

**F.Y. B.Com.**  
**Optional Paper**  
**Subject Name -: Business Mathematics and Statistics**  
**Course Code -: 104 (A)**

**Objectives -:**

1. To prepare for competitive examinations
2. To understand the concept of Simple interest, compound interest and the concept of EMI.
3. To understand the concept of shares and to calculate Dividend
4. To understand the concept of population and sample.
5. To use frequency distribution to make decision.
6. To understand and to calculate various types of averages and variations.
7. To understand the concept and application of profit and loss in business.
8. To solve LPP to maximize the profit and to minimize the cost.
9. To use correlation and regression analysis to estimate the relationship between two variables.
10. To understand the concept and techniques of different types of index numbers.

**FIRST TRM**

Medium for this subject shall be ENGLISH only

<b>Unit 1.</b>	<b>Pre-requisites ( For objective type questions only)</b>	<b>(10)</b>
	<ol style="list-style-type: none"><li>1. Natural Numbers and Integers</li><li>2. H.C.F and L.C.M.</li><li>3. Fractions- addition, subtraction multiplication and division of two or more fractions</li><li>4. Laws of Indices</li><li>5. Ratio and Percentage</li><li>6. Proportion and partnership</li></ol>	
<b>Unit 2.</b>	<b>Interest</b>	<b>(08)</b>
	<ol style="list-style-type: none"><li>1. Simple Interest</li><li>2. Compound interest (nominal and effective rate of interest )</li><li>3. Equated Monthly Installments (EMI) (Reducing and flat rate of interest)</li><li>4. Examples</li></ol>	
<b>Unit 3.</b>	<b>Shares and dividends</b>	<b>(06)</b>
	<ol style="list-style-type: none"><li>1. Concept of Shares, face value, market value, Net Asset Value</li><li>2. Equity Shares and Preference shares</li><li>3. Dividend</li><li>4. Bonus Shares</li><li>5. Examples</li></ol>	
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<b>Unit 4.</b>	<b>Population and Sample</b>	<b>(08)</b>
	1. Definition and concept of Statistics	
	2. Scope of Statistics in Economics, Management Science and Industry	
	3. Concept of Population and Sample	
	4. Methods of Sampling: Simple Random Sampling and Stratified Random Sampling (Description of procedures only)	
<b>Unit 5.</b>	<b>Measures of central tendency</b>	<b>(16)</b>
	1. Variables Qualitative and Quantitative, Raw data, Classification of data,	
	2. Frequency distribution, cumulative frequency distribution,	
	3. Histogram (finding mode graphically) Ogive curves and its uses.	
	4. Measures of central tendency: Mean, Median for ungrouped and Grouped data.	
	5. Examples	
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### SECOND TERM

<b>Unit 6.</b>	<b>Profit and Loss</b>	<b>(12)</b>
	1. Concept of Cost Price, Marked Price and Selling Price	
	2. Trade Discount and Cash Discount	
	3. Commission and Brokerage	
	4. Examples	
<b>Unit 7.</b>	<b>Linear Programming Problems ( For two Variables only)</b>	<b>(12)</b>
	1. Definition and terms in a L.L.P.	
	2. Formulation of L.L.P.	
	3. Solution by Graphical Method	
	4. Examples	
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<b>Unit 8.</b>	<b>Measures of dispersion</b>	<b>(08)</b>
	1. Concept of Dispersion	
	2. Measures of Dispersion – Range, Variance and Standard Deviation (S.D.) for Grouped and ungrouped data	
	3. Measures of relative dispersion- Coefficient of range and coefficient of Variation	
	4. Examples	
<b>Unit 9.</b>	<b>Correlation and Regression</b>	<b>(08)</b>
	1. Concept of Bivariate data, correlation using scatter diagram	
	2. Karl Pearson’s Coefficient correlation for ungrouped data	
	3. Spearman’s Rank correlation coefficient	
	4. Concept of regression, lines of regression	
	5. Regression as prediction Model	
	6. Examples	
<b>Unit 10.</b>	<b>Index number</b>	<b>(08)</b>
	1. Concept of Index Number	

2. Construction of Price Index Number
3. Laspeyre's, Paasche's and Fisher's Method
4. Family Budget and Aggregate Expenditure Method
5. Concept of – Cost of Living /Consumer Price Index Number, SENSEX and NIFTY
6. Examples

----- **Total [24]**

**Grand Total [48]**

**Recommended Books:**

1. Practical Business Mathematics by S.A.Bari (New Literature Publishing Company)
2. Business Mathematics by V.K.Kapoor (Sultan Chand And Sons)
3. Fundamentals of Statistics by S.C.Gupta (Himalaya Publishing House)
4. Basic Statistics by B.L.Agrawal (New Age International Publishers)
5. Statistical Methods by S.P.Gupta (Sultan Chand And Sons)