



MADHYANCHAL
PROFESSIONAL UNIVERSITY

PhD Entrance Syllabus for Commerce

Paper I Mathematics

Linear Algebra: Vector space, basis, linear dependence and independence, matrix algebra, eigen values and eigen vectors, rank, solution of linear equations – existence and uniqueness.

Calculus: Mean value theorems, theorems of integral calculus, evaluation of definite and improper integrals, partial derivatives, maxima and minima, multiple integrals, line, surface and volume integrals, Taylor series.

Differential Equations: First order equations (linear and nonlinear), higher order linear differential equations, Cauchy's and Euler's equations, methods of solution using variation of parameters, complementary function and particular integral, partial differential equations, variable separable method, initial and boundary value problems.

Vector Analysis: Vectors in plane and space, vector operations, gradient, divergence and curl, Gauss's, Green's and Stoke's theorems.

Complex Analysis: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula; Taylor's and Laurent's series, residue theorem.

Numerical Methods: Solution of nonlinear equations, single and multi-step methods for differential equations, convergence criteria.

Probability and Statistics: Mean, median, mode and standard deviation; combinatorial probability, probability distribution functions - binomial, Poisson, exponential and normal; Joint and conditional probability; Correlation and regression analysis.

PAPER -II COMMERCE

(A) (Core Group)

Unit - I : Business Environment Meaning and Elements of Business Environment Economic environment, Economic Policies, Economic Planning, Legal environment of Business in India. Competition policy, Consumer protection, Environment protection. Policy Environment : Liberalization, Privatization and globalisation. Second generation reforms, Industrial policy and implementation. Industrial growth and structural changes.

Unit - II : Financial & Management Accounting Basic Accounting concepts, Capital and Revenue, Financial statements Partnership Accounts : Admission, Retirement, Death, Dissolution and Cash Distribution Advanced Company Accounts : Issue, forfeiture, Purchase of Business Liquidation, Valuation of shares, Amalgamation, Absorption Reconstruction, Holding Company Accounts Cost and Management Accounting : Ratio Analysis, Funds Analysis, Cash Flow Analysis, Marginal costing and Break-even analysis, Standard costing Budgetary control, Costing for decision-making Responsibility accounting.

Unit - III : Business Economics Nature and uses of Business Economics, Concept of Profit and Wealth maximization. Demand Analysis and Elasticity of Demand, Curve Analysis Law. Utility Analysis and Indifference of Returns and Law of variable proportion Cost, Revenue, Price determination in different market situation : Perfect competition, Monopolistic competition, Monopoly, Price discrimination and Oligopoly, Pricing Strategies.

Unit - IV : Business Statistics & Data Processing Data types, Data collection and analysis, sampling, need, errors and methods of sampling, Normal distribution, Hypothesis testing, Analysis and Interpretation of Data Correlation and Regression, small sample T-test, F-test and chi-square test Data processing - Elements. Data entry, Data processing and Computer applications Computer Application to Functional Areas Accounting, Inventory control, Marketing.

Unit - V : Business Management Principles of Management Planning - Objectives, Strategies, Planning Process, Decision-making Organising, Organisational structure, Formal and informal

organisations, Organisational culture Staffing Leading : Leading : Motivation, Leadership, Committees, Communication Controlling Corporate Governance and Business Ethics.

Unit - VI : Marketing Management The evolution of marketing, Concepts, Concept of marketing, Marketing mix, Marketing environment Elements of consumer behaviour, Market segmentation Product decisions Pricing decisions Distribution decisions Promotion decisions Marketing planning, Organising and Control.

Unit - VII : Financial Management Capital Structure, Financial and Operating leverage Cost of capital, Capital budgeting Working capital management Dividend Policy.

Unit - VIII : Human Resources Management Concepts, Role and Functions of Human Resource management, Human Resource Planning, Recruitment and Selection Training and Development, Succession Planning Compensation : Wage and Salary Administration, Incentive and Fringe benefits. Morale and Productivity Performance Appraisal Industrial Relations in India, Health, Safety, Welfare and Social security, Workers' Participation in Management.

Unit - IX : Banking and Financial Institution Importance of Banking to Business, Types of Banks and Their Functions, Reserve Bank of India, NABARD and Rural Banking, Banking Sector Reforms in India, NPA, Capital adequacy norms E-banking Development Banking : IDBI, IFCI, SFCs, UTI, SIDBI

Unit - X : International Business Theoretical foundations of international business, Balance of payments International liquidity, International Economic Institutions - IMF, World Bank, IFC, IDA, ADB World Trade Organisation-its functions and policies Structure of India's foreign trade : Composition and direction. EXIM Bank EXIM Policy of India, Regulation and Promotion of Foreign Trade.

General Aptitude (GA)

Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.

Numerical Ability: Numerical computation, numerical estimation, numerical reasoning and data interpretation.