

Punyashlok Ahilyadevi Holkar Solapur University, Solapur



Name of the Faculty: Science & Technology

CHOICE BASED CREDIT SYSTEM

Syllabus: Business Mathematics

Name of the Course: B.Com. I (Sem-I & II)

(Syllabus to be implemented from w.e.f. June 2019)

Medium of instruction: English

Structure of the course per paper:

Course	Title	Theory Lectures Per Week	Total Periods of Teaching in a Semester	Duration Of University Exam	For University Exam		For Internal Exam		Total Marks	
					Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks
B.Com.I Sem-I and Sem-II	Business Mathematics	04	60 (15 Weeks)	1 $\frac{1}{2}$ Hrs	40	16	10	4	50	20

Equivalent Subject for Old Syllabus

Semester	Name of the Old Paper	Name of the New Paper
I	Business Mathematics	Business Mathematics
II	Business Mathematics	Business Mathematics

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

B.Com.-I (Semester I) Syllabus

Business Mathematics

(w. e. f. June 2019)

Course Outcomes / Objectives

- CO1 **Familiarize with the basic concepts of Business Mathematics and a hands on practice of the various mathematical tools and techniques.**
- CO2 **Boost quantitative thinking and develop numerical abilities.**
- CO3 **Acquainting students with the emerging issues in business, trade and commerce regarding analyzing business facts.**
- CO4 **Enable them to improve their logical reasoning ability and interpretation of various business results.**
- CO5 **Describe the concept of Annuity and its types.**
- CO6 **Introduce determinants as well as matrices and study their applications in real life.**
- CO7 **Understand Linear Programming Program and use them to take effective decisions.**
- CO8 **Get the knowledge of preliminaries of ratio, Proportion and Progression.**

Syllabus

Unit No.	Topic	Subtopics	Periods
1	Mathematics of Finance	Interest concept and Principal, rate of interest– nominal, effective and continuous – their interrelationships, period, Maturity value, Simple Interest, , Compound interest, Present value ,simple examples. Time value of money, Compounding and discounting of a sum using different types of rates. Annuity, Types of annuities- Immediate annuity, annuity due , perpetuity . Present value of annuity, Equated Monthly Installments (EMI) using reducing and flat interest system. Simple problems on immediate Annuity and annuity due with $n \leq 4$.	15

2	Determinants and Matrices	Definition of second & Third order Determinant, calculation of values of determinants up to third order, Solution of system of linear equations by Cramer's rule, Properties of determinants (without proof). Simple examples. Definition of a Matrix, , Algebra of matrices, Equality of Matrices, Transpose of matrix, Adjoint of matrix, Inverse of matrix (by Ad joint method), Solution of a system of linear equations having unique solution and involving not more than three variables (by Ad joint Method),. Special types of matrices, Applications of matrices to business and economic problems	15
3	Linear Programming Problem (L.P.P.)	Mathematical formulation of L.P.P. upto 2 variables, Graphical method of solution of L.P.P., Commercial examples. Cases having no solution, Multiple solution, Unbounded solution.	15
4	Ratio, Proportion, Logarithms, Progression	Ratio, Proportion, Rule of three, Rule of five. Definition of A.P. & G.P., To find T_n & S_n , Simple practical commercial problems.	15

Note

1. Use of soundless calculators are allowed.
2. Graph papers are allowed to use.
3. More stress should be given on commercial applications

Reference books:

- Mathematics for Business Studies - J.K. Thukral, Mayur Publications
- Business Mathematics, J. K. Singh Himalaya Publishing House.
- Business Mathematics- Veena G.R. (New age international Publishers, New Delhi).
- Essence of Business Mathematics – R.K.Rajput, Discovery Publication House, New Delhi
- Business Mathematics- Kapoor V.K., Sancheti D.C.
- Business Mathematics - Dr. Amarnath Dikshit & Dr. Jinendra Kumar Jain.
- Business Mathematics - V. K. Kapoor (Sultan chand & sons, Delhi.)
- Business Mathematics - Bari (New Literature publishing company, Mumbai.)
- Commercial Arithmetic - P. S. Chiplunkar and C. G. Kulkarni(Narendra Prakashan.)
- Mathematics in Commerce and Economics - Qazi Zameerudding and V. K. Khanna,
- Mathematics for Business and Social Sciences. Mizrahi and John Sullivan. Wiley and Sons.
- Applied Mathematics. Budnick, P. McGraw Hill Publishing Co.
- Business Mathematics and Statistics, N. D. Vohra, McGraw Hill Education (India) Pvt Ltd.
- Elements of Calculus - Bhagvat and Pawate
- Business Mathematics – G.V. Kumbhojkar

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

B.Com.-I (Semester I) Syllabus

Business Mathematics

(w. e. f. Winter 2019)

- CO1 Understand the terms like constant, variable, interval, function.
- CO2 Acquainting students with the functions related to business & economics.
- CO3 Critically study existence of mathematical relation between two variables regarding to problems of business using Newton's formula.
- CO4 Enlighten abilities to apply the mathematical concepts to real life problems in Commerce, Economics, Management and Social sciences.
- CO5 Understand the mathematical tools in Decision making at Strategic & Tactical Level.

Syllabus

Unit No.	Topic	Subtopics	Periods
1	Function of Real Variable	Constant, Variable, Interval, Function, Illustrative examples on value of a function. Functions related to business & economics, Cost Function, Demand Function, Revenue function, Profit function, Break-even point. Determination of form of a function using Newton's Interpolation formula for unequal interval. Standard functions, Definitions of Even, Odd, Linear, Quadratic, Exponential, Logarithmic, Inverse, Explicit, Implicit, Parametric, Composite, Increasing & Decreasing functions. Graph of a function.	15
2	Limit of a function	Concept of limit, Theorems on limits (without proof), Simple examples on evaluation of limits – Direct type, Factorization, Simplification, Rationalization, Infinity type, a^x type.	15
3	Differentiation	Definition, derivative using first Principle. Rules of Differentiation, Derivatives of simple algebraic functions, . Derivative of composite, Parametric, Inverse, Exponential, Logarithmic, Implicit functions, Simple Examples.	15

		Second Order Derivative (involving one variable) Maxima & Minima. Commercial Applications of Derivative – Marginal Cost function, Average Cost function. Marginal Average Cost function. Minimum Average Cost. Marginal Revenue function, Maximum Revenue, Maximum Profit, Price Elasticity of Demand. Numerical examples.	
4	Integration	Definitions, Standard forms, Integration by substitution, by parts, by use partial fractions. Illustrative examples. Definite integrals – Properties (without proof), Simple examples. Applications of integration to business – Determination of Cost, Revenue, Profit, Demand function, Consumer Surplus, Producer Surplus, Rate of sales. Numerical examples.	15

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- **Mathematics for Business and Social Sciences. Mizrahi and John Sullivan. Wiley and Sons.**
- **Applied Mathematics. Budnick, P. McGraw Hill Publishing Co.**
- **Business Mathematics and Statistics, N. D. Vohra, McGraw Hill Education (India) Pvt Ltd.**
- **Elements of Calculus - Bhagvat and Pawate**
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Nature of Question Paper For Semester Pattern

Faculty of Commerce

Model Question Paper

(w.e.f. June 2019)

Time: - 2 hrs.

Total Marks-40

Ques.No.	Structure	Marks
Q. 1 A)	Multiple choice questions (four alternatives should be given)	06
	1 ----- (a) (b) (c) (d) 2 3 4 5 6	
Q. 1 B)	Define the following terms	04
	A B	
Q. 2	Solve short answer problems (Any two)	06
	A B C	
Q. 3	Solve long answer problems	12
Q. 4	Solve long answer problems (Any one)	12
	A B	