MPhil/PhD programme

Question papers of M.Phil./Ph.D. programme will consist of two parts.

Part-A based on research methodology including English and General Knowledge and Numerical ability.
Part-B based on subject domain.

PART-A

The main objective is to assess the teaching and research capabilities of the candidates. The test aims at assessing the teaching and research aptitude as well. Candidates are expected to possess and exhibit cognitive abilities, which include comprehension, analysis, evaluation, understanding the structure of arguments, deductive and inductive reasoning. The candidates are also expected to have a general awareness about teaching and learning processes in higher education system. Further, they should be aware of interaction between people, environment, natural resources and their impact on the quality of life.

The details of syllabi are as follows:

Unit-I Teaching Aptitude

- Teaching: Concept, Objectives, Levels of teaching (Memory, Understanding and Reflective), Characteristics and basic requirements.
- Learner's characteristics: Characteristics of adolescent and adult learners (Academic, Social, Emotional and Cognitive), Individual differences.
- Factors affecting teaching related to: Teacher, Learner, Support material, Instructional facilities, Learning environment and Institution.
- Methods of teaching in Institutions of higher learning: Teacher centred vs. Learner centred methods; Off-line vs. On-line methods (Swayam, Swayamprabha, MOOCs etc.).
- Teaching Support System: Traditional, Modern and ICT based.
- Evaluation Systems: Elements and Types of evaluation, Evaluation in Choice Based Credit System in Higher education, Computer based testing, Innovations in evaluation systems.

Unit-II Research Aptitude

- Research: Meaning, Types, and Characteristics, Positivism and Post-positivistic approach to research.
- Methods of Research: Experimental, Descriptive, Historical, Qualitative and Quantitative methods.
- Steps of Research.
- Thesis and Article writing: Format and styles of referencing.
- Application of ICT in research.
- Research ethics.

Unit-III Comprehension

- A passage of text be given. Questions be asked from the passage to be answered.

Unit-IV Communication

- Communication: Meaning, types and characteristics of communication.
- Effective communication: Verbal and Non-verbal, Inter-Cultural and group communications, Classroom communication.
- Barriers to effective communication.
- Mass-Media and Society.

Unit-V Mathematical Reasoning and Aptitude

- Types of reasoning.
- Number series, Letter series, Codes and Relationships.
- Mathematical Aptitude (Fraction, Time & Distance, Ratio, Proportion and Percentage, Profit and Loss, Interest and Discounting, Averages etc.).

Unit-VI Logical Reasoning

- Understanding the structure of arguments: argument forms, structure of categorical propositions, Mood and Figure, Formal and Informal

fallacies, Uses of language, Connotations and denotations of terms, Classical square of opposition.

- Evaluating and distinguishing deductive and inductive reasoning.
- Analogies.
- Venn diagram: Simple and multiple use for establishing validity of arguments.
- Indian Logic: Means of knowledge.
- Pramanas: Pratyaksha (Perception), Anumana (Inference), Upamana (Comparison), Shabda (Verbal testimony), Arthapatti (Implication) and Anupalabddhi (Non-apprehension).
- Structure and kinds of Anumana (inference), Vyapti (invariable relation), Hetvabhasas (fallacies of inference).

Unit-VII Data Interpretation

- Sources, acquisition and classification of Data.
- Quantitative and Qualitative Data.
- Graphical representation (Bar-chart, Histograms, Pie-chart, Table-chart and Line-chart) and mapping of Data.
- Data Interpretation.
- Data and Governance.

Unit-VIII Information and Communication Technology (ICT)

- ICT: General abbreviations and terminology.
- Basics of Internet, Intranet, E-mail, Audio and Video-conferencing.
- Digital initiatives in higher education.
- ICT and Governance.

Unit-IX People, Development and Environment

- Development and environment: Millennium development and Sustainable development goals.
- Human and environment interaction: Anthropogenic activities and their impacts on environment.

- Environmental issues: Local, Regional and Global; Air pollution, Water pollution, Soil pollution, Noise pollution, Waste (solid, liquid, biomedical, hazardous, electronic), Climate change and its Socio-Economic and Political dimensions.
- Impacts of pollutants on human health.
- Natural and energy resources: Solar, Wind, Soil, Hydro, Geothermal, Biomass, Nuclear and Forests.
- Natural hazards and disasters: Mitigation strategies.
- Environmental Protection Act (1986), National Action Plan on Climate Change, International agreements/efforts -Montreal Protocol, Rio Summit, Convention on Biodiversity, Kyoto Protocol, Paris Agreement, International Solar Alliance.

Unit-X Higher Education System

- Institutions of higher learning and education in ancient India.
- Evolution of higher learning and research in Post Independence India.
- Oriental, Conventional and Non-conventional learning programmes in India.
- Professional, Technical and Skill Based education.
- Value education and environmental education.
- Policies, Governance, and Administration.

PART-B

Subject: ECONOMICS

Unit-1: Micro Economics

- Theory of Consumer Behaviour
- Theory of Production and Costs
- Decision making under uncertainty Attitude towards Risk
- Game Theory – Non Cooperative games
- Market Structures, competitive and non-competitive equilibria and their efficiency properties
- Factor Pricing
- General Equilibrium Analysis
- Efficiency Criteria: Pareto-Optimality, Kaldor – Hicks and Wealth Maximization
- Welfare Economics: Fundamental Theorems , Social Welfare Function
- Asymmetric Information: Adverse Selection and Moral Hazard

Unit-2: Macro Economics

- National Income: Concepts and Measurement
- Determination of output and employment: Classical & Keynesian Approach
- Consumption Function
- Investment Function
- Multiplier and Accelerator
- Demand for Money
- Supply of Money
- IS – LM Model Approach
- Inflation and Phillips Curve Analysis
- Business Cycles
- Monetary and Fiscal Policy
- Rational Expectation Hypothesis and its critique

Unit- 3: Statistics and Econometrics

- Probability Theory: Concepts of probability, Distributions, Moments, Central Limit theorem
- Descriptive Statistics – Measures of Central tendency & dispersions, Correlation, Index Numbers

- Sampling methods & Sampling Distribution
- Statistical Inferences, Hypothesis testing
- Linear Regression Models and their properties – BLUE
- Identification Problem
- Simultaneous Equation Models – recursive and non-recursive
- Discrete choice models
- Time Series Analysis

Unit-4: Mathematical Economics

- Sets, functions and continuity, sequence, series
- Differential Calculus and its Applications
- Linear Algebra – Matrices, Vector Spaces
- Static Optimization Problems and their applications
- Input-Output Model, Linear Programming
- Difference and Differential equations with applications

Unit-5: International Economics

- International Trade: Basic concepts and analytical tools
- Theories of International Trade
- International Trade under imperfect competition
- Balance of Payments: Composition, Equilibrium and Disequilibrium and Adjustment Mechanisms
- Exchange Rate: Concepts and Theories
- Foreign Exchange Market and Arbitrage
- Gains from Trade, Terms of Trade, Trade Multiplier
- Tariff and Non-Tariff barriers to trade; Dumping
- GATT, WTO and Regional Trade Blocks; Trade Policy Issues
- IMF & World Bank

Unit-6: Public Economics

- Market Failure and Remedial Measures: Asymmetric Information, Public Goods, Externality
- Regulation of Market – Collusion and Consumers' Welfare
- Public Revenue: Tax & Non-Tax Revenue, Direct & Indirect Taxes, Progressive and non-Progressive Taxation, Incidence and Effects of Taxation
- Public expenditure
- Public Debt and its management
- Public Budget and Budget Multiplier

- Fiscal Policy and its implications

Unit-7: Money and Banking

- Components of Money Supply
- Central Bank
- Commercial Banking
- Instruments and Working of Monetary Policy
- Non-banking Financial Institutions
- Capital Market and its Regulation

Unit-8: Growth and Development Economics

- Economic Growth and Economic Development
- Theories of Economic Development: Adam Smith, Ricardo, Marx, Schumpeter, Rostow, Balanced & Unbalanced growth, Big Push approach.
- Models of Economic Growth: Harrod-Domar, Solow, Robinson, Kaldor
- Technical progress – Disembodied & embodied; endogenous growth
- Indicators of Economic Development: PQLI, HDI, SDGs
- Poverty and Inequalities – Concepts and Measurement
- Social Sector Development: Health, Education, Gender

Unit-9: Environmental Economics and Demography

- Environment as a Public Good
- Market Failure
- Coase Theorem
- Cost-Benefit Analysis and Compensation Criteria
- Valuation of Environmental Goods
- Theories of Population
- Concepts and Measures: Fertility, Morbidity, Mortality
- Age Structure, Demographic Dividend
- Life Table
- Migration

Unit-10: Indian Economy

- Economic Growth in India: Pattern and Structure
- Agriculture: Pattern & Structure of Growth, Major Challenges, Policy Responses
- Industry: Pattern & Structure of Growth, Major Challenges, Policy Responses
- Services: Pattern & Structure of Growth, Major Challenges, Policy Responses
- Rural Development – Issues, Challenges & Policy Responses
- Urban Development – Issues, Challenges and Policy Responses.

- Foreign Trade: Structure and Direction, BOP, Flow of Foreign Capital, Trade Policies
- Infrastructure Development: Physical and Social; Public-Private Partnerships
- Reforms in Land, Labour and Capital Markets
- Centre-State Financial Relations and Finance Commissions of India; FRBM
- Poverty, Inequality & Unemployment