



Department of Economics

Punjabi University, Patiala

(Established Under Punjab Act No. 35 of 1961)



Syllabus for Ph.D. Entrance Test for Session 2023-24

Section –A

(Research Methodology)

Applications of Derivatives in Economics: Elasticity of demand, Average and marginal functions. Problems of optimization (max. /min.) of one, two variables and constraint functions. Application in discriminating monopoly. Analysis of consumer's surplus.

Matrices: Definition and Types. Elementary operations. Rank of a matrix. Matrix inverse by adjoint and Gauss- reduction method. Concept of determinants and its properties. Solution of simultaneous equations by Cramer's rule and matrix inverse methods. Application of simultaneous equations in Economics.

Interpolation: Newton's formula for leading differences, LaGrange's formula and Binomial expansion method.

Index numbers: Problems and methods of construction index numbers. Chain and fixed based index number. Reversibility tests, cost of living index numbers.

Time Series Analysis: Components of time series. Measurement of trend. Calculation of simple and compound growth rates. Theory of Attributes: Elementary idea, association of attributes.

Probability: Addition & multiplication theorems; Conditional probability, Bay's theorem, Properties & application of Normal distribution. General characteristics and applications of Binomial, Poisson and Log normal distributions.

Problems of Regression Analysis: Nature test, consequences and remedial steps to the problems of Heteroscedasticity, multicollinearity, auto-correlation and errors of measurement. Aitkin's Generalized Least Squares estimator. University Time Series Modeling: Introduction to ARIMA modeling: Properties of ARMA and ARMA processes; testing for stationarity; Identification, estimation and Testing of ARIMA (1,1,0) processes.

Estimation: Point estimation and interval estimation, Properties of point estimates, Maximum likelihood estimates, Statistical hypothesis: Two-tailed and one-tailed tests. Types I and II Errors: Level of significance. Critical region.

Large and small samples. Tests of significance based on Normal, 't', 'F' and 'Z' distributions. Testing the significance of means, proportions, correlation and regression coefficients and their interpretation. Elementary knowledge of quality control and its simple applications. Planning and organization of socio-economic surveys. Preparation of questionnaire. Type of sampling. Elementary knowledge of Analysis of Variances (one-way and two-way classification) and Analysis of Covariance, Non-parametric tests-chi-square test and sign test.

Research Ethics: Definition, nature of moral judgments and reactions; Scientific Conduct: Meaning; Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP); Redundant Publications: duplicate and overlapping publications, salami slicing; selective reporting and misrepresentation of data; identification of publication misconduct; predatory journals

Publication Ethics: meaning, best practices, standard setting initiatives and guidelines (COPE, WAME etc.); Open access journal, Journal finder; Data bases and research metrics: Indexing, citation (web of science, scopus etc.); Impact factor: SNIP, SJR, IPP, Cite score; Metrics: h-index, g-index, i10 index, altmetrics

Section –B **(Subject)**

Demand Analysis: Indifference curve analysis : price, income and substitution effects; Slutsky theorem, compensated demand curve; Revealed preference theorem; Revision of demand theory by Hicks; Recent development in demand analysis, Linear expenditure systems, constant elasticity demand function; Dynamic versions of demand principle and Houthaker and Taylor's Dynamic Model.

Theory of Production and Costs: Production Function: short period and long period; law of variable proportions and returns to scale; Isoquants-Least cost combination of inputs; Returns to factors; Economies of Scale; Elasticity of substitution, Technical progress and production function, Cobb-Douglas, CES and translog production functions and their properties.

Alternative Theories of the Firm: the marginality controversy and critical analysis of marginal analysis, Hall and Hitch Report and average cost pricing principles. Alternative theories of the firm-Baumol's sales revenue maximization model: Marries model of managerial enterprise; willianson's model of managerial discretion; Theories of limit pricing Bain's Theory.

Welfare Economics: Ionian welfare economics; Pareto's unanimity rule and optimal conditions: value judgment; Caldor-Hicks compensation principle, Social Welfare function; Bergson Samuelson: Raul's Theory of second best arrow's impossibility theorem.

Theories of Consumption and Investment: Keynes's psychological law of consumption and empirical evidence: Income consumption relationship relative income, life cycle, permanent income hypothesis and consumption under uncertainty; Marginal efficiency of capital and investment; accelerator and investment behavior, neoclassical theory of investment.

Money, Interest and Income: Neo-Classical and Keynesian views on interest: IS-LM Model and extensions of IS-LM models with labour market and flexible prices; Post Keynesian approaches to demand for money: Patinkin and the real balance effect: approaches of Baumol and Tobin; Friedman and modern quantity theory.

Marco-economics, Policy for Stabilization and Growth: Theory of economic policy, policy objectives and conflicts; fixed vs. target approach, monetary policy, fiscal policy and crowding out policy mix.

Inflation and Monetary Policy: Inflation, money growth and interest rates, dynamic inconsistency of low inflation monetary policy, signola inflation monetary policy, signora and inflation; budget deficit and fiscal policy, recording equilibrium debate, tax smoothing under certainty and uncertainty; cost of defect and debt crisis.

Economic Development and Institutions: Market and state theories of institutional change and economic development; Schumpeter, North dependency theory of development. Paul Baran, Andre Gunder Frank and Samir Amin.

Endogenous Models of Growth: Lucas and Romer, Theory of convergence and divergence, Barro and sale i-Martin; Development and migration: Lewis and Todaro.

Human Capital: Education and R & D health and nutrition: theory investment, returns and policy issues Growth, poverty and inequality theory, measurement, empirical evidence and interconnections.

Historical Social Formations: Rise of private property, classes and the State Distinguishing features of Primitive Communism/ society, slavery, Feudalism/ serfdom, Capitalism/ imperialism and Socialism/ communism.

Dialectical and Historical Materialism: Its theory and method, Dialectical materialism (Materialistic conception of human/social history), Nature and role of contractions.

Mode of Production and Social Superstructure: Factors constituting and forces governing mode of production, Social superstructure and its elements.

Marxian Political Economy: Basic Analysis of Capitalism: The context, Approach and methodology, Capitalism and commodity production, Labour and Law of value, Commodity fetishism, Surplus-value, socio-economic crisis Contradictions of capitalist development. Third World (late) capitalism.

Economic Development during 1857-1947: Evolution of land tenure system, commercialization of agriculture. Trend towards market economy. Demographic development. Rural indebtedness. Role of foreign capital. Economic consequences of British rule. Need for planned economic development. Basic strategy for development of Indian economy under planning, Changes in the strategy of Indian planning. Role of Public and private sectors in India.

Agrarian Reforms: New Agricultural strategy and green revolution. Production structure of Indian agriculture. Terms of trade between agriculture and industry. Development of irrigation. Nature and extent of industrialization in India. Existing production structure of industry. Industrial policy 1948, 1956 and 1991. Growth of large industrial houses. Small-scale industries and their problems.

Public Choice & Rationale of Public Policy: Private and public mechanism for allocating resources; Problems of preference revelation and aggregation of preferences: Voting systems, Arrow impossibility theorem. Allocation of resources-provision of public goods; Market voluntary exchange models: Achieving social goals; poverty alleviation, provision of infrastructural facilities, removing distributional inequalities and regional imbalances. Sources of Public Revenue.

Taxation: Theory of incidence: Alternative concepts of incidence; Taxable capacity, Meaning and determinants, Effects of taxation-trade off between equity and efficiency. Theories of taxation: Benefit and ability to pay approaches. The problem of double taxation.

New Theories of International Trade: Market structure, economies of scale, intra-industry trade, product differentiation and technology. Gains from trade and their distribution. Terms of trade, concepts and measurement. Secular deterioration thesis of terms of trade Emmanuel's theory of unequal exchange.

Theory of Regional Economic Integration: Forms of integration, static and dynamic effects of customs union, Bilateral and multilateral agreements, UNCTAD, GATT and WTO. Regional economic grouping: EU, SAARC, BRICS and NAFTA.

Marxian Political Economy: Basic Analysis of Capitalism: The context, Approach and methodology, Capitalism and commodity production, Labour and Law of value, commodity fetishism, Surplus-value, socio-economic crisis, Contradictions of capitalist development. Third World (late) capitalism.

Foreign Capital in India: Foreign direct investment and portfolio investment, India's foreign trade in goods and services. Trade balance and balance of payment. Exchange rate policy.

Foreign Debt: W.T.O and Indian Economy, concentration of economic power, poverty, unemployment, Economic Inequalities, regional imbalances, population and inflation.

Indian Public Finances: Indian tax system, Revenue of the Union, State and local bodies; Major taxes in India: base of taxes, direct and indirect taxes, taxation of agriculture, expenditure, VAT and taxes on services; Analysis of Centre and Indirect taxes, VAT and taxes on services; Analysis of Centre and State government budgets. Trends in public expenditure and public debt; Fiscal crisis and fiscal sector reforms in India.

International Monetary System: Gold Standard, Breton Woods system and Post Breton Woods System, IMF: Functions, Organization and lending mechanism, International liquidity IBRD, ADB, IFC and IDA. Theory of International reserves. Recent monetary reforms.

Financial Markets: Structure of money market and capital market, problems of money and capital market in India, recent developments in money and capital market in India. Non-Bank Financial Intermediaries: Definition, types, impact on India's economic development, measure taken to control their operations.