

## Syllabus for Written Test

1. Assistant Professor – Quantitative Techniques, Business Economics, Operations Research.
2. Assistant Professor – Management

*Distribution of marks for each unit is as follows:*

*(40 marks for Quantitative Techniques, 20 marks for Business Economics & 40 marks for Operations Research)*

**Total Marks: 100**

### **Quantitative Technique (40 marks)**

#### **Unit I**

Basic Statistics: Basic Concepts of Statistics, Charts and Diagrams, Measures of Central Tendency and Dispersion moments, Skewness & Kurtosis (8 Marks)

#### **Unit II**

Probability: Basic Concepts, Random Variable, theorems: Addition, Multiplication, Conditional Probability, Bayes Theorem, Business Application of Probability (8 Marks)

#### **Unit III**

Probability Distribution: Normal, Binomial, Poisson, Exponential Distribution (7 Marks)

#### **Unit IV**

Statistical Estimation: Basic Concepts, Point and Interval Estimation, Central Limit Theorem, Sampling Distribution, Standard Error, Type I error, Type II error, Testing of Hypothesis- t- test, Z-test, Chi-Square test, F-test, ANOVA (10 Marks)

#### **Unit V**

Correlation and Regression: Simple, Partial and Multiple Correlation, Regression, Business Applications, Time Series Analysis, Software Packages. (7 marks)

### **Business Economics (20 Marks)**

#### **Unit I**

Managerial Economics – Decision making and concept affecting business decision – Utility analysis – Demand curve – indifference curve analysis, price effect, income effect and substitution effect – Elasticity of demand – Demand forecasting (10 Marks)

#### **Unit II**

Production function – law of variable proportion – production Isoquant – Market structure – Perfect and imperfect competition – monopoly, duopoly, monopolistic competition, National income – Gross domestic product, Gross national product – measurement of national income – business cycle – factors influencing international trade – balance of payments – disequilibrium (10 Marks)

## Operations Research (40 Marks)

### **Unit I**

Introduction to Operations Research: Objectives and Business Applications of Operations Research, Models: Introduction, Linear Programming Problem (LPP) Formulation, Graphical Method, Simplex Method, Dual LPP, Basic Concepts of Sensitivity Analysis.

(8 Marks)

### **Unit II**

Transportation Models: Northwest Corner Method (NWC), Least Cost Method (LCM), Vogels Approximation Method, Test for optimality-MODI Method, Assignment Model- Hungarian Method

(8 Marks)

### **Unit III**

Network Models: Critical Path Method (CPM), Program Evaluation Review Technique (PERT), Crashing, Resource Smoothing, Resource Leveling.

(8 Marks)

### **Unit IV**

Queuing Theory: M/M/1 Queue (System with Single Server), M/M/2 (System with Two Servers), Monte Carlo Simulation, Applications in Queuing and Inventory.

(8 Marks)

### **Unit V**

Decision Theory: Decision Making under Risk and Uncertainty, Game Theory, Decision Tree, OR Software.

(8 Marks)

**Syllabus of Selection Test to the Post of Assistant Professor –  
Communicative English**

*(Each unit carries 20 Marks)*

**Total Marks: 100**

**Module1:** Basics of Communication- Components of communication- Types of communication- Principles of effective communication- Barriers to effective communication- English as a lingua-franca- Paralinguistic features and body language.

(20 marks)

**Module 2:** Listening- Types of listening- Principles of effective listening- Barriers to effective listening- Note taking- Basics of phonetics- Vowels and consonants- Supra segmental features.

(20 Marks)

**Module 3:** Speaking- Basics of public speaking- techniques to improve speaking skills- Self introductions- Public Speeches- Group Discussions- Debates- Everyday conversations- Speaking skills for interviews. Testing presentation skills

(20 Marks)

**Module4:** Reading- Importance of reading- Types of reading- Methods of reading- Barriers to effective reading- Basics of proof reading.

(20 Marks)

**Module 5:** Writing- The importance of writing- types of writing- Writing formal and informal letters- summaries- abstracts- newspaper/magazine articles- writing e-mails, memos, minutes of a meeting- resume- bio data- bio sketch- anchoring scripts.

(20 Marks)

# **Syllabus of Selection Test to the Post of Assistant Professor – Finance and Accounting**

*(Distribution of Marks: 50 marks for theory and 50 for problems)*

**Total Marks: 100**

## **Unit I**

Introduction to Financial accounting- Importance, Functions and limitations. Generally Accepted Accounting Principles (GAAP) - The accounting equation- Nature of accounts and rule-Book keeping-Double entry book keeping- Journal- Ledger- Cash book

Practical problems:

Preparation of Final accounts- Trading and Profit and Loss account- Balance sheet. Depreciation – Methods of depreciation.

Investment accounts- fixed income bearing securities- Variable income bearing securities- Investment ledger- Cum interest and ex interest.

Working capital- importance- Determinants of working capital- sources of working capital- estimation of working capital

(40 Marks)

## **Unit II**

Management accounting - Meaning, Nature, Objectives, Scope. Cost accounting- Meaning, objectives, functions, importance

Practical problems:

Financial statement analysis- Tools- Comparative financial statements-Common size financial Statements- Ratio analysis-Fund flow analysis- Cash flow analysis- Break even analysis-Trend analysis.

Preparation of cost sheet

(30 Marks)

## **Unit III**

Financial management- meaning, objectives, nature, scope-Finance functions- financial decision-financing decision-Investment decision- Dividend decision

Practical problems:

Capital structure- concept of cost of capital- Cost of Debt- cost of preference share- cost of retained earnings- cost of equity- Measurement of overall cost of capital

Capital budgeting- techniques of capital budgeting – pay back method- Accounting Rate of Return- Net Present Value Method- Internal Rate of Return- Profitability Index.

(30 Marks)