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**GOVERNMENT OF ARUNACHAL PRADESH
DEPARTMENT OF PLANNING
ITANAGAR.**

**SYLLABUS FOR DIRECT RECRUITMENT OF RESEARCH
OFFICER
ECONOMICS – PAPER –I (Pg. No. 2-9) & II (Pg. No. 10-21)**

PAPER - I

MICRO ECONOMIC THEORY-I

UNIT I: Consumer's Choice

Preference ordering and utility function-Utility maximization and Marshallian demand function-Indirect utility function and cost function-Hicksian demand function-Properties of demand function: Engel aggregation, Cournot aggregation, homogeneity-Linear expenditure system –An overview of estimation of demand functions.

UNIT II: Theory of Production

Production function>Returns to scale and returns to a factor –Elasticity of factor substitution – Types of production function: Homogeneous, homothetic production function, Cobb- Douglas, CES and VES production functions and their properties- Derivation of Cobb- Douglas and Leontief production functions from CES production function.

UNIT III: Theory of Market

Critique of perfect competition as a market form-Actual market forms: Duopoly, oligopoly and monopolistic competition-Cournot and Stackelberg's model of duopoly- Collusive oligopoly: Cartel.

UNIT IV: Alternative Theories of the Firm

The traditional theory of firm and its critical evaluation – Baumol's sales revenue maximization model –Williamson's model of managerial discretion-Managerial firm vs. entrepreneurial firm-Marris's model of managerial enterprise-Limit pricing theory.

UNIT V: Welfare Economics

Pareto Optimality, Pareto Optimality conditions: Consumption, production and exchange, critical evaluation of Pareto Optimality – Compensation tests: Kaldor, Hicks and Scitovsky and Little's criterion-Social welfare function – Arrow's Impossibility Theorem-Sen's solution to General Impossibility theorem.



MACRO ECONOMIC THEORY

UNIT I: Classical and Keynesian Economics

Classical theory of income, employment, wage rate and price level-Concept of macro equilibrium in classical model-Classical dichotomy-Causes of unemployment-Evaluation of classical model.

Keynesian concept of macro equilibrium, determination of income, output and employment-Consumption function-Multiplier in an open economy.

UNIT II: Neo-Classical and Keynesian Synthesis

Classical and Keynesian theories of interest-IS-LM model-Relative effectiveness of monetary and fiscal policies-Extension of IS-LM model to labour market, flexible price and open economy (Mundell-Fleming model).

UNIT III: Theories of Consumption

Extension of Keynesian consumption function to long run –Relative Income Hypothesis (Duesenberry)-Life cycle Hypothesis (Ando and Modigliani)-Permanent Income Hypothesis (Friedman)

UNIT IV: Theories of Investment

Basic neo-classical theory of investment-Acceleration principle, its derivation from the profit maximizing behavior, flexible accelerator-Investment demand: Present value criterion for investment, payback period and internal rate of return, Marginal Efficiency of Investment (MEI).

UNIT V: Theories of Business Cycle

Schumpeterian and Keynesian Theories - Multiplier-accelerator interaction (Samuelson)- Kaldor's theory-Monetary & fiscal policy for economic stabilization.

PUBLIC ECONOMICS

UNIT I: Rationale for Government Intervention

Role of government in economic activity: allocation, distribution and stabilization functions-Provision of public goods and merit goods-Externalities, market imperfection and government intervention.

UNIT II: Public expenditure

Wagner's law of increasing state activities- Voluntary exchange principle and Lindhal's model – Samuelson's model-Musgrave's optimum budget model- Paradox of voting in public expenditure-Effects of public expenditure.

UNIT III: Taxation

Principles of taxation: Benefit and ability to pay approaches and neutrality in taxation- Taxable capacity, absolute and relative taxable capacity, factors determining taxable capacity-Deadweight loss of tax and problems of its estimation, elasticity and buoyancy of taxation (concepts).

UNIT IV: Public Budget and Public Debt

Classification of public budget: Incremental budget & zero-base budget-Concepts of deficits in budget-Public debt: Sources, effects and burden-Ricardian equivalence- Domar's approach to burden of debt, management of public debt.

UNIT V: Fiscal Policy & Fiscal Federalism

Compensatory fiscal policy, balanced budget multiplier-Principles of division of financial resources in a federation-Horizontal and vertical imbalance- Finance Commission and Planning Commission in resources transfer from centre to the states in India-Fiscal reforms in India.

MATHEMATICS FOR ECONOMICS**UNIT I: Co-ordinate Geometry and Algebra**

Equation of the straight line: Slope, intercept-Derivation of a straight line given (a) intercept and slope and (b) intercepts- Angle between two lines – The condition of lines for being parallel.

Circle: Derivation of the equation of a circle given a point & radius – Derivation of the equation of a parabola-Definition of hyperbola and ellipse-Binomial Expansion for a positive, negative or fractional exponent- Exponential and logarithmic series.

UNIT II: Matrix Algebra

Scalar and vector-Length of a vector-Addition, subtraction and scalar products of vectors-Angle between two vectors-Schwarz inequality-Vector space and normed

space- Basis of a vector, the standard basis – Spanning of vector space: Linear combination and linear dependence.

Types of Matrices: Null, unit and idempotent matrices-Matrix operations-Determinants-Matrix inversion and solution of simultaneous equations – Cramer's rule –Rank of a matrix-Characteristic roots and vector.

UNIT III: Differentiation

Limit and continuity of functions-Basic rules of differentiation-Partial and total differentiation – Indeterminate form –L' Hospital Rules-Maxima and minima-Points of inflexion – Constrained maximization and minimization – Lagrangean multiplier- Applications relating to elasticity of demand and supply, equilibrium of consumer and firm.

UNIT IV: Integration

Integral as anti-derivative-Basic rules of integration-Indefinite and definite integral-Beta and Gamma functions-Improper integral of the form $\int_0^\infty e^{-x^2}$ – Applications relating to derivation of total revenue and total cost from marginal revenue and marginal cost, estimation of consumer surplus and producer surplus-First order differential equation.

UNIT V: Linear Programming

Concept, objectives and uses of linear programming in economics- Graphical method- Slack and surplus variables – Feasible region and basic solution, problem of degeneration – Simplex method-Solution of primal and dual models.

MICRO ECONOMIC THEORY-II

UNIT I: Choice under Uncertainty and Risk

Choice under uncertainty and risk-Neumann- Morgenstern utility index, classes of measures-Axioms, expected pay off and expected utility- Prediction from Neumann- Morgenstern utility index- Relationship between the shape of the utility function and behavior towards risk – Elasticity of marginal utility and risk aversion, absolute and relative risk aversion.

UNIT II: Game theoretic Approach to Economics

Concept-Two –person zero-sum and non –zero sum game-Pure strategy, maximin and minimax – Concept of equilibrium: Saddle point, mixed strategy and minimax theorem- Two person co-operative game, non-co-operative game-

Dominated strategy-Nash equilibrium- Prisoner's dilemma and its repetition- Nash equilibrium in oligopoly.

UNIT III: Theory of Cost and Factor Pricing

Derivation of cost function from production function-Technical progress (Hicksian and Harrodian version) and factor shares-Theories of distribution: Marginal productivity theory and Euler's theorem, Ricardo, Kalecki and Kaldor.

UNIT IV: Theory of General Equilibrium

Principles of general equilibrium, existence, uniqueness and stability (Walrasian and Marshallian conditions of stability)- Walrasian general equilibrium system- Computable and non-computable general equilibrium.

UNIT V: Economics of Imperfect Information

Information and decision making under certainty and uncertainty – Asymmetric information, adverse selection, moral hazard and signaling-Applications to insurance and lemon markets.

MONETARY THEORY AND FINANCIAL ECONOMICS

UNIT I: Demand and Supply of Money

The Demand for money-Tobin's portfolio selection and Baumol's transaction demand for money-Friedman's restatement of quantity theory of money-Supply of money- inside and outside money, Gurley-Shaw's approach-Concept of exogenous money supply, Friedman's theory-Endogenous money supply, Kaldor's theory.

UNIT II: Inflation, Monetarism and New-Classical Macroeconomics

Keynesian theory of inflation –Phillips Curve-Monetarism: Basic elements of monetarism-Monetarist theory of income determination and inflation-Friedman-Phelp critique of Phillips Curve and money supply rule.

Price behavior and expectation: Adaptive and rational expectations – New-classical economics, real business cycle and economic policy.

UNIT III: Problems in Asset Pricing

Returns from assets and risk-Measure of risk, diversification- Risk in a Portfolio-Modigliani-Miller theorem- Capital asset pricing model and arbitrage pricing model.

UNIT IV: Financial Market

Role, structure characteristics of money market and capital market-Money market, treasury bill and commercial bill market- Discount market, government securities, markets for derivatives, futures and option-Types, uses and pricing of derivatives-Primary and secondary market for securities-Depth, breadth and resilience of markets, different indices.

UNIT V: Indian Financial Institutions

Working of capital market and SEBI-Commercial banks, Co-operatives, regional rural banks(RRBs), problems of micro finance, self-help groups(SHG)- Non-bank financial intermediaries(NBFIs): Insurance institutions, mutual benefit funds.

INTERNATIONAL ECONOMICS**UNIT I: Theory of International Trade**

Review of theory of comparative advantage-Modified Ricardian model: Haberler's opportunity cost theory- Trade under increasing, decreasing and constant cost conditions – Heckscher-Ohlin theory-Factor price equalization theorem-Leontief Paradox and its critical evaluation(Mrad's view)-Trade under imperfect competition.

UNIT II: Terms of Trade and Tariff

Offer curves, elasticity and terms of trade-Impact of tariff: Partial and general equilibrium analysis-Game theoretic approach to tariff-Tariff and income distribution: Stolper-Samuelson theorem-Hypothesis of secular deterioration in terms of trade and its empirical testing –Terms of Trade and economic growth.

UNIT III: Trade and Technological Change

Increase in factor endowments and international trade, the Rybczynski theorem-Bhagwati's view on immiserizing growth-Technical change and international trade: Neutral, capital saving and labour saving technical progress and their impact on terms of trade.

UNIT IV: Balance of Payments and Foreign Exchange Market

Components of balance of payments-Relative importance of current account and capital account-Balance of payments adjustment: Absorption and monetary approaches (Harry Johnson)- Foreign trade multiplier.

Foreign exchange market-Exchange rate determination: Purchasing power parity theory-Interest parity theorem, interest arbitrage, hedging, premium and discount.

UNIT V: International Monetary Order

Theory of regional blocks: Customs union, European common market, SAFTA-Euro-Currency Market (offshore banking)-The rise and fall of Bretton-Woods system-GATT and evolution of WTO.

STATISTIC

UNIT I: Probability

The concept of a sample space & elementary events – Mutually exclusive events, dependent & independent events, compound events – A-priori & empirical definition-Addition & multiplication theorems – Compound and conditional probability – Bayes theorem.

UNIT II: Probability Distribution

Random variable, probability function and probability density function-Expectation, variance, covariance of a linear combination of variables, moments & moment generating functions – Binomial, Poisson, Beta, Gamma & Normal distribution: Derivation of moments around origin and moments around mean-Standard normal distribution.

UNIT III: Correlation & Regression

Relationship between two variables-Karl Pearson's coefficient of correlation and its properties-Range of correlation coefficient- Spearman's rank correlation (tied and untied).

Regression – Estimation of two regression lines – Angle between two regression lines – Properties of regression coefficients – Standard error of regression coefficients – Partial and multiple correlation and regression (concept).

UNIT IV: Index Number and Time Series

Index Number - Laspeyeres, Paasche's and Fisher's index number- Tests for ideal index number-Base shifting, base splicing and deflating-Concept of constant utility index number

Time series – Components of time series – Methods of estimation of linear and non-linear trend.

UNIT V: Statistical Inference

Concept of sampling distribution – X^2 (Chi-Square) distribution, t distribution, F distribution and their properties-Type I and type II error-One tailed and two tailed test –Testing of hypothesis based on Z, t and F distributions.

PAPER -II

GROWTH ECONOMICS

UNIT I: Classical, Schumpeterian and Marxian Theory

Theories of Adam Smith, Ricardo, Malthus and their critical evaluation- Schumpeter's theory – Marx and theory of reproduction.

UNIT II: Neo-classical and Cambridge Models of Economic Growth

Harrod and Domar models and unstable growth-Neo-classical model of Solow- Cambridge models: Joan Robinson and Kaldor.

UNIT III: Technical Change and Human Capital

Hicksian and Harrodian versions of neutral technical progress-Labour and capital augmenting technical progress (Harrod and Solow versions only)-Disembodied and embodied technical progress – Neo-classical growth under vintage capital model-Components of human capital-Process of human capital formation-Human capital formation and economic growth – Human capital and unemployment.

UNIT IV: Increasing Returns and Endogenous Growth

Allyn Young's theory of increasing returns – Arrous learning by doing model – Roemer's endogenous growth model.

UNIT V: Allocation of Resources

Need for investment criteria in developing countries-Alternative investment criteria: Rate of turnover criterion, social marginal productivity criterion, marginal per capita reinvestment criterion and time series criterion – cost-benefit analysis of projects: Little Mirrlees.

ECONOMICS OF NATURAL RESOURCES AND ENVIRONMENT

UNIT I: Economics of Natural Resources and Resource Management

Renewable and non-renewable resources – Common Property Resources (CPRs) - Open access, tragedy of commons - Conservation of resources - Joint forest management.

UNIT II: The Economy and the Environment

Components of environment - Interlinkages between the economy and the environment - Environmental economics vs. natural resource economics - Causes of environmental and eco-system degeneration - Environmental degradation as market failure - Externality - Coase theorem, market efficiency through negotiations, critical evaluation.

UNIT III: Environmental Policy

Pigouvian taxes and subsidies-Pollution control: Command and control, market based instruments and mixed instruments - Tax vs. tradable permits.

UNIT IV: Valuation methods of Environmental Benefits and Costs

Use values and non-use values - Direct methods of valuation: Contingent valuation method - Indirect methods of valuation: Hedonic pricing and travel cost method.

UNIT V: Environment and Development

Environment-development trade-off- Population, poverty and environment-Environmental Kuznets curve - Trade and environment - Concept and indicators of sustainable development - Rules to sustainability - Concept of Green Accounting.

INDIAN ECONOMY**UNIT I: National Income, Employment and Price Behaviour**

National income-Trends in growth and structure, performance of different sectors. Employment and unemployment: Recent trends and estimates- Changing structure and emerging issues-Labour market reforms-Inflation: Recent trends in prices in India and its causes, price stability.

UNIT II: Agriculture

Agricultural performance: Growth and productivity - Economic reforms and their impact on agriculture-Agricultural policy - Institutional reforms.

UNIT III: Industry

Evolution of Indian industries: An overview-Evaluation of industrial policies of 1948 and 1956-PSUs: Performance and shortcomings- PSUs and disinvestment debate-Economic reforms and industry.

UNIT IV: Infrastructure

Physical infrastructure: Power, transport and communication – Financial infrastructure: Bank – Social infrastructure: Education and healthcare – Institutional infrastructure: Market – Financing infrastructure: Problems and policies.

UNIT V: Public Finance and Economic Reforms

Trends in revenue and expenditure of central & state governments – Public debt – Characteristics of tax reforms in India – Deficit financing and price behavior in India: Consequences and policy suggestions

Rationale for economic reforms – Main components of structural reforms – Evaluation of structural reforms – Impact of WTO on Indian economy – Foreign capital and MNCs in India.

BASIC ECONOMETRICS

UNIT I: Introduction to Econometrics, Probability theory and Matrix Algebra

Definition and scope of econometrics-Random variable, density function, joint and marginal probability distributions, expected value and moments - Concept of vector space and linear transformation – Matrix and determinants – Rank – Differentiation of vector and matrix (elementary functions only).

UNIT: Linear Regression Model

Properties of good estimators in small and large samples – Ordinary Least Square (OLS), assumptions and properties of OLS estimators (BLUE) – Unbiased estimator of the variance of the error term – Confidence interval and significance-Extension of two variable model, logarithmic and reciprocal transformation.

UNIT III: General Linear Model

Assumption of OLS and estimation – Correlation matrix, properties of estimators: Their variance and testing their significance and confidence intervals.

UNIT IV: Autocorrelation and Heteroscedasticity

Autocorrelation: Meaning and types (positive and negative) – Effects of autocorrelation on the properties of OLS estimators – Detection of autocorrelation: Durbin-Watson test and von-Neumann ratio.

Heteroscedasticity: Meaning and effects on the properties of the OLS estimators
– Detection: Glaser method.

UNIT V: Multicollinearity and Errors in variables

Multicollinearity: Meaning, its effects on the estimation of parameters and their variances.

Errors in variables: Meaning (errors in equation and in variables) – Effects of errors in variables when errors occur in a) dependent variable, b) independent variable and c) both dependent and independent variables.

ECONOMICS OF DEVELOPMENT AND PLANNING

UNIT I: Concept of Economic Development

Economic growth and economic development – Measurement of economic development: Problems in measures of development, physical quality of life and human development index – Obstacles to economic development: Property rights, technological adoption, human and physical capital - Kuznet's characteristics of modern economic growth.

UNIT II: Theories of Underdevelopment

Dualism and backward bending supply curve – Vicious circle of poverty - Nelson's low level equilibrium trap – Leibenstein's critical minimum effort – Paul Baran's theory of underdevelopment – Myrdal's theory of cumulative causation.

UNIT III: Approaches to Economic Development

Traditional approach to development: Balanced vs. unbalanced growth – Rosenstein Rodan's theory of big push – Nurkse's model – Hirschman's theory – Ranis-Fei model.

Community approach to development: State, market and community – Market and prisoner's dilemma – Community, social capital and development –Critical evaluation of the social capital approach to development.

UNIT IV: Development Planning

Rationale for planning in a developing economy – Input-output model in closed and open economy - Samuelson's substitution theorem, Hawkins-Simons condition and sectoral projections – Plan models in India: Mahalanobis model – Plan in a market oriented economy.

UNIT V: Trade and Political Economy of Development

Import substitution and export led growth – Krueger's model of rent seeking society – Institutions and development: Contribution of Stephen Knack and Philip Keefer – Foreign direct investment, foreign institutional investment and economic development – Foreign aid and economic development.

THE ECONOMY OF NORTH EAST INDIA

UNIT I: Structure of North East Economy

North East economy: An overview – Basic Features of North East economy - Relative performance of the North East economy in the country.

Economic performance of the region – Level and growth of NSDP and Per Capita NSDP – Changing sectoral composition of state income and sectoral contribution to the growth of income with respect to Arunachal economy.

Natural Resource Base - Land, mineral, water, water and forests – Status of human development in N.E. India.

UNIT II: Population

Population: Trends and features, causes for its rapid growth, population growth and economic development.

Urbanization: Trends and features, causes for rapid growth and consequences.

Work force structure and its changes, participation of female labour force, unemployment situation in North East India.

UNIT III: Agriculture

Agricultural practices in the region – Permanent cultivation, shifting cultivation and its effects – Jhum cultivation and the problem of induction of new technology.

Land tenure and problems of agricultural credit – Land use pattern and cropping pattern in North East India – Need for land reforms with special reference to Arunachal Pradesh – Agricultural productivity – Causes of low productivity.

UNIT IV: Development of Secondary and Tertiary Sectors

Status of industry: Cottage and small scale-agro-based industries, medium and large scale industries – Factors inhibiting the growth of industries - Infrastructure development: Power, transport, communication, market and banking: NEDFi, SIDBI, IDBI.

UNIT V: The Policy Framework

State of public finance and fiscal issues in North Eastern economy with special reference to Arunachal Pradesh.

Five year plans of the states (with special emphasis on the state of Arunachal Pradesh) Problems and prospects of North East economy in the background of economic liberalization of India – Opening of NE economy and 'Look East' policy of the government of India.

AGRICULTURE ECONOMICS

UNIT I: Introduction to Agricultural Economics

Nature of Agricultural economics – Interdependence and complementarities between agriculture and industry - Agriculture, poverty and environment - Farming System - Farm size and practice – Farm efficiency measure - Resource management in agriculture.

UNIT II: Issues in Farm Management

Nature of agricultural production function: Cobb-Douglas, Spillmans – Risk and uncertainty in agricultural production and prices - Decision theory - Cob-web theorem - Nerlove's model - Agricultural marketing - Marketed and marketable surplus - Mathur-Eizkel hypothesis – Farm size and productivity – Pricing policy (including support price).

UNIT III: Theories of Agricultural Development

Problems of labour surplus economy - Lewis' and Jorgenson's models - Theories of agricultural development: Schultz, Mellor and Boserup's – Farm household models: Chayanov, Barnum-Squire and Low's models.

UNIT IV: Institutions and Agriculture

Land tenure system – Types of tenancy – Tenant-landowner model: Marshall and Cheung models – Rural credit market: Lenders' risk hypothesis, monopolistic credit market - Characteristics of semi-feudalism - Stagnation under semi-feudalism (Bhaduri's model), criticism of Bhaduri's model.

UNIT V: Issues in Agricultural Development in India

Agricultural system in India – Problems of diffusion of new technology – Limited spread of green revolution - Mode of production debate in India: Rudra, Patnaik

and Chattopadhyaya's views only - Intersectoral terms of trade - Food security -
The state and agriculture - WTO and Indian agriculture.

POPULATION ECONOMICS

UNIT I: Population Growth and Fertility

Trends of population growth since the beginning of 20th century – Basic measures of demography – Rates and ratios – Data sources: Census, surveys and vital statistics.

Measures of fertility – CBR, GFR, TFR, cumulative fertility rate, child women ratio, gross and net reproduction rate.

Easterlin's and Becker's theories of fertility and their critical evaluation.

UNIT II: Mortality

Basic measures – CDR, age specific death rate – Early neonatal, neonatal and infant mortality rate – Life table, complete and abridged life table and their construction - Trends of mortality in developed and developing countries – Determinants of mortality.

UNIT III: Migration and Urbanization

Measures of migration, internal and international migration - Theories of migration: Push and pull factors, Lee's theory and Harris Tadaro model.

Urbanization, its measures - Urbanization and development – Historical patterns for developing and developed countries – Factors promoting urbanization in the developing countries – Problems of urbanization in less developed countries

UNIT IV: Population Growth, Labour Force and Dependency

Arithmetic, geometric and exponential growth rates – Population growth, age distribution (age pyramid) and age dependency – Dependency ratio, savings physical and human capital formation - Population estimates and projections: Mathematical and demographic methods - Measures of labour force and labour participation rate.

UNIT V: Population policies in India

Major demographic features of India's population (Birth rate, death rate and their trends) - Evaluation of family welfare programme in India – National Population Policy 2000 - Manpower planning in India.

ADVANCED ECONOMETRICS

UNIT I: Alternative Methods of Estimation

Autocorrelation: Cocrane-Orcutt method and Durbin's two-step method.

Heteroscedasticity: Glejser method.

Errors in variables: Instrumental variable method.

Generalised least square method: Aitken's method, estimation, properties of GLS estimation.

UNIT II: Distributed Lag Models and Dummy Variables

Finite lag distribution – Lagged explanatory and dependent variables – Autoregressive lags estimation: Koyck, and Almon only.

Dummy variables: Use of dummy variables as proxies of both dependent and independent variables – Dummy variable trap – Use of dummy variable for measuring the shift of a function and change of parameters over time.

UNIT III: Simultaneous Equation Models

Simultaneous equation system, two-way linkage – OLS estimation and simultaneous equation bias – Structural form and reduced form – Identification, rules of identification, rank and order conditions.

UNIT IV: Estimation of Simultaneous Equation Model

Just identified model: Indirect least square method, consistency of ILS estimators.

Over identified model: Failure of ILS estimation (ILS estimators not unique) – 2SLS estimation, consistency of 2SLS estimators – Matrix presentation of 2SLS estimators.

UNIT V: Techniques of Forecasting

Econometric properties of time series, unit root and stationarity (random walk property), co-integration – ARMA and ARIMA.



COMPUTER APPLICATIONS IN ECONOMICS

UNIT I: Introduction to Computer System

Operating system – Input-output – Computer networking and resource sharing, hardware, software and firmware, examples and techniques in programming languages like C, C++, visual basic and java.

UNIT II: Data Processing

Concept of data, record and file – Types of data and data structures, data analysis – Data storage and retrieval – Database: concepts and operation on database.

UNIT III: Statistical Processing Techniques and Methods

Series, groups, tables, graphs and objects – Time and frequency series – Regression methods and techniques – Regression analysis.

UNIT IV: IT Application to Finance

On line banking – Electronic trading – Data sharing and decimation – Electronic transaction – Document delivery – Authentication and validation transaction processing.

UNIT V: IT Application to Commerce

Electronic trading and marketing – On line shopping and malls – Document and transaction security and digital signature.

ECONOMICS OF INFRASTRUCTURE

UNIT I: Introduction

Infrastructure and economic development – Infrastructure as a public good – Social and physical infrastructure – Special characteristics of public utilities – Economies of scale of joint supply – Marginal cost pricing vs. other methods of pricing of public utilities – Cross subsidization: Free prices, equity and efficiency.

UNIT II: Transport Economics

The structure of transport costs and location of economic activities – Demand for transport – Model of freight and passenger demand – Cost functions in the transport sector – Principle of pricing – Special problem of individual models of transport.

UNIT III: Communication

Rate making in telephone utilities – Principles of decreasing costs in telephone industry – Characteristics of postal services – Criteria for fixation of postal rates – Measurement of standards of service in telephone and postal utilities.

UNIT IV: Energy Economics

Primacy of energy in the process of economic development – Factors determining demand for energy – Energy conservation – Renewable and non-conventional sources of energy – Energy modeling.

UNIT V: Social Infrastructure, Health and Education

Organization and financing of supply of social services – Private vs. public sector financing – Debate about fixation of prices of social services.

Education and economic growth – Approaches to educational planning: Rate of return and manpower balance approaches – The issues in education policy.

Health dimensions of development – Determine of health: Poverty, malnutrition, illiteracy and lack of information – Economic dimension of health care: Demand and supply of health care – Financing of health care- Financing of health care and resource constraint.

GENDER AND DEVELOPMENT ECONOMICS

UNIT I: Gender and Economics: Introduction

Gender and feminisms – Economic methodology and feminist critiques – Development: Meaning and concept – Human development and gender – Construction of Human Development Index and Gender-related Development Index and criticisms.

UNIT II: Work and Employment

Types of work, work participation rates, labour force participation rate – Female labour supply: Neo-classical theory – Models of allocation of time: Becker and Mincer – Segregation in labour market: Discrimination in work place, measures of discrimination, Differential employment – Household work and non-market work: Time Use Survey.

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UNIT III: Issues in Agriculture and Environment

Gender and property rights: Theories, Experiences in South Asia, India and Arunachal Pradesh – Boserup's thesis on gender and agricultural change and its criticisms – Technological change and female labour – The impact of Green Revolution – Gender, environment and development: Linkages – Gender issues in natural resource management.

UNIT IV: Health and Well-Being

Sex ratio, child sex ratio, son preference, differential mortality between sexes – Differential access to health care – Intrafamily distribution of food and nutrition – Women's autonomy, fertility and health status – Health and poverty.

UNIT V: Gender and Globalisation

Women under capitalism: Review of political economy approaches – Structural adjustment and women – Gender, informalisation and flexible production – Review of gender and development policies: Role of international bodies, governments and civil society institutions – Mainstreaming gender concerns: Methods and approaches.

REGIONAL ECONOMICS

UNIT I: Introduction to Regional Economics

Regional economics: Definition and scope – Defining a region – Delimiting functional regions – Relations of activities within a region – Forward and backward linkages – Regional specialization.

UNIT II: Regional Economic Analysis

Price determination in regional setting – Market area analysis – Spatial variation in costs – Regional income and employment determination – Regional income multiplier.

UNIT III: Theories of Firm Location: Agglomeration Economies

Objectives of location choice – Location factors – Location and the theory of production – Determinants of agglomeration – Location measures: Location quotient, coefficient of localization, localization curve.

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UNIT IV: Regional Input-Output Analysis

Input-Output analysis: Introduction – Input-Output analysis in a single region – Input-Output analysis in a two or more regions: the inter-regional input-output (IRIO) model – Input-output analysis in a two or more regions: The multi-regional input-output (MRIO) system.

UNIT V: Regional Growth and Development

Causes of regional growth – Interregional trade and factor movements – Interregional convergence and divergence – Measurement of spatial disparity: Principal component analysis – Central place theory; Growth pole theory; theory of cumulative causation; Dependency theory: Centre-periphery and world system theories.