

**DEPARTMENT OF PHYSICAL EDUCATION
FACULTY OF SOCIAL SCIENCES
A.M.U., Aligarh.**

Syllabus for Ph.D. Admission Test 2022-23 onwards

Section- B

Research in Physical Education:

Its need and importance. Scientific principles of research inquiry. Steps in research process. Relevance of literature review. Hypothesis Testing (Directional Non-directional). Rationality of Experimental and Non-experimental research designs, Mixed designs, Factorial design, Co relational research design. Steps in writing of research reports, Types of research – Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical and Stages in Research Process, Concept of theory, empiricism, deductive and inductive theory. Characteristics of Scientific Methods. Ethical and Moral Issues in Research, Plagiarism, tools to avoid plagiarism – Intellectual Property Rights – Copy right laws – Patent rights, Reproducibility and accountability.

Test, Measurement and Evaluation in Research:

Data and its types, Methods of data collection (quantitative and qualitative). Population and sampling techniques. Classification of test (Standardized and teacher made tests). Construction of test and its Standardization. Criteria of test Selection. Tests for general motor ability and Sports Skills.

Statistical Application:

Significance and application of parametric and nonparametric tests in research. Measures of central tendency and Variability and their uses. Normal probability curve. Reliability of statistics and test of significance. Correlational and regression techniques. Scaling techniques and criteria for selecting appropriate statistical test of analysis. Issues related to interpretation of quantitative and qualitative research findings.

Exercise Physiology:

Physiology and physical training, Exercise Physiology, Physiological changes, De-training, retraining and maintenance, Types and structure of muscle fibres and theory, Body size and Body composition, Physiology and altitude training, Physiology of female in sports, Physiological changes in aging, Ergogenic aids, Energy sources and cost of exercises, Training and Recovery, Acclimatization.

Sports Psychology:

Psychological Principles and Sports, Methods in Sports Psychology, Cognitive Processes, Motor learning, Motivation, Personality traits of elite athletes, Emotions and Sports performance, Prestart states, Anxiety, Fear, Frustration, Aggression, Conflict and Sports Performance, Psycho-regulatory techniques, Audience and Sports.

Sports Biomechanics:

Sports Biomechanics: Kinesiology/ Biomechanics/ Mechanics/ Sports Principles, Newton's Law, Levers, Force, Friction, Air and water Resistance, Biomechanical Analysis, Sports Performance Analysis, Analysis of Motion, Kinematics Analysis, Projectile- same and different surfaces.

Sports Management:

Sports Management, Functions and Philosophy, Administration and Principle of Management, Management and Leadership, Organization, Type of Organization, Planning in Sports and Physical Education based Programme, Personal Management, Construction and management of play fields, Purchase procedure, Public relations, Budget Making and Finance.

Sports Training:

Sports Training, Coaching and Conditioning, Training load, Motor components, Technique and Tactics training, Periodisation, Planning.

Kinanthropometry:

Kinanthropometry, Anthropometric Instruments, Kinanthropometric techniques, Assessment of body composition, Age, Prediction of Adult-height and Physique in sports, Application of Growth and Development in the field of sports, Body composition and determination method, Growth pattern, variables and body types.

Books Recommended:

- 1) Best W. John, Research in Education (Prentice Hall of India Private Limited New Delhi, 1981).
- 2) Bose N.M., Research Methodology (Sher Niwas Publication, Jaipur (India) 2005).
- 3) Kamlesh M L, Methodology of Research in Physical Education & Sports, (Metropolitan, New Delhi, 1994).
- 4) Gay R.L., Airasian Peter, Educational Research (Merrill, Prentice Hall, 1996).
- 5) Thomas R. Jerry, Nelson. Taek, Research Method in Physical Activity (Human Kinetics, 2001).
- 6) Clark H. David, Clarke Harrison H, Research Processes in Physical Education Recreation and Health (Prentice Hall Inc. Englewood Cliffs, New Jersey, 1970).
- 7) Fern F. Adward, Advanced focus group research (Saye Publication, New Delhi, 2001).
- 8) Silverman David, Doing qualitative research (Saye Publications, New Delhi, 2000).
- 9) Anthony, M., Graziano, A.M. and Raulin, M.L. (2009). Research Methods: A Process of Inquiry, Allyn and Bacon.
- 10) Bryman, Alan & Bell, Emma (2011). Business Research Methods (Third Edition), Oxford University Press.
- 11) Coley, S.M. and Scheinberg, C. A. (1990). "Proposal Writing", Sage Publications.
- 12) Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, U.K. (2002). An introduction to Research Methodology, RBSA Publishers.
- 13) Kothari, C.R. (1990). Research Methodology: Methods and Techniques. New Age International.

- 14) Verma J. Prakash (2000). A Text Book on Sports Statistics, Venus Publication, Gwalior (M.P.)
- 15) Hoffman S.J. Introduction to Kinesiology (Human Kinesiology publication In.2005.
- 16) Steven Roy, & Richard Irvin. (1983). Sports Medicine. New Jersey: Prentice hall.
- 17) Thomas. (2001). Manual of structural Kinesiology, New York: Me Graw Hill.
- 18) Uppal A.K. Lawrence Mamta MP Kinesiology(Friends Publication India 2004)
- 19) Uppal, A (2004), Kinesiology in Physical Education and Exercise Science, Delhi Friends publications.
- 20) Williams M (1982) Biomechanics of Human Motion, Philadelphia; Saunders Co.
- 21) S.Dhananjay (1998). Biomechanics and Kinesiology of human motion (Khel Sahitya Kendra, New Delhi).
- 22) Bill. K. (2009) *Sport Management*. Learning Matters Ltd., Exeter, United Kingdom.
- 23) Hernandez, R.A. (2002) *Managing Sport organizations*. Human Kinetics, Champaign, United States.
- 24) Hoye, R. & et.al. (2006) *Sport Management Principles and Applications*. Elsevier, Oxford, United Kingdom.
- 25) Pedersen, P. M. & et.al. (2011) *Contemporary Sport Management*. 4th Edition. Human Kinetics, Champaign, United States.
- 26) Authors Guide (2013) National Library of Educational and Psychological Test (NLEPT)
- 27) Catalogue of Tests, New Delhi: National Council of Educational Research and Training Publication.
- 28) Authors Guide (2013) National Library of Educational and Psychological Test (NLEPT)
- 29) Catalogue of Test, New Delhi: National Council of Educational Research and Training Publication.
- 30) Jain. (2002), Sports Sociology, Heal Sahitya Kendra Publishers.
- 31) Jay Coakley. (2001) *Sports in Society – Issues and Controversies in International Education*, Mc-Craw Seventh Ed.
- 32) John D Lauther (2000) *Psychology of Coaching*. New Jersey: Prentice Hall Inc.
- 33) John D. Lauther (1998) *Sports Psychology*. Englewood, Prentice Hall Inc.
- 34) Miroslaw Vauks & Bryant Cratty (1999). *Psychology and the Superior Athlete*. London: The Macmillan Co.
- 35) Richard, J. Crisp. (2000). *Essential Social Psychology*. Sage Publications.
- 36) Robert N. Singer (2001). *Motor Learning and Human Performance*. New York: The Macmillan Co.
- 37) Robert N. Singer. (1989) *The Psychology Domain Movement Behavior*. Philadelphia: Lea and Febiger.
- 38) Thelma Horn. (2002). *Advances in Sports Psychology*. Human Kinetic.
- 39) Whiting, K, Karman... Hendry L.B & Jones M.G. (1999) *Personality and Performance in Physical Education and Sports*. London: Hendry Kimpton Publishers.
- 40) Amrit Kumar, R, Moses. (1995). *Introduction to Exercise Physiology*. Madras: Poompugar Pathipagam.

- 41) Beotra Alka, (2000) Drug Education Handbook on Drug Abuse in Sports: Sports Authority of India Delhi.
- 42) Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
- 43) David, I. Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.
- 44) Fox, E.L., and Mathews, D.K. (1981). The Physiological Basis of Physical Education and Athletics. Philadelphia: Sanders College Publishing.
- 45) Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co.
- 46) Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers.
- 47) Sandhya Tiwaji. (1999). Exercise Physiology. Sports Publishers.
- 48) Shaver, L. (1981). Essentials of Exercise Physiology. New Delhi: Subject Publications.
- 49) Vincent, T. Murche. (2007). Elementary Physiology. Hyderabad: Sports Publication.
- 50) William, D. Mc Aradle. (1996). Exercise Physiology, Energy, Nutrition and Human
- 51) Performance. Philadelphia: Lippincott Williams and Wilkins Company.
- 52) Beotra Alka, (2000), Drug Education Handbook on Drug Abuse in Sports. Delhi: Sports Authority of India.
- 53) Bunn, J.N. (1998) Scientific Principles of Coaching, New Jersey Engle Wood Cliffs, Prentice Hall Inc.
- 54) Cart, E. Klafs & Daniel, D. Arnheim (1999) Modern Principles of Athletic Training St. Louis C. V. Mosphy Company
- 55) Daniel, D. Arnheim (1991) Principles of Athletic Training, St. Luis, Mosby Year Book
- 56) David R. Mottram (1996) Drugs in Sport, School of Pharmacy, Liverpool: John Moore University.
- 57) Gary, T. Moran (1997) – Cross Training for Sports, Canada : Human Kinetics
- 58) Hardayal Singh (1991) Science of Sports Training, New Delhi, DVS Publications
- 59) Jensen, C.R. & Fisher A.G. (2000) Scientific Basic of Athletic Conditioning, Philadelphia
- 60) Ronald, P. Pfeiffer (1998) Concepts of Athletics Training 2nd Edition, London: Jones and
- 61) Bartlett Publications Yograj Thani (2003), Sports Training, Delhi : Sports Publications