Syllabus of Research Methodology for RET in Agriculture

Unit 1: Concepts of research methodology

Importance and scope of research in agriculture, Types of research: Fundamental vs. Applied, Concept of researchable problem, Research prioritization, Selection of research problem, Approach to research, Research process.

Unit 2: Hyposthcis Testing

Hypothesis- meaning- characteristics- types of hypotheses- Review of literature, Setting of course objectives and Hypothesis, Testing of hypothesis, z, t, chi-square and f-distribution

Unit 3: Data collection and descriptive analysis

Data- meaning, assessment of data needs, sources of data collection, collection of data in different fields of agriculture, Types of data, Classification, tabulation, and graphical representation of data, measures of central values, measures of dispersion, correlation and regression analysis.

Unit 4: Sampling

Sampling Theory and sampling design, methods of sampling; probability and non-probability sampling methods, Research design and techniques, Types of research design.

Unit 5: Probability

Theory of probability, Random experiment, Mathematical or classical definition of probability, Statistical definition of probability, conditional probability, Mathematical expectation.

Unit 6: Data analysis

Data coding, cleaning, transformation of data, Universal procedures for preparation of bibliography, writing of research articles, Project proposal, Introduction to ANOVA: One way and two-way, Introduction to SPSS

अधिष्टाता
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SYLLABUS FOR RESEARCH ENTRANCE TEST (RET)
AGRICULTURAL ECONOMICS
PAPER-II
(SUBJECT CONTENT)

Unit-1:

Theory of Consumer Behaviours:
Cardinal Utility Approach, Ordinal Utility Approach, Income effect and Substitution effect, Applications of Indifference curve approach, Revealed Preference Hypothesis, Consumer surplus, Derivation of Demand curve, Elasticity of demand.

Theory of Production:
Production functions, Returns to scale and economies of scale, Theory of Costs, Derivation of supply curve, Law of Supply, Producer's surplus.

Theory of Market
Market Equilibrium, Behaviours of Firms in Competitive Markets, Perfect Competition, Effect of Taxation and Subsidies on market equilibrium, Monopoly, Monopolistic, Oligopoly, Theory of Factor Markets, General Equilibrium Theory, Welfare Economics, Pareto Optimality, Social welfare criteria, Social Welfare functions.

Unit-2:

Classical Theory of Employment
Nature and Scope of Macro Economics, Methodology and Keynesian Concepts, National Income, Concepts and measurement, Classical theory of Employment and Say's Law.

Modern Theory of Employment
Modern theory of Employment and Effective Demand, Consumption function, Investment and savings function, Concept of Multiplier and Accelerator, Output and Employment, Rate of interest, Classical, Neo classical and Keynesian version, Classical theory Vs Keynesian theory, Unemployment and Full employment, Money and classical theories of Money and Price, Inflation: Nature, Effects and control, IS & LM frame work, General Equilibrium of product and money markets, Monetary policy, Fiscal policy, Effectiveness of Monetary and Fiscal policy.

Unit-3:

Agricultural Development:
Role of agriculture in economic development, Evolution of thinking on agriculture and development, Agricultural development – meaning, stages and determinants, Population and food supply, need for sound agricultural policies, Theories of Agricultural Development, Resource exploitation model- Conservation model- Location (Urban impact) model- Diffusion model- High pay-off input model-Induced Innovation Model- Agricultural R&D and Linkages

Performance and Policies:
Performance of Indian Agriculture, Agrarian structure and land relations, trends in performance and productivity, agrarian structure and technology, credit, commerce and technology, capital formation, subsidies, pricing and procurement, Post Green Revolution agriculture, Production

and productivity crisis in agriculture, Regional differences, Food Security, PDS system and Malnutrition, Agricultural Policy: Process and Implementation, Instruments of Agricultural Policy, Process of agricultural policy formulation, implementation, Monitoring and Evaluation in India, Global experiences in participatory approach to Agricultural policy process, critical review of various elements of Indian agricultural policy, resource policies, credit policies, input and product marketing policies, price policies, WTO, Agreement on Agriculture, Planning models, Planning for utilization of resources and Indian Five-Year Plans.

Unit-4:

Theory of Production Economics:
Nature, scope and significance of agricultural production economics, Factors of production, classification of factor, factor interdependence, factor substitution, Determination of optimal levels of production and factor application, Optimal factor combination and least cost combination of production, Theory of product choice, selection of optimal product combination.

Theory of Cost Function:
Cost functions and cost curves, components, Cost minimization, Duality theory, Cost and production functions and its applications, Derivation of firm's input demand and output supply functions,

Efficiency of Agricultural Production:
Measuring efficiency in agricultural production, technical efficiency, locative efficiency and economic efficiencies.

Unit-5:

Agricultural Markets and Marketing:
Agricultural marketing issues, and enhance expertise in improving the performance of the marketing institutions and the players in marketing of agricultural commodities, Characteristic of Agricultural product and Production, Problems in Agricultural Marketing from Demand, Supply and Institutions sides. Market intermediaries and their role, need for regulation in the present context, Marketable & Marketed surplus estimation.

Marketing Efficiency:
Structure Conduct and Performance analysis, Vertical and Horizontal integration, Integration over space, time and form, Marketing Co-operatives, APMC Regulated Markets, Direct marketing, Contract farming and Retailing, Supply Chain Management, State trading, Warehousing and other Government Agencies, Performance and Strategies, Market infrastructure needs, Performance and Government role, Value Chain Finance.

Market Information and Intelligence:
Role of Information Technology and telecommunication in marketing of agricultural commodities, Market research, Market information service, electronic auctions (e-bay), e-Chaupals, AGMARKNET and Domestic and Export market Intelligence Cell (DEMIC) price forecasting, time series analysis, time series models, Price policy and economic development, non-price instruments, Theory of storage, future trading, Price discovery, Hedging and Speculation, Role of Government in promoting commodity trading and regulatory measures.

Unit-6:

Theory Econometrics:
Introduction–relationship between economic theory and mathematical economics, mathematical models and econometrics models, methodology of econometrics-regression analysis, one variable and two variable regression model, assumptions, estimation and interpretation approaches of regression, estimation-OLS, MLE and their properties, extensions to multivariable models,
multiple regression model, estimation and interpretation.

Problems of Estimation of Econometrics Model:
Multicollinearity, heteroscedasticity, autocorrelation, use of dummy variables limited dependent variables, specification, estimation and interpretation. Simultaneous equation models, structural equations, reduced form equations, identification and approaches to estimation.

Unit-7:

Theory of Linear Programming:
Introduction to linear programming, Linear programming techniques, Decision Making, Concepts of decision making, introduction to quantitative tools, uses of linear programming in different fields, graphic solution to problems, formulation of problems.

Simple Method:
Concept of simplex Method, solving profit maximization and cost minimizations problems, Formulation of farm and nonfarm problems as linear programming models and solutions.

Extension of Linear Programming Models:
Dynamic programming. Game Theory, Concepts of game theory, two-person constant sums, zero sum game.

Unit-8:

Agricultural Finance:
Role and Importance of Agricultural Finance, Financial Institutions and credit flow to rural/priority sector, Agricultural lending, Direct and Indirect Financing, Financing through Co-operatives, NABARD and Commercial Banks and RRBs. District Credit Plan and lending to agriculture/priority sector, Micro-Financing and Role of Micro Financing Institutions'- NGO, and SHG's, Lending to farmers.

Economic Viability of Agricultural Finance:
The concept of 5C's, 7P's and 3R's of credit, Estimation of Technical feasibility, Economic viability and repaying capacity of borrowers and appraisal of credit proposals, understanding lenders and developing better working relationship and supervisory credit system, Credit inclusions–credit widening and credit deepening, Financial Decisions, Investment, Financing, Liquidity and Solvency.

Financial Statements:
Preparation of financial statements, Balance Sheet, Cash Flow Statement and Profit and Loss Account, Ratio Analysis and assessing the performance of farm/firm.

Project Management:

Project Approach in financing agriculture, Financial, economic and environmental appraisal of investment projects, Project life cycle-Identification, preparation, appraisal, financing and implementation of projects, Project Appraisal techniques, Undiscounted measures, Time value of money, Use of discounted measures, B-C ratio, NPV and IRR, Network Techniques, PERT and CPM, Risks in financing agriculture, Risk management strategies and coping mechanism, Crop Insurance programmes, review of different crop insurance schemes, Yield loss and weather based insurance and their applications.

UNIT WISE ITEM COMPOSITION (TOTAL: 50 Items)

Unit-I   :07
Unit-II   :07
Unit-III   :05
Unit-IV   :07
Unit-V   :07
Unit-VI   :05
Unit-VII   :05
Unit-VIII   :07