PART B

Descriptive Statistics

DESCRIPTIVE STATISTICS

The second part of this lab course comprises Sessions 6 to 8 which will enable you to develop practical skills for computing measures of central tendency, dispersion, moments, skewness and kurtosis. You will also be able to determine the linear relationship between two or more variables in MS Excel 2007. In lab sessions of Part A, you have learnt how to classify qualitative as well as quantitative data and to represent data diagrammatically or graphically using MS Excel 2007.

In Block 1 of MST-002 (Descriptive Statistics), you have learnt that the measures of central tendency provide a single representative value around which data tend to cluster.

In **Session 6**, you will learn how to compute different measures of central tendency and partition values such as arithmetic mean, geometric mean, harmonic mean, mode, median, quartiles, deciles and percentiles using Excel 2007.

The measures of central tendency describe entire data and give a general idea about data. But these values do not tell us about the scatter of data around the central value, which is necessary to get a better description of data. We use measures of dispersion, which study the extent or degree to which data tend to spread or scatter around an average or central value. You have also learnt in Block 1 of MST-002 that we determine the shape of a distribution with the help of skewness and kurtosis, which can be measured using moments. **Session 7** deals with measures of dispersion to study the scatteredness of data while moments, skewness and kurtosis give us an idea about the symmetry and flatness (or peakedness) of a frequency curve, respectively.

In most studies, we come across more than one variable of which two variables may be dependent as discussed in Block 2 of MST-002. In such situations, we can measure the degree of relationship between the variables using Karl Pearson's correlation coefficient. We use the Spearman's rank correlation coefficient to determine the relationship when we have the qualitative variables and we assign ranks to the values of both variables in order of merit. In fact, Spearman's rank correlation coefficient is the Karl Pearson's correlation coefficient calculated for the two sets of ranks. You have learnt in Units 11 and 12 about the multiple and partial correlation coefficients, respectively, when we have more than two interrelated variables.

Whenever we are interested in studying the joint effect of two or more variables on a single variable, we compute multiple correlation coefficient while the partial correlation coefficient helps us study the relationship between two variables after eliminating the effect of the other variables. In **Session 8**, you will learn how to study the relationship between two or more variables using correlation coefficients such as Karl Pearson, Spearman's rank, multiple and partial correlation coefficients using Excel 2007.

All sessions of this part have been designed in such a way that after successfully completing them, you will be able to compute these measures of descriptive statistics using MS Excel 2007. You will also be able to use suitable measures for any given data.

Before studying the lab sessions of Part B, we expect that you have studied Blocks 1 to 3 of the course MST-002 entitled Descriptive Statistics thoroughly. All concepts and formulae used there will be applied here.