Himachal Pradesh
Public Service Commission

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Syllabus for Paper-II i.e. Descriptive Type Subject Aptitude Test (SAT) for recruitment to post of Assistant Manager (Finance), Group-B in Himachal Pradesh Infrastructure Development Board (HPIDB) under the Department of Finance, H.P. The SAT paper shall be of 03 hours duration having 120 Marks. The SAT paper shall have two parts, i.e. Part-I and Part-II and shall cover following topics of B.Com. and MBA in Finance.

Part-I (60 Marks)

A. Quantitative Analysis for Financial Decision making.

- **Basic Statistical and Mathematical Concepts:**An overview of Descriptive Statistics including Central Tendency, Dispersion, Skewness, Kurtosis and the theoretical distributions.
- **Risk & Return and Time Series Concepts:**Evaluating forecasts of risks and returns, Simple Interest, Compound Interest, Frequency of Compounding, Continuous Compounding, Present Value, determination of best forecast models. Basic time series concepts, fundamental topics in time series analysis: autocorrelation, unit root tests, white noise processes and ARMA processes.
- **Modelling Asset Return Volatility:**Volatility of asset returns, volatility modeling and forecasting methods, the estimation of these models, andmethods of testing for volatility predictability. ARCH/GARCH class of models, both univariate and multivariate leverage effects.
- **Risk Management and Value-at-Risk:**Measuring and managing the exposure to risk, Value-at-Risk (VaR), Common models for measuring VaR.

B. Foreign Exchange Management

- **Introduction:**International Monetary Systems: Bretton Woods's institutions and forex market structure and participants.Foreign exchange quotations: Direct and indirect. Convertibility of Rupee, current account convertibility andcapital account convertibility.
- **Exchange Rate:** meaning, Spread, official and free market rates, cross currency rates, forward rates. Exchange rates determination theories, factors affecting exchange rate determination, flexible vs. fixed exchange rates, Liberalized Exchange Rate Management System (LERMS). Liquidity and exchange rate stabilization policies, Relation between the interest rate, inflation and exchange rates: Fisher effect.
- **Currency Derivatives:**Currency Forwards, Currency Futures and Currency Options, Currency Swaps. Currency Forwards vs. Currency Futures Contracts. Trade settlements in the spot and currency futures and forward markets.
- **Foreign Exchange Risk and Exposure:** Techniques for the Measurement and Management of Currency Riskand Exposure, parameters and constraints of Exposure Management. Forecasting Exchange Rates: Techniques of forecasting Exchange Rates.

- **Miscellaneous:**Tax treatment of Foreign Exchange gains and losses. Foreign Exchange Control in India, RBI guidelines, Salient features of FEMA.

C. Derivatives Trading in India

- **Introduction:** Evolution of Commodities and Financial Derivatives trading in India. Understanding UnderlyingMarkets microstructures and trading mechanism for equities, commodities and currency derivatives.
- **Options and Option Pricing Models:**Options and Option Pricing Models for equities (Indices and individual stock products) and commodities. Forwards and Futures trading mechanisms in equities, commodities and currencies.Designing trading strategies based on equities, commodities and currencies in respective markets, viz., options, futures and forwards: underlying assumptions, risk hedging and return generation.
- **Settlement & Risk Management:**Derivative Trade Clearing, Settlement & Risk Management for equities(including indices products), commodities and currencies.
- **Legal and Regulatory Environment:**Legal and regulatory environment for derivative trading in equities, commodities and currencies, Accounting and Taxation issues in derivative trading, risk mitigation and management strategies for equity, currencies and commodities based derivative trading.

D. Banking and Financial Services

- **Overview of Financial Services:**Meaning, nature of financial services, type and importance of financialservices in an economy. Growth and evolution of financial services companies in India.
- **Merchant Banking Services:** Meaning, types, functions, registration and Code of Conduct.
- **Securitization:** securitization as a funding mechanism, securitization in India. Merchant banking: nature, scope and the regulation of merchant banking in India. SEBI guidelines for public issues.
- **Equipment Leasing:**Concept, evolution and classification. Leasing in India: legal aspects, tax consideration, risks in leasing business, lease evaluation from lessee's and lessor's perspective.
- **Mutual Funds (MFs):**Evolution, types, regulation, organizational structure and assets under management (AUM) in mutual funds in India.
- Credit Rating:concept, rationale, process, methodology, SEBI regulations for credit rating in India.
- **Consumer Finance:**role of consumer credit in the financial system, legal framework, credit screening methodsin India. Credit cards – concept, types, billing and payment, settlement procedure, mechanism of transactions.
- **Venture Capital (VC):**nature, stages, role of venture capital and private equity. Venture capital financing inIndia with respect to investment process and evaluation criteria.

E. Corporate Restructuring & Control

- **Corporate Restructuring:** Need, scope and modes of restructuring, emerging trends and global scenario.

- **Mergers and Amalgamations:** Concept, need, legal and procedural aspects of mergers and acquisition in India. SEBI guidelines.
- **Takeovers and Corporate Control:** Types of takeovers and legal aspects - SEBI takeover regulations. Procedural, economic, financial, accounting and taxation considerations.
- **Valuation of Shares and Business:** Corporate Demergers/Splits. Difference between demerger and reconstruction; Modes of demerger – by agreement, under scheme of arrangement, by voluntary winding up; tax aspects, tax reliefs, Indian scenario, Reverse mergers.
- **Post Merger Re-organisation:** objectives and criteria of success, profitability, gains to shareholders; post merger valuation; measuring post merger efficiency; factors in post merger reorganization.
- **Financial Restructuring:** Buy-back of shares – concept and necessity; procedure and practice for buy-back of shares and the SEBI guidelines;
- **Alliances:** Integrating alliances into corporate strategy; preparing for alliance, cross-cultural alliances; implementing and managing the alliances.

F. Security Analysis

- **Introduction:**Meaning and avenues of investment, Concept of risk and return in stock investing-determinantsof stock return, nature and sources of investment risk, measurement of underlying risk and return.
- **Investment choices and asset allocation decision:** Investment process, individual investor life cycle and asset allocation, security and portfolio approaches, continuous and discrete compounding.
- **Organization and functioning of financial markets in India:**Primary, secondary markets, and financial intermediaries. Listing of securities, securities trading and settlement, investor protection and regulation of securities trading and markets: SEBI guidelines.
- **Security evaluation framework:** Common evaluation framework for bonds and equities, Random walk theory and Efficient market hypothesis: forms, tests and anomalies, Fundamental analysis – Economic, industry and company analyses.
- **Technical analysis:** DOW theory, technical trading tools and underlying rules: Bollinger bands and Fibonaccilines, Moving averages convergence and divergence (MACD) and Relative strength Index (RSI), Volumeindicators (VI), Accumulation/Distribution (A/D) and Directional Index (DI).

Part-II (60 Marks)

A. Financial Engineering

- **Financial Engineering:**Meaning and need of financial engineering, financial engineering*vis*-à-*vis* financial analysis, tools used in financial engineering, growth and need for financial engineering, skillset required for financial engineering.
- **Financial Engineering in India:** Financial Derivatives and futures markets. Nature, types and value derivers of financial instruments and products viz., time value of money, required rate of return, valuation: Absolute and relative valuation, risk – return, investment horizon and portfolio considerations.

- **Financial Engineering Processes and Strategies:**Assets and liabilities management, securitization, asset-backed securities, mortgage backed securities, corporate restructuring and leverage buyouts/ management buyout, value at risk (VAR).
- **Emerging Instruments:** Hybrid securities, credit derivatives, options on debt instruments, exotic options, synthetic instruments, and issues related to accounting treatment of derivatives.
- **Corporate Risk Management:** planning and controlling reasons for hedging, cash flow hedges and valuehedges, capital structure and hedging, interest rate risk management.

B. Project Planning and Management

- **Introduction:**Theoretical foundations for capital expenditure decisions, Project Management-project hierarchy, Project Lifecycle, Project and Strategic Management, Project Origination- Political, Legal, Economic, Socio-demographic, Technological factors, Project ideation and idea generation.
- **Screening of Project Idea:** Feasibility study, Market and demand analysis. Technical analysis, financial estimation and projections, Project Organization Structure and Culture: Organizational Culture, Staffing and related issues.
- **Financing of Projects:** Investment criteria, term financing and consortium lending, sovereign funds, Venture capital and the PPP, BOT and TOT models. Project risk analysis-firm risk and market risk identification and estimation. Multiple Projects: Cash flow estimation, risk mitigation and constraints.
- **Network Techniques for Project Management:** critical review of PERT and CPM, Time-cost overruns and project review. Legal, tax and regulatory considerations.
- **Project Feasibility**: Market Analysis, Technical Analysis, Financial Analysis, Project Appraisal and Selection, Social cost and benefit analysis (SCBA), Environment impact assessment and appraisal, Manpower planning and human aspects in project management.
- **Estimating Time and Cost**: Factors affecting quality of Estimate, Estimating Guidelines, Cost estimates, Scheduling, Networking: Theoretical aspects of PERT, CPM.
- **Project Monitoring and Financing of the Project**: Setting a Baseline, Monitoring and Controlling Time Performance, Capital Structure, Menu of Financing, Internal Accruals, Equity Capital, Preference Capitals, Debentures, Term Loans, Working Capital Advances, Venture Capital Investor, VC & PE comparison, The VC investment appraisal.

C. Behavioral Finance

- **Introduction:**Conceptual, theoretical foundations and evolution of behavioral finance, Nature and scope of behavioural finance, behavioral finance and conventional finance: A comparison.
- **Understanding Investor psychology:** Beliefs, Attitude, Learning, Herding, Momentum, Biases and Heuristics, Over-confidence and optimism, winners' curse, over reaction and under reaction and cross-cultural behavior.
- **Investor Preferences:** Framing, Irrationality and violation of expected utility, mental accounting, Prospect theory and attention, savingbehaviour.

- **Investment anomalies:** Accounting based anomalies, Calendar anomalies, Attention based anomalies: Value v/s Growth, size, equity premium, myopia in investment decision making.
- **Behavioral Corporate Finance:** Introduction, limits to Arbitrage, aggregation. Contemporary issues in Behavioral Finance.

D. Portfolio Management

- **Introduction:**Portfolio analysis and valuation principles – meaning, objectives and diverse aspects of investment portfolioconstruction, portfolio analysis and evaluation, measurement of portfolio risk and return, diversification: theessence of portfolio risk mitigation and management.
- **Markowitz Portfolio Theory:**Mean-variance criterion, portfolio constructions and portfolio selection, Portfolio optimization: Sharpe Single index model and Modern Portfolio theory.
- **Asset Pricing Models:** Capital market theory: security market line (SML) and Capital market line (CML), Capital asset pricing model (CAPM); Arbitrage pricing theory (APT), Multifactor models and risk estimation.
- **Valuation Principles and Practices:** Financial statement based theoretical framework of valuation, market price based valuation, enterprise value premia, and valuation of unquoted, unlisted and alternative investments.
- **Portfolio Evaluation and Management:** SEBI guidelines on portfolio management and assetmanagement companies. Portfolio performance evaluation: performance measurement techniques, riskadjusted measures of performance evaluation, evaluation criteria and procedures. Portfolio revision.

E. Insurance and Risk Management

- **Introduction:**Evolution, growth and organizational structure of banking in India, Salient provisions of Banking RegulationAct, 1949, Bank Nationalization, restructuring and consolidation. Debt restructuring and NPAs, Bankingprudence, capitalization and Basel norms.
- **Organization and structure of Insurance for risk transfer and financial intermediation:** Insurable interest and insurance principles for life, marine, fire insurance. Role of insurance Companies in financial stabilization, nation building and infrastructure development, Salient features of Insurance Regulation and Development Authority (IRDA) Act, 1999.
- **An overview of operations and performance of public, private and foreign insurance companies in India:** Insurance density, penetration and affordability of generic insurance products, schemes and plans in India for life and general-purpose insurance. Annuities and its roles in insurance product designing and risk mitigation.
- **Distribution channel in Insurance:** Individual Agents-Appointment, functions, code of conduct and remuneration; Claims settlement in Life Insurance and General Insurance.
- **Risk and its Management:** Objectives of Risk Management, Risk Identification and Measurement, Risk Pooling Arrangements and Diversifications, Process of Risk Management.
- **Risk Aversion and Risk Management of Individuals and Corporations:**Risk Management and Shareholder's Wealth. Analytical tools used in Corporate Risk

Management: DOW Index, Fault Tree, Event Tree, Hedging with Derivative Contracts, Risk Pricing. Process of Risk Control, Loss Prevention, Techniques of Risk Retention and Reduction.

F. Advanced Financial Management

- **Capital Budgeting:** Capital budgeting under risk and uncertainty, Measures of Risk, Sensitivity Analysis, Scenario Analysis, Standard Deviation and Co-efficient of Variation, Financial Break Even Analysis, Decision Tree.
- **Working Capital Management:** Needs of Working Capital, Determinants of Working Capital, Approaches to Working Capital Management, Financing of Working Capital. Computation of Working Capital requirements. Cash Management - Cash Management and its Models.
- **Inventory Management:** Objectives of Inventory Management, Inventory Management Techniques, and Fixation of Inventory level. Credit Management - Terms of Payment, Credit Policy Variables, Credit Evaluation, Credit Granting Decisions, Control of Accounts Receivables, Credit Management in India.
- **Merger/ Amalgamation:** Acquisitions and Takeovers, Takeover Code, Legal and Procedure able aspects of Merger Decisions.
- **Corporate Financial Models:** Introduction, Corporate Valuation, and Adjusted Book value Approach, Stocks and Debt Approach, Direct Comparison Approach and Discounted Cash Flow Approach.

G. Python for Financial Data Analysis

- **Python Overview:**Environment Setup: Installing Python, First Python Program, Identifiers, Reserved Words, Line and Indentation, Multi-Line Statements, Quotation, Comments, Data Types, Variables, Operators and Operator Precedence, Decision Making, Loop Control Statements.
- **Python for Financial Data Analysis:** NumPy – Numerical Python, Pandas – powerful data analysis toolkit, SciPy – tools and functions for scientific computing, Visual Finance via Matplotlib, Statistical tools via Statmodels and Deep learning via Tensorflow and Keras.
- **Financing of the Project:**Getting data from various resources like Yahoo Finance, FRED Quandl, internio, converting prices into returns, changing frequency. Exploratory data analysis, visualising time series data, Identifying and managing missing data and identifying outliers, technical analysis in Python.
- **Forecasting Techniques and their applications of financial data:** Introduction to Time Series Analysis, decomposing time series, testing and correcting stationarity in time series. Time series modelling with exponential smoothing methods, Modelling and forecasting various financial time series with ARIMA and deep neural networks.

Sd/-
Section Officer (R-III)
H. P. Public Service Commission