Lab no.1:

1. From the following trivalent distribution compute all possible partial correlations.

|  |  |  |
| --- | --- | --- |
| X1 | X2 | X3 |
| 8 | 10 | 7 |
| 20 | 30 | 12 |
| 16 | 25 | 8 |
| 9 | 14 | 6 |
| 12 | 16 | 5 |
| 20 | 24 | 4 |
| 15 | 20 | 6 |
|  |  |  |

Solution:

The partial correlation between the first and second variables keeping the effect of the third variable constant is given by 0.970.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlations | | | | |
| Control Variables | | | X1 | X2 |
| X3 | X1 | Correlation | 1.000 | .970\*\* |
| X2 | Correlation | .970\*\* | 1.000 |
|  | | | | |
|  | | | | |

The partial correlation between the second and third variable keeping the effect of the first variable constant is given by 0.775.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlations | | | | |
| Control Variables | | | X2 | X3 |
| X1 | X2 | Correlation | 1.000 | .775 |
| X3 | Correlation | .775 | 1.000 |

The partial correlation between the First and third variables keeping the effect of the second variable constant is given by -0.707.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlations | | | | |
| Control Variables | | | X1 | X3 |
| X2 | X1 | Correlation | 1.000 | -.707 |
| X3 | Correlation | -.707 | 1.000 |

1. A researcher wants to study the correlation between rent no of room and distance from town. The following data are gathered by him.

|  |  |  |
| --- | --- | --- |
| Rent (000) | No of room | Distance |
| 10 | 1 | 3 |
| 15 | 2 | 5 |
| 30 | 5 | 2 |
| 25 | 3 | 2 |
| 45 | 6 | 1 |
| 35 | 5 | 3 |
| 50 | 6 | 3 |

1. Compute the correlation between rent and no of rooms and keep the as distance constant.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlations | | | | |
| Control Variables | | | X1 | X2 |
| X3 | X1 | Correlation | 1.000 | .950\*\* |
| X2 | Correlation | .950\*\* | 1.000 |

The correlation between rent and no of rooms and keeping the distance constant is 0.950.

1. Compute the correlation between rent and distance and keep the no of room constant.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlations | | | | |
| Control Variables | | | X1 | X3 |
| X2 | X1 | Correlation | 1.000 | .065 |
| X3 | Correlation | .065 | 1.000 |

The correlation between rent and no of rooms and keeping the distance constant is 0.065.