Bodoland University

Research Methodology

Ph.D. Entrance Test Syllabus

Total Marks: 50 | 5 Units | MCQ Format | 10 Marks per Unit

Unit 1: Research Foundations and Design

- Meaning, objectives, and motivation of research
- Types of research: qualitative vs. quantitative
- Scientific method, deductive and inductive logic
- Concepts: theory, variable, construct, definition
- Hypothesis: formulation, types, testing
- Research problem identification and formulation
- Research design: exploratory, descriptive, experimental

Unit 2: Data Collection and Sampling Techniques

- Primary and secondary data
- Data collection methods: surveys, interviews, **Focus Group Discussions**., observations
- Sampling techniques: probability and non-probability
- Sample size, sampling error, non-response bias
- Validity and reliability in measurement
- Scales: nominal, ordinal, interval, ratio

Unit 3: Data Analysis and Interpretation

- Data preparation
- Univariate and bivariate analysis
- Charts, tables, percentages, cross-tabulation
- Statistical tools: chi-square, correlation basics
- Interpretation, generalization, and hypothesis testing

Unit 4: Research Tools, Databases, and Publication Metrics

- Academic databases: Scopus, PubMed, ScienceDirect, SpringerLink
- Journal indexing: Impact factor, H-index, JCR, Q1/Q2 journals
- Reference managers: Mendeley, Zotero
- Plagiarism checkers: Grammarly, Turnitin
- Visual tools for Graphical abstarct: BioRender
- Use of software

Unit 5: Ethics, Publication, and Reasoning Skills

- Research ethics and COPE guidelines
- Misconduct: plagiarism, self-plagiarism, clone/predatory journals
- Copyright, authorship, IPR
- Structure of thesis and scientific reports
- Reasoning: analogy, classification, coding-decoding, direction sense