## SCHEME OF EXAMINATION:

### FIRST SEMESTER

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Non Major Elective-I : Principles of Marketing

### SECOND SEMESTER

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Non Major Elective-II : Basics of Capital Market

### THIRD SEMESTER

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**SIXTH SEMESTER**
Core Paper I: Mathematical Methods-I

Unit – I
Definition of a Matrix and Vector – Basic Matrix Operations – Addition, Subtraction and Multiplication of Matrices.

Unit – II
Types of Matrices – Transpose of a Matrix – Properties of Transpose – Partitioned Matrices – Minor and Rank of a Matrix.

Unit – III

Unit – IV
Elements of Game Theory – Basic Concepts - Two persons Zero Sum – Two person Constant Sum Game – Saddle Point Solution – Dominated Strategies Method – Maximin and Minimax criterion – Case of no Saddle Point – Solution of Mixed Strategy Game (2x2 matrix only – Simple problems)

Unit – V

Books Recommended
Core Paper II : Statistical Methods - I

Unit I: Descriptive Statistics/Summary Statistics:
Measures of Central Tendency – Minimum, Maximum, Mean, Median, Mode
Measures of Dispersion – Standard deviation, Variance
Measures of deviation from Normality – Skewness, Kurtosis
Frequency Distributions – Univariate, Bivariate
Graphical Illustrations

Unit II: Probability:
Introduction to Probability & Concepts
Addition Rule of Probability
Multiplication Rule of Probability
Conditional Probability & Baye’s theorem
Theoretical Probability Distributions – Binomial, Poisson, Normal distributions

Unit III: Random Variables & Probability Distributions:
Random Variables – Discrete, Continuous
Probability Density Function
Joint Probability Density Function
Marginal Probability Density Function
Conditional Probability Density Function
Characteristics/Moments of Probability Distributions – Expected Value, Variance

Unit IV: Inferential Statistics:
Estimation – Point estimation, Interval estimation
Statistical Hypothesis Testing and Significance
Steps in hypothesis testing – Types of hypothesis, Levels of Significance, Degrees of Freedom, Type I and Types II Errors, One-Tail and Two-Tail Tests, Standard Error, p-Values

Unit V: Tests of Significance of Means:
Small Sample Test: Student’s t Distribution – Properties of t distribution, Applications of t test, Large Sample Test: Standard Error – Applications & Uses
ANOVA – One-way & Two-way

Books Recommended:
Allied Paper I : Principles of Sociology

Unit-I

Unit-II

Unit-III
Individual and society - The process of socialization -Agencies of socialization - Various stages of socialization Culture - Definition - Elements - Functions - Cultural lag Ethnocentrism.

Unit-IV

Unit – V

Books Recommended:
Non Major Elective I
Principles of Marketing

Unit – I: Introduction and Concepts of Marketing

Unit – II: Product Life Cycle and Product Planning

Unit – III: E-Marketing and Sales Promotion

Unit-IV: Buyer Behaviour

Unit – V: Marketing Research

Book for Study:
1. Rajan Nair, N and Sanjith.R.Nair, Marketing, Sultan Chand.
2. Philip Kotler, Principles of Marketing, Prentice Hall Series

Books Reference:
1. Sherleker, Marketing Management, Himalaya Publishing House
2. Gupta, Marketing Management, CB Sultan Chand.
Core Paper III : Mathematical Economics - II

Unit – I

Unit – II
Constrained Optimisation – Lagrangian Multiplier Method – Problems on Utility Maximisation with Budget Constraint – Cost Minimisation Subject to Product function.

Unit – III

Unit – IV

Unit – V
Application of Integration – Findings of Total Utility, Total Cost, Total Revenue and Consumption Functions – Consumers Surplus – Producers Surplus – Problems.

Books Recommended
Core Paper IV: Statistical Methods – II

Unit I: Measures of Linear Relationships
Introduction to Correlation – Definition, Types
Estimation of Correlation Coefficients – Simple, Partial, Multiple
Properties of Correlation Coefficient
Testing the significance of correlation coefficient – t, Standard Error

Unit II: Simple Linear Regression Analysis/Models
Introduction to Simple Linear Regression Models
Regression vs. Causation
Properties & Estimation of Regression Coefficients
Goodness of Fit Measure/Summary Measure – Coefficient of Determination

Unit III: Multiple Linear Regression Models
Introduction to Multiple Linear Regression Models
Properties & Estimation of Partial Regression Slope Coefficients
Goodness of Fit Measure/Summary Measure – Coefficient of Determination

Unit IV: Non-Parametric tests
An Introduction to Non-Parametric Tests
Difference between Parametric and Non-Parametric tests
Sign Test – Paired Samples
Mann Whitney U Test – Two Independent Samples
Kruskal Wallis H Test – More than two Independent Samples
Run’s Test for Randomness
Chi-square Test

Unit V: Minor Assignment
Estimate, analyze and draw inference on an economic data using any of the statistical tools in the syllabus.

Books Recommended:

Allied Paper II- Economics of Insurance

UNIT I

UNIT II
Life Insurance- Objectives, Different types of Life Policies, Annuities, Assignments, Nominations, Lapses and Revival of policies.

UNIT III
Risk and Insurance- Classification of Risk, Surrender value- paid up value- loans- claims-procedures for claims and settlement of claims.

UNIT IV
Marine Insurance- marine perils, Types of marine policies and clauses in general. Use of warranties and conditions- proximate clause, subrogation and conciliation.

UNIT V
Fire Insurance- Characteristics, Fixation of premium- fire waste and hazards of fire- physical and moral types of fire policies- cover note, survey and inspection-

Books Recommended:
1. Principles and Practice of Insurance- M N Mishra
2. Principles and Practice of Insurance- Dr A Murthy
3. Principles and Practice of Insurance- Dr P Periyasamy
4. Element of Insurance- M Premavathy
5. Principles of Insurance Law- M N Srinivasan
6. Theory and Practice of Insurance- M Arif Khan
Non Major Elective II: Principles of Marketing

Unit – I: Introduction and Concepts of Marketing


Unit – II: Product Life Cycle and Product Planning


Unit – III: E-Marketing and Sales Promotion


Books Recommended:
2. Philip Kotler, Principles of Marketing, Prentice Hall Series
5. Modern Marketing - R.S.N.Pillai and Bagavathi, Sultan and Chand Company Pvt Ltd.
Core Paper V: Micro Economic Analysis - I

Unit- I: Principles of Economics
1. Scarcity and Choice
2. Opportunity Cost
3. The Marginalist Principle
4. The Efficiency Principle
5. The Incentive Principle

Unit – II: The Market Mechanism
1. Law of demand – determinants of demand – exceptions to law of demand – market demand and individual demand – normal, inferior, substitute and complement goods
2. The law of supply – determinants - market and individual supply - shift in supply curve
3. Equilibrium Price - Changes in supply and demand

Unit – III: Elasticity
4. The concept of elasticity - demand and supply elasticity
5. Types - Price, Income, Cross Elasticity – Nature (Magnitude) of elasticity
6. Applications of elasticity in Economics

Unit – IV: Markets and Welfare
1. Consumer surplus – willingness to pay – using demand curve to measure consumer surplus
2. Producer surplus – cost and willingness to supply – using supply curve to measure producer surplus
3. Market efficiency – evaluating market equilibrium – market failure

Unit – V: Economics of Production
1. The production function (basic introduction)
2. Cost concepts – Total, Variable, Fixed Marginal and average cost – relationship between MC and AC
3. Short run and long run costs
4. Profit maximization

Books Recommended:
Core Paper VI: Basic Econometrics I

Unit I: Introduction to Econometrics
Meaning – What is Econometrics
Classical Econometric Methodology
Analysis of economic problems - Demand theory and Keynes Consumption theory

Unit II: Two-variable Linear Regression Analysis
Population & Sample Regression Function (PRF, SRF)
Linearity in the Variables and Parameters
Probability Distribution & Significance of the Stochastic Disturbance Term

Unit III: Two-variable Regression- Problem of Estimation
Introduction to the Method of Ordinary Least Squares (OLS)
Derivation & Properties of OLS estimators
Assumptions of the Classical Linear Regression Model
Gauss Markov Theorem – Derivation of BLUE Estimators
Estimation of a two-variable model – Reporting & Interpreting the Regression Results
Goodness of Fit Measures - Coefficient of Determination

Unit IV: Two-variable Regression-Interval Estimation & Hypothesis Testing
An Introduction to Interval Estimation & Hypothesis testing
Estimation of Confidence Intervals for regression coefficients
Testing the significance of the coefficients – Confidence Interval Approach
Testing the significance of the coefficients – Tests of Significance Approach
Standard Error – Reliability of estimators
Testing the overall significance of the Model: Regression Analysis & ANOVA

Unit V: Multiple Linear Regression Analysis
Introduction to Multiple Linear Regression Models
Significance of the Model using Economic Illustrations
Assumptions & Properties of a Multiple Regression Model
Estimation of a three-variable model - Reporting & Interpreting the Regression Results
Standard Error – Reliability of estimators
Coefficient of Determination – Goodness of Fit Measures

Books Recommended:
2. Damodar N. Gujarati, ‘Basic Econometrics’
3. Racine and Li, ‘Non-parametric Econometrics- A premier’
Allied Paper III : Health Economics

COURSE OUTLINE:


Unit-II: Demand for Health Care Services- Preference for Health care using Indifference Curves- Budget Constraints- Income and Price effects for Health care- Elasticity of Demand for Medical care.

Unit-III: Supply of Health care services- Physicians and Medical Personnel as Health care providers- Non labour inputs- Hospitals- Interaction of Demand and Supply of Health care.

Unit-IV: Health Indicators- Birth rate- Fertility- Morbidity- Mortality- IMR – CMR- MMR- Disability Adjusted Life Year (DALY)- Quality Adjusted Life Year (QALY)- Sex ratio.

Unit-V: Health Insurance- Medical Ethics- Medical Tourism.

Books Recommended:
Core Paper VII: Micro Economic Analysis – II

Unit-I: Introduction
1. Nature and Techniques of Economic Analysis
2. Positive and Normative Economics
3. Inductive and deductive methods

Unit-II: Cardinal Approach to the Theory of Demand
1. Marshallian cardinal utility – Law of Diminishing Marginal Utility – Assumptions
2. Consumer’s Equilibrium – Law of Equimarginal utility – Limitations

Unit-III: Ordinal Approach to the Theory of Demand
1. Indifference curve and its Properties
2. Ordinal utility – Hicks and Allen - Price, income and substitution effects.
3. Consumer’s equilibrium – Applications of indifference curve analysis.

Unit-IV: Theory of Production
1. Stages in production – Law of variable proportions – Laws of Returns to Scale – Iso-
quants
2. Producer’s Equilibrium – Least-cost combination of input - Expansion path
3. Homogenous production function – Cobb Douglas

Unit-V: Cost and Revenue concepts
1. Types of Costs – Fixed and Variable Costs – Average, Marginal and Total Costs
2. Traditional and Modern Cost -Short and Long run Cost Curves
3. Derivation of cost from production function - Optimum firm.
4. Total, Average and Marginal Revenue – Break even analysis

Books Recommended:
Core Paper VIII: Basic Econometrics II

Unit I: Three-Variable Regression - Hypothesis Testing
Hypothesis testing – Partial Regression Coefficients
Testing the overall significance of the Model: Regression Analysis & ANOVA
Relationship between R^2 and F
Assess the Incremental contribution of an additional explanatory Variable using ANOVA

Unit II: Functional Forms of Regression Models
An Introduction to Non-Linear Relationships
Log-Linear Models – How to measure elasticity
Semi-Log Models – How to measure growth rates
 Intercept- less Regression models

Unit III: General Linear Models (Matrix Approach)
Introduction to k-variable Linear Regression Model, Assumptions
Derivation of The Population & Sample Regression Function (PRF, SRF)
Derivation & Properties of OLS Vector (Estimated β)
Gauss Markov Theorem – Derivation of BLUE Estimators
Estimation of the model using Matrix Approach– Reporting & Interpreting the Regression Results
Goodness of Fit Measures - Coefficient of Determination

Unit IV: Hypothesis Testing – Matrix Notation
Hypothesis Testing – Individual Coefficients
Testing the overall significance of the Model: Regression Analysis & ANOVA

Unit V: Problem Assignments
Example I: Estimating Demand/Supply Function, Computing Elasticity
Example II: Estimating Consumption Function, Compute & Test the significance of MPC,
Example IV: Compute Growth Rates

Books Recommended:
2. Damodar.N. Gujarati, ‘Basic Econometrics’
3. Racine and Li, ‘Non-parametric Econometrics- A premier’
Allied Paper IV: Introduction to Operations Research

Unit 1

Unit 2

Unit 3
Meaning, Objectives and Types of inventory - Factors affecting inventory control - Benefits of inventory control - Economic order quantity models – Quantity discount models

Unit 4
Meaning, objectives and Basic Components of a Network - Management applications of network analysis - Construction of network for projects – problems - Network computations - Earliest completion time of a project - Critical Path Method - Program Evaluation Review Technique

Unit 5
Queuing Theory : Meaning - Benefits - Elementary Queuing System - Arrival Pattern - Queue and Service Facility - Single Server and Multi Server Models

BOOKS RECOMMENDED
1. Richard Bronson and GovindasamyNaadimuthu - Operations Research (Schaum’s Outlines)
5. Kapoor V.K. - Operations Research - Sultan Chand & Sons
Unit – I
Functions and diagrams in Economics. Polynomial functions, Constant function, Linear function, Quadratic function, Cubic function, Rational function, Logarithmic and Exponential functions, Tracing parabola, Ellipse, Hyperbola and Rectangular Hyperbola – Concept of Slope.

Unit – II

Unit – III

Unit – IV
Revenue Functions: Total Revenue, Marginal Revenue and Average Revenue, Relationship between TR and MR, Relationship between AR and MR, Relationship among AR, MR and Elasticity of demand.

Unit – V
Profit Maximisation under Perfect Competition, Monopoly – Price discrimination.

Books Recommended
Core Paper X: Principles of Macro Economics

UNIT-1 : INTRODUCTION TO MACROECONOMICS.
Scope of Macro Economics - central questions in Macro Economics – National Income Accounting – Measurement of Gross Domestic Product (GDP) – Problems in GDP measurement – Nominal Vs. Real GDP – Is the GDP a measure of economic well being?

UNIT-2 : CLASSICAL MACRO ECONOMICS.

UNIT – 3 : KEYNESIAN MACRO ECONOMICS.

UNIT – 4 : AGGREGATE SUPPLY : WAGES , PRICES AND UNEMPLOYMENT.

UNIT – 5 : MACRO ECONOMIC POLICY.
C : Macro Economic Policy in an Open Economy.

Books Recommended:
2. Michael Parkin, Macro Economics, Addison Wesley
Core Paper XI: Econometric Methods – I

Unit I: Regression on Dummy Independent Variables
Nature of Dummy Variables
Applications of Dummy Variables – Testing for Gender analysis, Spatial/Regional analysis, Seasonal analysis, Structural Stability of the model

Unit II: Regression on Dummy Dependent Variables
Dummy Dependent Variables
The Logit Model – Introduction & Estimation

Unit III: Regression on Dummy Dependent Variables
The Probit Model – Introduction & Estimation

Unit IV: Auto Regressive and Distributed-Lag Models
Role of Time/Lag in Economics
Reasons for lags
Distributed Lag Models – Koyck Model, Adaptive Expectations Model, Partial Adjustment Model
Auto-Regressive Models – Method of Instrumental Variables
Causality – The Granger Test

Unit V: Time Series Econometrics
Stationarity Stochastic Process
Tests of Stationarity – Correlogram, Unit Root
Cointegration

Books Recommended:
1. William Greene, ‘Econometric Analysis’, Pearson Education
2. Woolride, ‘Introduction to Econometrics’.
3. Racine and Li, ‘Non-parametric Econometrics- A premier’
Core Paper XII : International Economics

UNIT-I
Importance of international trade-difference between inter regional and international trade-Smith’s theory of absolute costs- Ricardo’s theory of comparative costs- Heckscher-Ohlin theory

UNIT-II
The terms of trade- types-determination of terms of trade-Free trade vs protection-Tariffs- import quotas-international cartels

UNIT-III
Balance of payment-structure of BOP-disequilibrium in BOP –measurers to correct deficit in BOP-adjustment mechanisms of BOP.

UNIT-IV

UNIT-V
International economic relation; foreign aid-IMF-the world bank-GATT-WTO-NIEO.

Books Recommended:
1. Paul Krugman and Maurice Obstfeld, International economics.
2. Rana & Verma; International economics.
3. Mithani; International economics.
4. Salvatore D; International economics
5. Bhagwati J; International trade.
6. Bosdersten; International economics
7. C.P. Kindleberger; International economics
Elective Paper I: Indian Economy-I

UNIT-I
Economic development and growth-Basic characteristics of the Indian economy-major issues of development-obstacles to development.

UNIT-II
Structure of Indian economy-National income – sectoral contribution and economic transition in India - natural resources in the process of economic development population size and growth – demography composition – new population policy

UNIT-III
Objectives of planning in India – development strategy in India–broad achievements and failures-new economic reforms – liberalization, privatization and globalization-rationale behind economic reforms-progress of privatization and globalization.

UNIT-IV
The place of agriculture in the national economy-trends in production and productivity in agriculture – green revolution-progress of agriculture under the five year plans-land reforms – rural credit – agricultural marketing and food security in India.

UNIT-V
Poverty and inequality in India – unemployment in India-causes for rising of prices – regional disparities in India.

Books Recommended:
1. Uma Kapila, Indian Economy
2. Gavrav Dattand Ashwani Mahajan, Indian Economy
3. Sangiv Verma, The Indian Economy
VI SEMESTER
Core Paper XIII : Mathematical Economics - II

Unit – I

Unit – II
Constrained Optimisation – Lagrangian Multiplier Method – Problems on Utility Maximisation with Budget Constraint – Cost Minimisation Subject to Product function.

Unit – III

Unit – IV

Unit – V
Application of Integration – Findings of Total Utility, Total Cost, Total Revenue and Consumption Functions – Consumers Surplus – Producers Surplus – Problems.

Books Recommended
Core Paper XIV: Public Finance

Unit I: Meaning and scope of public finance – Role of Government – Distinction between private finance and public finance – principle of maximum social advantage

Unit II: Sources of Public Revenue- difference between tax revenue and non-tax revenue – classification of taxes – canons of taxation – taxable capacity – factors determining taxable capacity

Unit III: Principles of public expenditure – classification of public expenditure – causes and effects of public expenditure


Books Recommended:
Core Paper XV: Econometric Methods – II

Unit I: Regression on Dummy Independent Variables
Nature of Dummy Variables
Applications of Dummy Variables – Testing for Gender analysis, Spatial/Regional analysis, Seasonal analysis, Structural Stability of the model

Unit II: Regression on Dummy Dependent Variables
Dummy Dependent Variables
The Logit Model – Introduction & Estimation

Unit III: Regression on Dummy Dependent Variables
The Probit Model – Introduction & Estimation

Unit IV: Auto Regressive and Distributed-Lag Models
Role of Time/Lag in Economics
Reasons for lags
Distributed Lag Models – Koyck Model, Adaptive Expectations Model, Partial Adjustment Model
Auto-Regressive Models – Method of Instrumental Variables
Causality – The Granger Test

Unit V: Time Series Econometrics
Stationarity Stochastic Process
Tests of Stationarity – Correlogram, Unit Root
Cointegration

Books Recommended:
1. William Greene, ‘Econometric Analysis’, Pearson Education
2. Woolride, ‘Introduction to Econometrics’.
3. Racine and Li, ‘Non-parametric Econometrics - A premier’
Elective Paper II: Indian Economy-II

UNIT-I

UNIT-II
Features of industrial labour- causes for industrial disputes –social security measures –unorganised sector and India’s informal economy –agricultural workers in India.

UNIT-III
Importance of foreign trade for a developing economy-composition and direction of India’s foreign trade- role of FDI-BOP crisis- India’s trade policy.

UNIT-IV
Financial sector reforms – organisation of India’s money market –changing roles of RBI-development financial institutions –Indian capital market and SEBI

UNIT-V
Trends in revenue and expenditure of central and state Governments-deficit finance in India-current year budget of government of India-finance commission-federal finance in India.

Books Recommended:
1. Uma Kapila, Indian Economy
2. GavravDattand Ashwani Mahajan, Indian Economy
3. SangivVerma, The Indian Economy
Elective Paper III: COMPUTER APPLICATIONS IN ECONOMICS

Unit I: Working with MS EXCEL
Starting EXCEL
Workbook, Worksheet/Spreadsheet
Calculation Operators
Arithmetic Operators
Comparison Operators
Logical Operations
Excel Tool Bars

Unit II: Descriptive Analysis
Measures of Central Tendency – Minimum, Maximum, Sum, Mean, Median, Mode
Measures of Dispersion – Range, Standard deviation, Variance
Measures of deviation from Normality – Skewness, Kurtosis
Frequency Distributions – Univariate, Bivariate
Frequency Polygons – Ogives

Graphical Illustrations:
Column/Bar Diagram
Histogram
Pie diagram
Line Graphs
Scatter Plot
Stock Diagram
Radar Diagram.

Unit III: Measures of Linear Relationships – Estimation & Hypothesis Testing
Correlation – Simple, Partial & Multiple
Coefficient of Determination
Regression – Simple & Multiple
Regression & ANOVA

Unit IV: Functional Forms (Non-Linear Relationship)
Double Log Model – Estimation of Elasticity measure
Semi-log Model – Estimation of Growth Rates
Reciprocal Model – Estimation of Asymptote values
Regression on Dummy variables

Unit V: Hypothesis Testing – Significance of Means
Student’s t Test
ANOVA (one-way & two-way)

Books Recommended:
Micro Soft Excel 2016 Bible – the comprehensive tutorial resource by John Walkenbach,
John Wiley and Sons inc., 2013

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