across three brands of computers at a 5% level of significance. You can again tabulate the data initially in the required format for statistical analysis.

Hypothesis:

H_0: There is no significance difference among average lifetime of three brands of computers.

H_1: There is significance difference among average lifetime of three brands of computers.

Alpha = 5%

Test statistics:

Anova:
Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Row 1	5	45	9	27.5

Row 2	5	35	7	5
Row 3	5	39	7.8	11.2

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	10.133333 33	2	5.0666666 67	0.3478260 87	0.7131114 07	3.8852 94
ERROR	174.8	12	14.566666 67			
Total	184.93333 33	14				

Decision,

Since $F_{cal}<f_{tab}$, so we accept H_0,

Hence we conclude that There is no significance difference among average lifetime of three brands of computers.