SEMESTER-1

BI-104 - BUSINESS MATHEMATICS AND STATISTICS

Introduction

This course is designed to learn basic concepts and techniques of mathematics & statistics. A thorough knowledge in the areas of basic mathematics and presentation of data is an essential skill for management accountants. In view of the need to estimate the uncertainties of business decisions, the management accountants should understand statistical concepts. This course also gives provides understanding of mathematical techniques applied for, forecasting in corporate planning and Financial Management.

Objectives

The objective of this course is to provide the students with the basic knowledge of mathematics and statistics to enable them to:

- Use and interpret mathematical and statistical methods, and
- Present the results of quantitative nature, in a suitable form for taking business decisions.

Outcomes

On completion of this course, students should be able to:

- Describe and demonstrate the use of mathematical and statistical techniques,
- Understand the proper use of formulae and ratios,
- Describe reasonableness in the computation of answer,
- Understand and apply techniques for summarizing and analysing data,
- Describe and demonstrate the use of probability, in case of involvement of risk and uncertainty,
- Describe and apply financial mathematical techniques, and
- Describe and demonstrate forecasting techniques.

INDICATIVE GRID

SECTION	SYLLABUS CONTENTS	WEIGHTAGE
A	**Business Mathematics** 1. Preliminaries 2. Mathematical Functions 3. Basic Algebra 4. Sequence And Series 5. Mathematics of Finance	50%
B	**Business Statistics** 6. Statistical Methods 7. Statistical Forecasting	50%
	TOTAL	100%

Note: The weightage shown against each section indicates the study time required for the topics in a section. This does not necessarily specify the number of marks to be allocated to that section in the examination.

CONTENTS

SECTION-A

BUSINESS MATHEMATICS

1. Preliminaries

Factorisation, Equations, Inequalities, Absolute Value Relationships. Quadratic Equation and Nature of Roots, Mid-Points, Two Point Formula, Distance Formula, Rectangular Co-ordinate System.

2. Mathematical Functions

Functions, Domain Range Relationship, Restricted Domain and Range, Univariate, Bivariate and Multivariate Functions. Value of the Functions. Graph Representation of the Functions, Type of Functions (Constant, Linear, Rational, Combinations, Composite, Polynomial, etc.), Applications of the Linear Functions, Break-Even Models (Analysis).

3. Basic Algebra

Introduction, Operation with Algebra, Symbols of Grouping, Factorization, Algebraic fractions

4. Sequence and Series

Concept of Sequence and Series, Arithmetic And Geometric Progression and its business applications. Arithmetic and Geometric Means etc.

5. Mathematics of Finance

Concepts of Interest rate, Simple and Compound Interest, singe-payment computations, Present value, Nominal and Effective Interest Rates. Concept of Annuities and their Future Value, Annuities and their present value, Mortgages, Cost-Benefit Analysis, Discounted Cash Flow, Net Present Value.

SECTION-B

BUSINESS STATISTICS

6. Statistical Methods

Collection of Data, tabulation and graphical presentation of statistical data, charts and diagrams, frequency distribution, measures of central tendencies, measures of dispersions.

7. Statistical Forecasting

Linear Correlation Coefficient, Coefficient of Determination, Linear regression model, least square methods, semi-average, moving average, Index Number (Simple and Weighted).

RECOMMENDED BOOKS

CORE READING		
TITLE	**AUTHOR**	**PUBLISHER**
Quantitative Techniques	T. Lucy	DP. Publications Ltd., Aldine place, 142-144 Uxbridge Road Shepherds Bush, Green, London
Applied Mathematics for Business Economics & the Social Sciences	Frank S. Budnick	McGraw-Hill Company Inc., Princeton Road, S-1 Hightslown, NJ08520, New York.
Introduction Statistics for Economics and Management	Hamid Abdul Hakeem	Meyari Matbooaat, Karachi
ADDITIONAL READING		
TITLE	**AUTHOR**	**PUBLISHER**
Business Mathematics	Mirza Muhammad Hassan & Muhammad Ali Mirza	Farooq Kitab Ghar, 32-33 Urdu Bazar, Karachi