# ASSIGNMENT FOR WINTER BREAK

1. Explain the concept of correlation with the help of scatter diagrams.

2. Find the Pearson's coefficient of correlation for the following data.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Marks in English | 53 | 59 | 72 | 43 | 93 | 35 | 55 | 80 |
| Marks in Economics | 35 | 49 | 63 | 36 | 75 | 28 | 38 | 71 |

3. Calculate the spearman's coefficient of Correlation for the following data.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X | 84 | 89 | 72 | 75 | 90 | 62 | 62 | 78 |
| Y | 65 | 75 | 58 | 65 | 75 | 54 | 51 | 57 |

4. From the following data, find the two regression equations and hence estimate y when x = 16 and estimate x when y =18.

| | | | | | | |
|---|---|---|---|---|---|---|
| x | 3 | 4 | 6 | 10 | 12 | 13 |
| y | 12 | 11 | 15 | 16 | 19 | 17 |

5. Given the two regression equations $2x - 3y - 61 = 0$ and $x + y - 25 = 0$. The standard deviation of y is 2, find the mean values of x and y, the coefficient of correlation r and the standard deviation of x.

6. The following data is given for marks of 10 students in two subjects Accounts and Commerce.

Average Marks in Accounts = 65

Standard Deviation of marks in Accounts = 4.3

Average Marks in Commerce = 39

Standard Deviation of marks in Commerce = 1.2

Coefficient of correlation = 0.75

Estimate

1. Marks in Accounts of a student securing 37 Marks in Commerce.
2. Marks in Commerce of a student securing 60 Marks in Accounts.

# ASSIGNMENT FOR WINTER BREAK

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**Sadhana Education Society's**

**L.S. Raheja College of Arts & Commerce,**

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**Mathematics**

**F.Y.B.Com Sem: II (2016-17)**

# Unit: 1

# Functions, Derivatives & Their Applications

## Tutorial-1

**1.** The total cost function is C= 500 + 15x and the total revenue function is R = 700 + 5x. Find the point at which there will be no profit, no loss i.e. break-even point.

**2.** If f(x) = kx + 8 and f (-2) = 4, find the value of k. Hence find f (1.3), f (-2.1).

**3.** A manufacturer makes toys and the weekly total cost is given by

C = 1200 + 40x.

If each toy is sold at Rs. 60/-, Find no. of units to be produced and sold for no loss.

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# Unit: 1

# Functions, Derivatives & Their Applications

## Tutorial-2

**(1)** Differentiate the following function w.r.t x.

**(i)** F(x) = x2 – log x

**(ii)** G(x) = (3x – log x) (x + 2)

**(2)** Find the price if the Marginal Revenue is 30 & the elasticity of demand is 2.

**(3)** The total cost function is given by C = $\mathbf{2\,x^2 + 4\,x + 25}$.

Find the Average Cost, the Marginal Cost and the Marginal Average cost when x = 10.

**(4)** Find the Marginal Revenue if the Average Revenue is 45 and the Elasticity of demand is 5.

# L.S.RAHEJA COLLEGE OF ARTS AND COMMERCE

## RELEIF ROAD, JUHU, SANTACRUZ (WEST)

## MUMBAI – 400054

### STATISTICS ASSIGNMENT (2016-2017) : I

### UNIT:III BIVARIATE LINEAR CORRELATION AND REGRESSION

1. **Calculate the Karl Pearson coefficient of Correlation between marks in Economics (x) and marks in Accountancy (y) of a group of 10 students and interpret it.**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X | 53 | 47 | 42 | 60 | 63 | 52 | 57 | 55 | 61 | 48 |
| Y | 72 | 61 | 62 | 85 | 80 | 65 | 79 | 75 | 84 | 73 |

2. **From the following data calculate the coefficient of correlation.**

   **No. of pairs of observations = 12, sum of x values = 35, sum of y values = 60, sum of squares of x values = 148, sum of squares of y values = 450, sum of products of x and y = 105.**

3. **Calculate the coefficient of Correlation between ages of husband (x) and ages of Wife (y), both are expressed in years, from the following data.**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X | 60 | 30 | 37 | 30 | 42 | 37 | 55 | 45 |
| Y | 50 | 25 | 33 | 27 | 40 | 33 | 50 | 42 |

4. **Calculate the spearman's coefficient of Correlation for the following data.**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X | 15 | 32 | 25 | 30 | 35 | 20 | 19 | 22 | 27 | 31 |
| Y | 50 | 70 | 65 | 72 | 90 | 58 | 53 | 57 | 68 | 74 |

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## MUMBAI – 400054

### STATISTICS ASSIGNMENT (2016-2017) : II

### UNIT:III BIVARIATE LINEAR CORRELATION AND REGRESSION

1. **From the following data, find the two regression equations and hence estimate y when x = 13 and estimate x when y =10.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **x** | **14** | **10** | **15** | **11** | **9** | **12** | **6** |
| **y** | **8** | **6** | **4** | **3** | **7** | **5** | **9** |

2. **Given the two regression equations 5x – 6y + 90 = 0 and 15x -8y -180 = 0. The standard deviation of y is 1, find the mean values of x and y, the coefficient of correlation r and the standard deviation of x.**

3. **From the following data, find the two regression equations and hence estimate y when x = 78 and estimate x when y =94.**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **x** | **75** | **80** | **93** | **65** | **87** | **71** | **98** | **68** | **89** | **77** |
| **y** | **82** | **78** | **86** | **72** | **91** | **80** | **95** | **72** | **89** | **74** |