Lab no. 17

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.

Solution:

Hypothesis:

H0: there is no significant difference between treatments.

H1: There is significant difference between treatments.

Level of significance:

α = 5%

Test statistics:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Anova: Single Factor |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| SUMMARY |  |  |  |  |  |  |
| *Groups* | *Count* | *Sum* | *Average* | *Variance* |  |  |
| A | 4 | 48 | 12 | 6 |  |  |
| B | 4 | 46 | 11.5 | 9.666667 |  |  |
| C | 4 | 44 | 11 | 17.33333 |  |  |
| D | 4 | 39 | 9.75 | 18.25 |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| ANOVA |  |  |  |  |  |  |
| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
| Between Groups (Treatment) | 11.1875 | 3 | 3.729167 | 0.291057 | 0.831069 | 3.490295 |
| Error | 153.75 | 12 | 12.8125 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 164.9375 | 15 |  |  |  |  |

Decision:

Since, Fcal < Ftab, so we do not reject H0.

Hence, there is no significant difference between treatments.

Lab no. 18

Hypothesis:

H0: There is no significant difference between average lifetime among three brands of computers.

H1: There is significant difference between average life-time among three brands of computers.

Level of significance:

α = 5%

Test Statistics:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Anova: Single Factor |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| SUMMARY |  |  |  |  |  |  |
| *Groups* | *Count* | *Sum* | *Average* | *Variance* |  |  |
| Dell | 5 | 45 | 9 | 27.5 |  |  |
| Lenovo | 5 | 35 | 7 | 5 |  |  |
| HP | 5 | 39 | 7.8 | 11.2 |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| ANOVA |  |  |  |  |  |  |
| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
| Between Groups (Treatment) | 10.13333 | 2 | 5.066667 | 0.347826 | 0.713111 | 3.885294 |
| Error | 174.8 | 12 | 14.56667 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 184.9333 | 14 |  |  |  |  |

Decision:

Since, Fcal < Ftab, so we do not reject H0.

Hence, there is no significant difference between average life-time among three brands of laptops.