

## PAPER- 5 Business Mathematics-I

Unit	Topics Covered under unit	Wt.
<b>I</b>	<p><b>SET THEORY</b> Sets, types of sets, subset, power set, null set, universal set, equality of two sets, complement of a set, union and intersection of sets, difference of two sets, Venn diagram law of algebra of sets, De Morgan Laws, Cartesian product of two sets and number of elements in a finite set.</p> <p><b>REAL NUMBER SYSTEM</b> Definition of Natural numbers, Integers, Rational numbers &amp; irrational numbers, Real numbers- absolute value and its properties.</p> <p><b>FUNCTION :</b> Concepts of a function, domain, co-domain and range of a function, constant functions, real functions, different functions and their graphs - linear function, quadratic function, polynomial function, rational function, exponential function and logarithmic function, function in economic theory (demand, supply, consumption, revenue and cost function) equilibrium price.</p>	<b>30%</b>
<b>II</b>	<p><b>DETERMINANT AND MATRIX</b> Meaning of matrix and types of matrices- Null matrix, square matrix. identity matrix, symmetric matrix and skew symmetric matrix, transpose of a matrix, orthogonal matrix, addition, subtraction and multiplication of matrices, determinants and their basic properties (without proof), singular and non singular matrices, inverse of a matrix, adjoint of a matrix, solution of simultaneous equations (for two and three variables only) using inverse of matrix.</p>	<b>20%</b>
<b>III</b>	<p><b>CO-ORDINATE GEOMETRY</b> Co-ordinate of points, slope and intercepts of a straight line, equation of a straight line, different forms of equations of a straight line - (1) <math>\frac{y-y_1}{y_1-y_2} = \frac{x-x_1}{x_1-x_2}</math>. (2) <math>y-y_1=m(x-x_1)</math>. (3) <math>y=mx + c</math> (4) <math>\frac{x}{a} + \frac{y}{b} = 1</math>. General equation of a straight line, concurrent lines, angle between two straight lines, distance between two points area of a triangle and quadrilateral, collinearity of three points.</p>	<b>30%</b>
<b>IV</b>	<p><b>LIMIT</b> Limit as a function, limit of sum, product and quotient of two functions and their uses in evaluating limits, use of the standard forms (without proof) : <math>\lim_{n \rightarrow \infty} (1 + \frac{1}{n})^n</math>, <math>\lim_{n \rightarrow \infty} (1 + \frac{1}{n})^{\frac{1}{n}}</math>, <math>\lim_{x \rightarrow \infty} \frac{1}{x}</math> and <math>\lim_{x \rightarrow \infty} \frac{1}{x-a}</math> and <math>\lim_{x \rightarrow \infty} \frac{1}{x-a}</math> and <math>\lim_{x \rightarrow \infty} \frac{1}{x-a}</math></p>	<b>20%</b>

### Reference Books:

1. Business Mathematics, V. K. Kapoor, Sultan chand and sons, New Delhi.
2. Business Mathematics, Allen R. G. D., Pitamber publication house.
3. Quantitative Techniques in Management, Vohra N. D., Tata MacGraw –Hill Publishing Company, New Delhi.
4. Elements of Business Mathematics by Soni, Sharma and Saxena (Pitamber Publication)
5. Mathematics for Management and Computer Applications, Sharma J. K. , Galgotia Private Limited, New Delhi.