

Ethics University
Ph.D. Entrance Examination Syllabus
Research Methodology (Paper-I)

Unit I: Research Aptitude

- Meaning, Nature and Characteristics of Research
- Types of Research: Basic, Applied, Action, Exploratory, Descriptive, Analytical
- Research Paradigms: Positivism, Post-Positivism, Constructivism
- Research Approaches: Qualitative, Quantitative and Mixed Methods
- Research Design and Methods: Experimental, Descriptive, Historical
- Steps of Research: Problem identification, Literature review, Hypothesis formulation, Data collection, Analysis, Interpretation
- Thesis and Research Paper Writing: Structure, Formatting, Citation Styles (APA, MLA, Chicago)
- Research Ethics: Plagiarism, Academic Integrity, Ethical issues in research

Unit II: Mathematical Reasoning and Aptitude

- Types of Reasoning: Deductive and Inductive
- Number Series, Letter Series, Coding-Decoding
- Mathematical Aptitude:
 - Fractions and Simplification
 - Ratio and Proportion
 - Percentage
 - Profit and Loss
 - Time, Speed and Distance
 - Simple and Compound Interest
 - Averages

Unit III: Logical Reasoning

- Structure of Arguments and Argument Forms
- Categorical Propositions: Mood and Figure
- Formal and Informal Fallacies
- Uses of Language: Connotation and Denotation

- Classical Square of Opposition
- Deductive and Inductive Reasoning
- Analogies and Logical Patterns
- Venn Diagrams: Simple and Multiple Applications

Unit IV: Data Interpretation

- Sources and Types of Data: Primary and Secondary
- Data Classification and Tabulation
- Quantitative and Qualitative Data
- Graphical Representation:
 - Bar Charts
 - Histograms
 - Pie Charts
 - Line Graphs
 - Tables
- Data Analysis and Interpretation
- Data Governance and Ethical Use of Data

Unit V: Information and Communication Technology (ICT)

- ICT: Concepts, Terminology and Abbreviations
- Basics of Internet, Intranet, and E-mail
- Digital Communication Tools: Video Conferencing, Audio Conferencing
- Digital Initiatives in Research (e-journals, digital libraries, databases)
- ICT in Governance (e-Governance)
- Application of ICT in Research and Academic Writing

Unit VI: People, Development and Environment

- Concepts of Development: Human Development, Sustainable Development Goals (SDGs)
- Human-Environment Interaction
- Environmental Issues:
 - Air, Water, Soil, and Noise Pollution
 - Waste Management (Solid, Liquid, Biomedical, E-waste)
- Climate Change: Causes, Impacts, and Policies

- Impact of Environmental Degradation on Human Health
- Natural Resources: Renewable and Non-renewable
- Energy Resources: Solar, Wind, Hydro, Biomass, Nuclear
- Natural Hazards and Disaster Management: Mitigation and Preparedness

Recommended Readings

- Kothari, C.R. – *Research Methodology: Methods and Techniques*
- Creswell, J.W. – *Research Design*
- UGC-NET Paper I Guide (Latest Edition)