

Faculty of Physical Education

PART A – Research Methodology (Q.1–35)

1. Foundations of Research

- Definition, objectives, characteristics of research
- Types – descriptive, analytical, experimental, qualitative, quantitative
- Ethics – plagiarism, consent, integrity, scientific misconduct

2. Research Problem & Hypothesis

- Formulation of problem
- Hypothesis – null & alternate
- Variables – independent, dependent, extraneous

3. Research Designs & Sampling

- Descriptive, cross-sectional, experimental, case studies
- Sampling: random, stratified, cluster, purposive
- Sample size, bias, validity

4. Data Collection & Tools

- Questionnaires, interviews, observation, tests & inventories
- Measurement scales – nominal, ordinal, interval, ratio
- Reliability and validity

5. Statistics & Data Analysis

- Descriptive statistics – mean, median, mode, SD
- Inferential tests – t-test, ANOVA, chi-square, regression, correlation
- Errors – Type I & II, significance, effect size
- Statistical software – SPSS, Python, R, MiniTab, Jamovi

6. Qualitative & Empirical Research

- Case studies, grounded theory, ethnography
- Inductive & deductive reasoning
- Research pyramid – paradigm, methodology, method, technique

7. Research Reporting & Referencing

- Proposal writing, dissertation structure
- Referencing systems – APA, Chicago
- Bibliography, plagiarism checks

PART B –(Q.36–100)

1. Foundations & Philosophy of Physical Education

- History & development of Physical Education in India & world
- Philosophy, aims, objectives
- Contribution of IOC & Indian Universities

2. Exercise Physiology & Sports Medicine

- Physiological basis of exercise – cardiovascular, respiratory, muscular adaptations
- Energy systems & metabolism during exercise
- Training principles – overload, specificity, reversibility, tapering
- Sports injuries – sprain, strain, shin splints, tennis elbow
- Rehabilitation – hydrotherapy, cryotherapy, thermotherapy, electrotherapy

3. Kinesiology & Biomechanics

- Laws of motion, force, levers, torque
- Movement analysis – flexion, abduction, pronation, supination
- Sports biomechanics – phases of running, jumping, throwing
- Measurement tools – goniometer, dynamometer, spirometry

4. Sports Psychology & Sociology

- Learning theories & motivation in sports
- Personality dimensions – extroversion, agreeableness, openness
- Anxiety, stress management, leadership & group cohesion
- Psychological attributes – reaction time, emotional stability, concentration

5. Tests, Measurement & Evaluation

- Barrow's motor ability test, AAHPER, JCR, Kraus-Weber
- Knox Basketball test, Sergeant Jump, Wall Volley test
- Purpose of measurement & evaluation – prediction, motivation, achievement, diagnosis

6. Health Education & Fitness

- Nutrition – role of proteins, fats, vitamins, minerals
- Fitness components – flexibility, endurance, speed, agility
- Hypokinetic diseases – obesity, arthritis, cardiovascular disease
- Public health & phases of health promotion

7. Rules, History & Administration of Sports

- Olympic movement, Olympic symbols, ceremonies, chronology
- National & international bodies – IOA, IOC, federations
- Organisation & administration of PE programs
- Facilities, equipment maintenance, timetable, curriculum design

8. Recent Advances

- Technology in sports training – video analysis, wearables
- Sports informatics & performance analytics
- High-performance training & rehabilitation science