P.G. 1st Semester

Paper: ECO701C (Core)
Microeconomics-I
Credits: 4 = 4+0+0

Unit – I: Consumer’s Behaviour (15)

The violation of the premises of the indifference curves approach, The theory of Revealed Preference; Satiation and Lexicographical ordering; Linear expenditure systems, separable and additive utility functions, homogenous and homothetic utility functions, Choice of an utility index–indirect utility function and duality in consumption ; duality theorems, dual properties of utility and expenditure functions, Ray’s identity-ordinary and compensated demand curves and measures of welfare change – Linear expenditure system; composite commodities; consumer’s surplus; income leisure trade off.

Unit –II: Theory of the firm (15)

Production function: the homogenous production; Euler’s theorem and distribution; The CES production function, the generalised CES production function; the Kuhn Tucker conditions, duality in production; linear production functions: one output and multiple output case; optimising behaviour of firms; input demands: single and multiple inputs case; Cost functions: long and short run cost functions; Joint products: Constrained revenue maximisation and profit maximisation, generalisation to m variables: profit maximisation and substitution effects.

Unit -III: Market Equilibrium :(15)

Review of assumptions and equilibrium under perfect competition; Application of taxes under perfect competition; Pricing, output, tax, and entry consideration under imperfect competition: Monopoly, monopsony, monopolistic competition and duopoly; Managerial theories of the firm: contributions of Baumol, Morris and Williamson to managerial theories of the firm.

Unit-IV: Equilibrium Analysis (15)

Existence, uniqueness and stability of equilibrium under perfect competition: static stability, dynamic stability: lagged adjustment and continuous adjustment; futures market, hedging and risk analysis.

Readings:

Unit-1: National Income: (10)
Income Determination with Government sector and Foreign Trade, Foreign Trade Multiplier

Unit-2: Consumption (18)
The Consumption Data; The Absolute Income Hypothesis, The Relative Income Hypothesis; The Permanent Income Hypothesis; The Life Cycle Hypothesis; Random Walk Hypothesis; Consumption as a Random Walk; Further Aspects of Consumption Behaviour

Unit-3: Investment: (15)
Fixed Investment: The Rental Price of Capital, the Cost of Capital and Determination of Investment; Residential and Inventory Investment: nature and determinants; the Accelerator Model, Multiplier Accelerator Interaction Process, flexible accelerator, Tobin’s q theory

Unit-4: Open Economy Macroeconomics: (12)
The Open Economy IS-LM Model; BP Line, the Mundell-Fleming Model, extension of Mundell-Fleming Model to flexible exchange rate regime

Recommended Readings:

- N. Gragory Mankiw, Macroeconomics
- Brian Snowdon and H R Vane, Modern Macroeconomics
- Raghabendra Jha, Macroeconomics for a Developing Economy
- Soumen Sikdar, Principles of Macroeconomics
- Levacic and Rebman: Macroeconomics: An Introduction to Keynesian Neo-Classical Controversies
- Ola Olson, Essentials of Advanced Macroeconomic Theory
Paper: ECO703C (Core)
Mathematical Methods for Economics-I
Credits: 4 = 4+0+0

**Unit 1: Unconstrained optimization: (15)**
Unconstrained maxima and minima with more than one explanatory variables-economic applications: equilibrium of discriminating monopoly in the case of two and three variables; Multi – product equilibrium, Multi-plant equilibrium, equilibrium of firm with advertisement cost and subsidy.

**Unit 2: Optimization with equality constraint: (15)**
Geometric characterization, Lagrange characterization using calculus and economic applications. Review: utility maximization and consumer’s behavior; comparative static analysis of utility maximization, least cost combination of inputs.

**Unit 3: Integration: Economic: (15)**
Applications of Integrals, estimation of consumer’s surplus, producer’s surplus (review). Problems relating to investment, capital formation and derivation of simple growth process (Domar); present value of a cash flow; present value of a perpetual flow.

**Unit 4: Matrix Algebra and its Applications: (15)**
Rank, Norm and Trace of a matrix, Partition matrix, Matrix inversion, Structure of input-output table, static Leontief system-Domestic and External sector.

**Recommended Readings:**
- Mouhammed, “Introduction to Mathematical Economics”, Prentice Hall of India
- Hoy. M. et.al: Mathematical Economics
Unit 1: Probability: Basic Ideas (15)
Review of Terminology and related concepts, different approaches to probability: classical, statistical and axiomatic; derivation of basic probability rules; conditional probability; pairwise and mutual independence; Bayes’ Theorem (concept only); Random variable; Probability Distribution of a random variable; mathematical expectation; variance of random variable in terms of expectations; moments relating to discrete random variables.

Unit-2: Theoretical Probability Distributions (15)
Binomial, Poisson and Normal Distributions with Properties-Moment Generating Function-The central Limit Theory (without proof)

Unit – 3: Sampling and Estimation (15)
Concept of Sampling Distribution and Standard Error of a Statistic – Methods of Estimation –
Principles of Moments, Least Square and Maximum Likelihood (Concepts only)

Unit – 4: Statistical Inference (15)
Testing of Hypothesis: Type I and Type II Errors, One-tailed and Two-tailed Tests –
Test based on Standard Normal, t and Chi-Square Distributions, F- distribution: F statistic distribution; F-test for equality of population.

Readings:

- Yamane, Taro, “Statistics – An Introductory Analysis”.
- Salvatore, Dominick and Reagle, Darrick, “Statistics and Econometrics”, TMH
- Yamane, Taro, “Statistics – An Introductory Analysis”.
- Salvatore, Dominick and Reagle, Darrick, “Statistics and Econometrics”, TMH
Unit 1:
The economy and the environment 16
Deep ecology, interrelationship between the economy and the environment, global life support systems, laws of thermodynamics; alternative pollutants: biodegradable and conservative, point and non-point pollutants; pollution thresholds; market failure

Unit 2: Resources and sustainability 16
Types of resources: renewable and non-renewable; Depletable and non depletable resources; Carrying capacity and Backstop resources. Tragedy of the Commons

Unit 3: Valuation of the environment 16
Why value the environment? Kinds of values; alternative methods of valuation;

Unit 4: Sustainability 16
Concept of sustainable development; sustainable exploitation of resources; weak and strong sustainability; limits to growth; accounting for environmental degradation: green accounting.

References
Unit 1: Presentation of data (10)

Creating charts with Microsoft excel; graphical representation of data: One dimensional—single, subdivided, multiple deviation; Two dimensional- histogram, pie diagram; Three dimensional- rectangular, cube; Pictograms and cartograms, scatter, line and radar diagrams; Representation of Economic relationships: Demand curve, Supply curve, Cost curves, Revenue curves

Unit 2: Calculation of basic statistics: (10)
Mean Median, Mode, Dispersion, Correlation, standard deviation, skewness; Covariance; correlation- Bivariate, Partial, Rank, Correlation matrix.

Unit3: Data analysis (10)
Hypothesis and Testing of Hypothesis: Concept of Hypothesis, Significance of Hypothesis, Types, Concept of Significance Level and Confidence Level, Use of Computer for Testing of Hypothesis, method of least squares

References:

- Cunningham, J.B. 2012. Using SPSS: An Interactive Hands-on Approach,

(Students may get plenty of free study material in the internet on the above topics and they may take help from you tube)