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| **Tutorial :F test** |
| 1. Tests for breaking strength were carried out on two lots of 5 and 9 steel wires resp. The variance of one lot was 230 and that of the other was 492. Is there a significant difference in their variability?[ Ans: F=1.75, H0 accepted.] 2. In one sample of 8 items, the sum of the squares of deviations of the sample values from the sample mean was 84.4, and in another sample of 10 observations it was 102.6. Test whether difference in variance is significant at 5 % level.[Ans. F=1.057] 3. In one sample of 8 items, the sum of the squares of deviations of the sample values from the sample mean was 94.50, and in another sample of 10 observations it was 101.70. Test whether difference in variance is significant at 5 % level.[Ans. F=1.195] 4. Two samples are drawn from two normal populations gave the following observations.  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | S1 | 20 | 16 | 26 | 27 | 23 | 22 | 18 | 24 | 25 | 19 |  |  | | S2 | 17 | 23 | 32 | 25 | 22 | 24 | 28 | 18 | 31 | 33 | 20 | 27 |   Test whether the two populations have the same variance.  [Ans. H0 accepted]   1. Two random samples gave the following data:  |  |  |  |  | | --- | --- | --- | --- | | Sample | Size | Mean | Variance | | 1 | 16 | 440 | 40 | | 2 | 25 | 460 | 42 |   Can we conclude that the two samples have been drawn from the same normal population?   1. The following figures relate to the number of units of an item produced per shift by two workers A and B for a number of days:  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | A | 19 | 22 | 24 | 27 | 24 | 18 | 20 | 19 | 25 |  |  | | B | 26 | 37 | 40 | 35 | 30 | 30 | 40 | 26 | 30 | 35 | 45 |   Can it be inferred that worker A is more stable compared to worker B? Answer using the F test at 5% LOS. |