

(iv) Canal structures : Design of head regulators, canal falls, aqueducts, metering flumes and canal outlets.

(v) Diversion head work : Principles and design of weirs on permeable and impermeable foundation, Khosla's theory, energy dissipation.

(vi) Storage works : Types of dams, design, principles of rigid gravity stability analysis.

(vii) Spillways : Spillway types, energy dissipation.

(viii) River training : Objectives of river training, methods of river training.

#### **4. Environmental Engineering**

##### **4.1 Water Supply :**

Predicting demand for water, impurities of water and their significance, physical, chemical and bacteriological analysis, waterborne diseases, standards for potable water.

##### **4.2 Intake of Water :**

Water treatment: principles of coagulation, flocculation and sedimentation; slow-, rapid-, pressure, filters; chlorination, softening, removal of taste, odour and salinity.

##### **4.3 Sewerage Systems :**

Domestic and industrial wastes, store sewage—separate and combined systems, flow through sewers, design of sewers.

##### **4.4 Sewage Characterisation :**

BOD, COD, solids, dissolved oxygen, nitrogen and TOC. Standards of disposal in normal water course and on land.

##### **4.5 Sewage Treatment :**

Working principles, units, chambers, sedimentation tank, trickling filters, oxidation ponds, activated sludge process, septic tank, disposal of sludge, recycling of waste water.

##### **4.6 Solid waste :**

Collection and disposal in rural and urban contexts, management of long-term ill-effects.

#### **5. Environmental pollution :**

Sustainable development. Radioactive wastes and disposal. Environmental impact assessment for thermal power plants, mines, river valley projects. Air pollution. Pollution control acts.

## **COMMERCE AND ACCOUNTANCY**

### **PAPER-I**

#### **Accounting and Finance**

#### **Accounting, Taxation & Auditing**

##### **1. Financing Accounting :**

Accounting as a financial information system; Impact of behavioural sciences. Accounting Standards e.g., accounting for Depreciation, Inventories, Research and Development Costs, Long-term Construction Contracts, Revenue Recognition, Fixed Assets, Contingencies, Foreign Exchange

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Transactions, Investments and Government Grants, Cash Flow Statement, Earnings per Share.  
 Accounting for Share Capital Transactions including Bonus Shares, Right Shares.  
 Employees Stock Option and Buy-Back of Securities.  
 Preparation and Presentation of Company Final Accounts.  
 Amalgamations, Absorption and Reconstruction of Companies.

## 2. **Cost Accounting :**

Nature and functions of cost accounting. Installation of Cost Accounting System. Cost Concepts related to Income Measurement, Profit Planning, Cost Control and Decision Making.  
 Methods of Costing: Job Costing, Process Costing, Activity Based Costing.  
 Volume-cost-Profit Relationship as a tool of Profit Planning.  
 Incremental Analysis/Differential Costing as a Tool of Pricing Decisions, Product Decisions, Make or Buy Decisions, Shut-Down Decisions etc.  
 Techniques of Cost Control and Cost Reduction : Budgeting as a Tool of Planning and Control. Standard Costing and Variance Analysis.  
 Responsibility Accounting and Divisional Performance Measurement.

## 3. **Taxation :**

Income Tax: Definitions. Basis of charge; Incomes which do not form part of total income. Simple problems of computation of income (of individuals only) under various heads, i.e., salaries, income from house property, profits and gains from business or profession, capital gains, income from other sources, Income of other persons included in assessee's total income.  
 Set-off and Carry forward of Loss.  
 Deductions from gross Total Income.  
 Salient Features/Provisions Related to VAT and Services Tax.

## 4. **Auditing :**

Company Audit: Audit related to Divisible Profits, Dividends, Special investigations, Tax audit.  
 Audit of banking, Insurance, Non-Profit Organization and Charitable societies/Trusts/Organizations.

## **Financial Management, Financial Institutions and Markets**

### 1. **Financial Management :**

Finance Function : Nature, Scope and Objectives of Financial Management : Risk and Return relationship.  
 Tools of Financial Analysis: Ratio Analysis, Funds-Flow and Cash-Flow Statement.  
 Capital Budgeting Decisions: Process, Procedures and Appraisal Methods. Risk and Uncertainty Analysis and Methods.  
 Cost of Capital : concept, Computation of Specific Costs and Weighted Average Cost of Capital. CAPM as a Tool of Determining Cost of Equity Capital.  
 Financing Decisions: Theories of Capital Structure—Net Income (NI) Approach.

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Net Operating Income (NOI) Approach, MM Approach and Traditional Approach. Designing of Capital structure: Types of Leverages (Operating, Financial and Combined), EBIT-EPS Analysis, and other Factors.

Dividend Decisions and Valuation of Firm : Walter's Model, MM Thesis, Gordon's Model Lintner's Model. Factors Affecting Dividend Policy.

Working Capital Management: Planning of Working Capital. Determinants of Working Capital. Components of Working Capital—Cash, Inventory and Receivables.

Corporate Restructuring with focus on Mergers and Acquisitions (Financial aspect only).

## **2. Financial Markets and Institutions :**

Indian Financial System: An Overview

Money Markets: Participants, Structure and Instruments. Commercial Banks. Reforms in Banking Sector. Monetary and Credit Policy of RBI. RBI as a Regulator.

Capital Market : Primary and Secondary Market. Financial Market Instruments and Innovative Debt Instruments; SEBI as a Regulator.

Financial Services : Mutual Funds, Venture Capital, Credit Rating Agencies, Insurance and IRDA.

## **PAPER-II**

### **Organisation Theory and Behaviours, Human Resource Management and Industrial Relations**

#### **Organisation Theory and Behaviour**

##### **1. Organisation Theory :**

Nature and Concept of Organisation; External Environment of Organisation—Technological, Social, Political, Economical and Legal; Organizational Goals Primary and Secondary Goals, Single and Multiple Goals; Management by Objectives.

Evolution of Organisation theory : Classical Neo-classical and system approach.

Modern Concepts of Organisation Theory : Organisational Design, Organisational Structure and Organisational Culture.

Organisational Design—Basic Challenges; Differentiation and Intergration Process; Centralization and Decentralization Process; Standardization/Formalization and Mutual Adjustment. Coordinating Formal and Informal Organizations. Mechanistic and Organic Structures.

Designing Organizational structures—Authority and Control; Line and Staff Functions, Specialization and Coordination. Types of Organization Structure—Functional. Matrix Structure, Project Structure. Nature and Basis of Power, Sources of Power, Power Structure and Politics. Impact of Information Technology on Organizational Design and Structure.

Managing Organizational Culture.

##### **2. Organisation Behaviour :**

Meaning and Concept; Individual in organization: Personality, Theories, and Determinants; Perception Meaning and Process.

Motivation : Concepts, Theories and Applications. Leadership—Theories and Styles. Quality of Work Life (QWL): Meaning and its impact on Performance, Ways of its Enhancement. Quality Circles (QC)—Meaning and their Importance. Management of Conflicts in Organizations. Transactional Analysis,

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Organizational Effectiveness, Management of Change.

### **Human Resources Management and Industrial Relations**

#### **1. Human Resources Management (HRM) :**

Meaning Nature and Scope of HRM, Human Resource Planning, Job Analysis, Job Description, Job Specification, Recruitment Process, Selection Process, Orientational and Placement, Training and Development Process, Performance Appraisal and 360° Feed Back, Salary and Wage Administration, Job Evaluation, Employee Welfare, Promotions, Transfers and Separations.

#### **2. Industrial Relations (IR) :**

Meaning, Nature, Importance and Scope of IR, Formation of Trade Union, Trade Union Legislation, Trade Union Movement in India. Recognition of Trade Unions, Problems of Trade Unions in India. Impact of Liberalization on Trade Union Movement.

Nature of Industrial Disputes: Strikes and Lockouts, Causes of Disputes, Prevention and Settlement of Disputes.

Worker's Participation in Management: Philosophy, Rationale, Present Day Status and future Prospects.

Adjudication and Collective Bargaining.

Industrial Relations in Public Enterprises Absenteeism and Labour Turnover in Indian Industries and their Causes and Remedies.

ILO and its Functions.

## **ECONOMICS**

### **PAPER—I**

#### **1. Advanced Micro Economics :**

- (a) Marshallian and Walrasian Approaches to Price determination.
- (b) Alternative Distribution Theories : Ricardo, Kaldor, Kalecki.
- (c) Markets Structure : Monopolistic Competition, Duopoly, Oligopoly.
- (d) Modern Welfare Criteria : Pareto Hicks and Scitovsky, Arrow's Impossibility Theorem, A. K. Sen's Social Welfare Function.

#### **2. Advance Macro Economics :**

Approaches to Employment Income and Interest Rate determination : Classical, Keynes (IS-LM) curve, Neo-classical synthesis and New classical, Theories of Interest Rate determination and Interest Rate Structure.

#### **3. Money-Banking and Finance :**

- (a) Demand for and Supply of Money : Money Multiplier Quantity Theory of Money (Fisher, Pigou and Friedman) and Keynes' Theory on Demand for Money, Goals and Instruments of Monetary Management in Closed and Open Economies. Relation between the Central Bank and the Treasury. Proposal for ceiling on growth rate of money.
- (b) Public Finance and its Role in market economy : in stabilization of supply, allocation of resources

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