

Syllabus for PET- 2026 - Paper (I) – Research Methodology

Extension and Communication

RESEARCH METHODOLOGY
Research Process
a. Scientific approach to enquiry in comparison to native, common sense approach b. Knowledge, theory and research c. Role, need and scope of research in the discipline of Home Science Steps in Research Process and Elements of Research a. Identifying interest areas and prioritizing Selection of topic and considerations in selection b. Review of related literature and research c. Variables- types of variables including discrete and continuous variables Conceptual definitions and operational definitions d. Concepts, hypotheses and theories e Hypothesis- meaning, attributes of a sound hypothesis, Stating the hypothesis and types of hypothesis Hypothesis testing- null hypothesis, sample distribution, level of significance, critical regions, Type I and Type II errors f. Research Design Research questions, objectives and assumptions • Ethics in Research
Types of Research
a. Basic and Applied research, Qualitative and Quantitative research (brief review of differences) b. Historical research c. Descriptive research methods – survey, case study, correlational study, content analysis, causal-comparative research d. Analytic studies- pre-experimental, experimental research, quasi experimental research e. Qualitative research, Ethnography f. Evaluative research- general characteristics, use of qualitative methods in enquiry Scope and importance of research in Home Science.

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Sampling
a. Rationale, characteristics- meaning, concept of population and sample, and utility b. Types of sampling and generalizability of results c. Probability sampling - simple random sample, systematic random sample, stratified random sampling etc - random and non-random samples, random numbers and use d.. Non-probability sampling - purposive samples, incidental samples, quota samples, snowball samples e.. General consideration in determination of sample size
Tools & Techniques for Data Collection
a. Primary and secondary methods of data collection b. Different types of questionnaires, rating scales, check lists, schedules, attitude scales, inventories, standardized tests, interviews, observation c. Development of tools, estimation of reliability and validity of tools d. Procedure for preparation of the tool, administration of tools for data collection e. Procedure for data collection Planning for data analysis-coding of responses
Data creation and processing
• Need and nature of data • Primary and secondary data • Authenticity, accuracy, place, time and context of data • Employing research process and collecting and cleaning data, data mining • Types of variable and data analysis steps •
Data Analysis & presentation
• Understanding about statistics for data processing- descriptive and inferential measures for data • Data mining and error estimation • Softwares for data analysis • Interpretation and conclusion from data • Presentation of data • Info graphics • Data visualisation tools