Savitribai Phule Pune University

(Formerly University of Pune)

Syllabus for M.Phil./Ph.D. (PET) Entrance Exam: Psychology

Research Methodology

Unit 1: Foundations of Research and Survey Research

Meaning of Research, Basic research concepts (problem, hypothesis, and variables)
Methods of data collection: observation, mail survey (questionnaire) interviews, telephone serve,
Survey research designs: Cross-sectional, successive independent samples, longitudinal.
Problems, issues, and applications of survey research.

Unit 2: Types of research and Hypothesis Formulation

Types of research- Exploratory, descriptive, analytical/explanatory, experimental, evaluation
Basic Research, Applied Research, Action research, Participatory research
Meaning and characteristic of good hypothesis, sources of hypothesis, functions of hypothesis
Types of hypothesis: Null hypothesis and Alternative Hypothesis

Unit 3: Nature and Process of Research

Research design- concept and definition, need, advantages of planning a research, characteristics of good research design, Steps in research design; Identification, Selection and Formulation of problem, Literature Review, Primary and secondary data, sources of data- authenticity, credibility, reliability of sources and data

Unit 4: Experimental Design

Experimental designs: Principles and functions
Between group designs: Randomised group designs
Within groups design
Between group designs: Block designs a) two group designs, b) randomised block designs with more than two groups
Factorial designs: Simple factorial designs, factorial designs with covariate, randomized block factorial design.

Unit 5: Quasi-Experimental Design and Scaling

Characteristics and types of quasi-experimental designs: Single-group designs, pre test-post test designs
Non-equivalent control group designs, discontinuity promotion designs, time series designs
Application of quasi-experimental designs
Scaling: Psychophysical, Psychological scaling:
Thurstone-type scales (i.e. differential), and Likert-type scale (i.e. summated).

Unit 6: Sample and Sampling Designs

Concept of population, sample, sampling frame, sampling unit

Need and advantages of sample study, Characteristics of representative sample, sampling error,

Probability Sampling: Simple random sampling, systematic random sampling, proportionate and disproportionate stratifies random sampling, quota sampling

Non-probability sampling: Accidental sampling, purposive sampling, snowball sampling.

Unit 7: Statistics and Research

Types of measurement: Nominal, Ordinal and Scale

Basic statistical techniques: aggregation of data, totals, percentages, tabulation – univariate, cross tabulation- bivariate and multivariate

Data Presentation- Charts and Graphs: Bar charts, Histograms, Clustered bar charts, clustered histogram, pie chart, Pyramid

Measures of Central Tendency: Averages – Arithmetic mean, Geometric mean, harmonic mean, Median, Mode

Measures of Dispersion: Range, Standard Deviation, Variance

Unit 8: Correlation and Regression

Correlation and Regression, Correlation coefficients Pearson's r and Spearman's rho, linear regression, multiple regressions

Point-Biserial correlation and Phi-coefficient

Bi-serial and tetra choric correlations

Partial and multiple correlations

Statistical packages: SPSS

Unit 9: Inferential statistics

Standard error of Mean and others statistics

Significance of difference and other statistics

One-way ANOVA: Nature assumptions and types

Two-way ANOVA: Nature, assumptions and types

Analysis of covariance, Non-parametric methods

Unit 10: Other Multivariate Designs and Qualitative Research, Ethics and Publications of Research

Factor analysis: Basic terms, overview of extraction methods, rotation methods, higher order factor analysis.

Exploratory and confirmatory factor analysis

Other multivariate techniques: Multivariate analysis of variance, discriminant functions analysis, canonical correlations, and path analysis and structural equation

Qualitative and Quantitive research

APA style of publications and research ethics

Subject Concerned Syllabus
Psychology

Chapter 1: SENSATION, ATTENTION AND PERCEPTION

1. Sensation - Introduction to psychophysics: Basic concepts and methods.
2. Attention:
   (a) Functions of attention: Divided attention, selective attention
   (b) Theories of attention process
   (c) Signal Detection Theory and vigilance.
3. Perception-approaches: Gestalt, Bottom-Up (feature analysis, template matching, prototypes), Top-Down and Pandemonium
4. Perception: Cross-cultural studies

Chapter 2: PROBLEM SOLVING, CREATIVITY AND DECISION MAKING

1. Problem: Definition, problem solving cycle, types, obstacles and aids
2. Problem solving approaches – Algorithm; heuristics: means-end analysis, computer simulation, and analogy
3. Meaning and measurement of creativity
4. Reasoning and decision-making: Types of reasoning – Syllogistic and Conditional
5. Factors influencing decision-making.

Chapter 3: RELIABILITY

1. Correlation coefficient: Meaning, statistical significance, reliability coefficient
2. Definition and types of reliability
3. Reliability of speeded tests
4. Dependence of reliability on the sample tested
5. Using reliability information

Chapter 4: VALIDITY

1. Validity: Definition and evolving concepts
2. Content-description validation procedures
3. Criterion-prediction procedures
4. Construct-identification procedures
5. Test validity and decision theory

Chapter 5: TYPES OF MEMORY

1. Sensory memory- Iconic and echoic
2. Short Term Memory
3. Long Term Memory: Types
4. Determinants of memory
5. Memory improvement techniques

Chapter 6: NEUROLOGICAL BASIS OF LEARNING AND MEMORY

1. Brain areas associated with learning and memory
2. Types of Amnesia- Amnesia after concussion (Anterograde, Retrograde), Korsakoff, Alzheimer's disease
3. Role of brain in learning and conditioning
4. Synaptic mechanisms and synaptic plasticity of learning and memory
5. Application: Neuro-linguistic programming.

Chapter 7: INTRODUCTION TO PERSONALITY

1. Nature and meaning of personality
2. Approaches to the study of personality: Idiographic, Nomothetic, and Person-situation interaction
3. Applications of personality: Clinical, industrial, and educational areas.
4. Personality Assessment: MMPI, NEO-FFI, Projective techniques.

Chapter 8: APPROACHES OF PERSONALITY

1. Psychodynamic approaches: Psychoanalysis, ego and object relations—Carl Jung, Adler, Horney, Erick Form and Henz
2. Trait and biological approaches: Allport, Cattell, Eysenck, Costa & McCrae
3. Phenomenological Approaches: Carl Rogers, Maslow
4. Behavioral approaches: Dollard & Miller, Skinner, Rotter
5. Social Cognitive-Affective Approaches: Bandura, George Kelly,
6. Existential approaches: Victor Frank, Rollo May's theory

Chapter 9: FOUNDATION AND THEORIES OF MOTIVATION

1. The Nature, concept and component of motivation
2. Approaches of motivation: Physiological, socio-cultural, cognitive, ethical and developmental- interactionistic
3. Theories of motivation: Murray, Maslow, McClelland, and Atkinson
4. Theories of aggression: Lorenz, Bandura and Walter's theory
5. Mechanism of hunger and thirst, sleep and sex, social attachment

Chapter 10: FOUNDATION AND THEORIES OF EMOTION

1. Nature and concept of emotion
2. Emotions and culture
3. Biological bases of emotion: Autonomic nervous system, endocrine system, immune system, psycho-physiological measures
4. Theories of motivation: James-Lange, Cannon-Bard, Schachter and Singer, Frizda, Papez & McLean's theory of emotion, Broaden & Build theory of positive emotion
5. Self-esteem, optimism and emotional intelligence

Chapter 11: PSYCHOLOGICAL TESTING APPLICATIONS

1. Educational applications: SPM, WAIS, Binet-Kamath test, Malin's intelligence scale, DAT, GATB
2. Clinical applications: MMPI, California Psychological Inventory, 16 PF, NEO-PIR, EPQ-R, Mooney's Problem Checklist, Projective tests
3. Industrial applications: MBTI, FIRO-B, Role plays & situational tests, Inbascket Exercise
4. Counseling applications: STAI, STAXI, FES
5. Neuropsychological testing: Bender-Gestalt, NAB