



SANJIVANI UNIVERSITY

(Estt. under Government of Maharashtra Act No. XX of 2024)

At: Kopergaon, Dist: Ahilyanagar, Maharashtra, India – 423601

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<https://sanjivani.edu.in/>

Syllabus for Ph.D. (PET) Entrance Exam

Paper 1: Research Methodology (Common for All programmes)

1. **Foundations of Research:** Meaning, Objectives, Motivation, Utility. Concept of theory, empiricism, deductive and inductive theory. Characteristics of scientific methods, understanding the language of research, Concept, Construct, definition, Variable. Research Process
2. Problem Identification & Formulation, Research Question–Investigation Question Measurement Issues. Hypothesis–Qualities of a good Hypothesis–Null hypothesis & Alternative Hypothesis. Hypothesis Testing–Logic & Importance–Logic & Importance
3. **Research Design:** Concept and Importance in Research, Features of a good research Design: Exploratory Research Design, concept, types and uses, Descriptive Research Designs: concept, types and uses. Experimental Design: Concept of Independent & Dependent variables.
4. **Qualitative and Quantitative Research:** Qualitative research, Quantitative research, concept of measurement, causality, generalization, replication. Merging the two approaches. Types of data and data collection techniques
5. **Measurement:** Concept of measurement -what is measured? Problems in measurement in research –Validity and Reliability. Levels of measurement –Nominal, Ordinal, Interval, Ratio.
6. **Sampling:** Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Non-Response. Characteristics of a good sample. Probability Sample – Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling. Determining size of the sample –Practical considerations in sampling and sample size.
7. **Data Analysis:** Data Preparation –Univariate analysis (frequency tables, bar charts, pie charts, percentages), Bivariate analysis –Cross tabulations and Chi square test including testing hypothesis of association, Analysis of Variance (ANOVA)
8. **Interpretation of Data and Report writing:** Types of publication, Paper Writing, Layout of a Research Paper, Journals in Science, Impact factor of Journals, When and where to publish?, Ethical issues related to publishing, Plagiarism and Self Plagiarism.
9. Use of Encyclopedias, Research Guides, Handbook etc. Academic Databases, Patent database, e-information.
10. **Research tools:** methods to search required information effectively, Reference Management Software like Zotero/Mendeley, Software for paper formatting like LaTeX /MS Office, Software for detection of Plagiarism



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Reference Books:

1. Kothari, C. R. (2023). *Research methodology: Methods and techniques* (5th ed.). New Age International Publishers.
2. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approach* (5th ed.). SAGE Publications.
3. Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
4. Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson.
5. Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.