B.N. Bandodkar College of Science, Thane
F.Y. B.Sc. Second Semester end Examination 2012 ®
USST201

Duration 2 hrs Max Marks-60

N.B. 1) All Questions are compulsory.
2) Figures to right indicate marks.
3) Use of calculators is allowed.

Q1) a)Attempt any **ONE**

1) Define mean deviation 1
2) What is Scatter diagram? What is its use? 1

b)Attempt any **TWO**

1) Describe various absolute and relative measures of skewness. 7

2) Explain the principle of least squares. How it is used to fit the equation $Y=aX^b$ for the given data? 7

3) Write short notes on Cost of living index number. 7

Q 2) a) Attempt any **ONE**

1) Define quartile deviation and coefficient of quartile deviation. 1
2) What is meant by 'skewness'? 1

b) Attempt any **TWO**

1) Define standard deviation as a measure and the corresponding relative measure of dispersion. Explain the effect of change of origin and scale on standard deviation. 7

2) With example explain Box and Whisker Plot. 7

3) What is 'kurtosis'? How it is measured? How the measures of kurtosis help in understanding a frequency distribution? 7

Q.3) a)Attempt any **ONE**

1)State the formula for Spearman's rank correlation coefficient. 1

2) Write down the two regression equations. . 1

b) Attempt any **TWO**

1) Define product moment correlation coefficient between two variables. State its properties and prove them. 7

2) Derive normal equations for fitting a equation of the type $Y = a + bX+cX^2$ for n pairs of values of (x, y) . 7

3) Define Spearman's rank correlation coefficient. Show that it is derived from Pearson's correlation coefficient. 7

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Q.4) a)Attempt any **ONE**

1) Explain what is meant by fixed base index number. 1

2) Define the value index number. 1

b)Attempt any **TWO**

1) Explain briefly the various methods of calculating composite index numbers. 7

2) Write short notes on: (i) Splicing on index number series. (ii) Deflating 7 7

3) Show that Fisher's index number satisfies: (i) Time reversal test. (ii) Factor reversal test.

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