

Entrance Syllabus PHYSICAL EDUCATION

Research Methods -Meaning of Research, Need, Importance and scope of Research in physical Education. Types of Research. Survey of Related Literature, Need for Library search, Library Sources. Preparation of Bibliography and Abstracts.

Formulation and Development of Research Problem: Location of Research problem. Criteria in selecting the research Problem. Formulation of Hypothesis, Null and Alternate Hypothesis. Assumptions and Limitations, Delimitations.

Historical Research, Scope of Historical Research in Physical Education. Historical evidence. Validity of Historical data.

Philosophical Research: Brief introduction.

Survey Studies: Places of survey Research, Tools of Survey Research. Questionnaire and interviews.

Case Studies: Definition of Case Studies, Importance of Case Studies, Characteristics of Case Studies.

Experimental Research: Meaning, Scope and Nature, Control of Experimental factors. Experimental Designs.

Research proposal and preparation of research report.

Sports Statistics

Definition of Statistics, importance of Statistics in Physical Education and Sports Research. Statistical Processes.

Frequency Distribution: Steps of Frequency Table Construction.

Measures of Central Tendency, Computation of Measures of Central tendency Computation of Percentiles and Quartiles from Grouped data.

Measures of Variability: Computation of SD from Ungrouped and Grouped data.

Definition and Principles of Normal curve. Properties of normal Curve. Skewness. Kurtosis, Standard scales - Percentile scale, Z scale, T scale, 6 Sigma scale, Hull scale. Standard scores.

Correlation: Magnitude of Correlation. Computation of Correlation from Product moment and rank difference method.

Difference Method. Factors affecting Reliability. t- Ratio. Type I and Type II errors. One tailed and two tailed tests. Types of sampling

One - way Analysis of variance with equal and unequal Sample size. LSD and Scheffe's test.

Computer analysis in Physical Education and Sports.

Scientific Principles of Sports Training

Definition of Terms - Conditioning, Training and Coaching, Aims, tasks and Characteristics of Sports Training, Principles of Sports Training.

Important features of Training load- Intensity, Density, Duration and frequency; Principles of Training load, Adaptation Process and Conditions of adaptation, Over load - Causes and Symptoms, tackling of over load.

Strength - forms of strength, Characteristics of Strength, Principles of Strength Training, Strength Training means and Methods, Strength training for children and women.

Form of endurance. Characteristics of Endurance training means and methods

Speed: Forms of speed, Characteristics of speed, Training means and methods.

Flexibility: forms of flexibility, Characteristics of flexibility, Basis of flexibility, Methods of development of flexibility.

Coordinative Abilities- Characteristics of coordinative abilities, Importance of coordinative abilities.

Classification of coordinative Training methods.

Definition of Skill, technique and technical Training, Characteristics of Technique, Phases of skill acquisition, Methods of Technique Training, Causes and correction of faults.

Definition of tactics and strategy, Basic tactical Concepts - Offensive, Defensive and High

Performance, Methods of Tactical Training, Control of Tactical Knowledge.

Importance of planning, Principles of Planning, Systems of Planning, Periodization and its types.

Contents for various periods of training.

Importance of competitions, Competition frequency, Main and build up competition Direct preparation for an important competition.

Measurement and Evaluation in Physical Education

Meaning of Test, Measurement and Evaluation. Nature and scope of evaluation programme. Need and importance of evaluation in field of Physical Education. Principles of Evaluation.

Criteria of test selection: Scientific Authenticity (Reliability, validity, objectivity, norms).

Administrative feasibility and educational application. Classification of tests: standardized and teacher made tests (objective and subjective tests).

Construction of Knowledge tests. Construction of Skill tests. Suggestions for administering tests.

Measurement of Organic Functions: Cooper's 12 minutes Continuous Run/Walk Test, Tuttle Pulse ratio test, Harvard step test.

Measurement of Motor Fitness: Oregon Motor Fitness Test, Indiana Motor Fitness Test.

Measurement of General Motor Ability: Mc Cloy's General Motor Ability Test.

Tests for Strength: Instruments for measuring strength. Roger's Physical Fitness Index and Suggested changes in the P.F.I. test.

Tests for Skills: Russel and Lange Volleyball Test. Johnson Basketball test. Knox Basketball test.

McDonald Soccer Test, Johnson Soccer Test, Harbans Singh Field Hockey Test, Lockhart and

Mac Pherson Badminton wall volley Test. Miller Badminton wall volley test. Broer Miller tennis

Test.

Measurement of posture: IOWA Posture test Measures of anthropometric measurements: Grith Measurement – upper arm, forearm calf, chest, width measurements bi-acromial, chest ilio-crestal, bi-epicondylar (femur and humerus); Height. Sports competition anxiety test (SCAT).

Professional Preparation and Curriculum Designs in Physical Education

Nature and objectives of Professional Preparation in Physical education and sports: - Introduction. nature, aims and objectives of physical education professional preparation programme.

Historical Review of Professional, Preparation in India.

Introduction, meaning and purpose of Graduate Level Professional Preparation. Curriculum of

Physical Education Professional Preparation Regarding Laboratory experiences, Field Experiences and Teaching Practices. Facilities and Special Resources for Library, Laboratory and Research Regarding Graduate Level Professional Preparation.

Introduction, meaning, importance and purpose of **Post-** graduate level professional preparation.

Admission procedure for post graduate professionals. Recruitment for Post-graduate physical

Education personnel. Area of Specialization and Research Requirement during and after Professional Preparation. Special Qualifications of Teaching Staff at Post-graduate Level.

Introduction to curriculum, meaning and definitions of curriculum, importance of curriculum planning, Steps in curriculum planning, Characteristics of curriculum evaluation programme. Basic principles of curriculum design and planning, factors influencing the physical education curriculum design.

Selecting material for instruction. Classification of activities in Physical Education. Suitability of activities for different age groups and sexes. Cultural influence in the choice of activities. Flexibility of programme material.

Committee recommendations- NCERT, CBSE, UGC recommendations on curriculum for school and colleges. Curriculum followed in colleges of Physical education B.P.Ed, B.P.E., M.P.E., and M Phil.

Sports Psychology

Meaning, nature and scope of sport psychology, Importance of sport psychology for physical educators and Coaches.

Meaning of cognition, Characteristics of cognitive process in sports, Role of sensation and perception. Thinking, imagination and memory in physical activities.

Meaning of attention, Dimension of attention, Strategies to develop attention.

Motor Learning - Meaning of motor learning, factors affecting motor learning motor development in various periods of childhood and adolescence.

Psychological aspects of action regulation, Meaning of action regulation, Importance. Psychological characteristics of physical activities, Structure of action programme. Action programme in different games and sports.

Meaning of Personality, Personality traits of sports persons. Relationship personality to sport performance. personality differences among various sports groups.

Meaning of motives. needs and drives. Role of motives, attitude and interest in physical activities.

Meaning and types of emotions. Influence of emotions (Success and failure) on level of aspiration and achievement.

Anxiety, Fear, Frustration, conflict and its effect on sports performance.

Psychological aspects of Competition, Definition of competition. Determinants of competitive behavior psychological characteristics of pre - competition. Competition and post competition. Selected psycho regulative techniques for relaxation and activation.

Psychological aspects of long term and short term preparation for competition, psychological care of injured sports person. Typical responses to injuries, prevention and coping technique'

Methods of investigations in sports psychology, various methods used in sports psychology.

Exercise Physiology and Sports Medicine

Definition of Physiology and Exercise Physiology. Importance and Role of Exercise Physiology in the field of Physical Education and Sports.

Structure and function of Voluntary, Involuntary and cardiac muscles, Chemical Composition of skeletal muscle, muscle fiber types (Red and White muscle), Properties of muscles.

Fuel for muscular work (ATP), Energy for muscular contraction. heat production and thermodynamics of muscle contraction. Aerobic and anaerobic muscular activity.

Muscle Contraction, Neuro-muscular junction. Proprioception and Kinesthesia.

Effect of exercise and training on - (i) Heart and circulatory System. (ii) Respiratory system. (iii)

Muscular System. Oxygen debt, forced expiratory volume, breathing capacity, Recovery rate. Blood Supply to Skeletal muscle and regulation of blood flow during exercise. Fatigue- its meaning and concept. Basic Concept of balanced diet, appropriate diet before, during and after athletic performance brief introduction

about the effect of alcohol, drugs and smoking on athletic performance. Work capacity under different environmental conditions: Hot, humid, cold, and high altitude.

Definition of Obesity, measurement of body fat by various methods (under water "eight and skin fold measurement) Body weight control.

Concept of Sports Medicine, Its aims and objective, need and scope of sports medicine in Physical Education.

Low back problems & their management. stretching and strengthening exercises for low back

Problems

Rehabilitation in sports medical problems, Common old age problems.

Sports massage- before during and after competition.

Cryotherapy, cryokinetics and cold spray, Hydro-collateral packs (Hot & Cold). Hydrotherapy (Contrast Bath and whirl Pool). Paraffin bath. Infrared & ultraviolet rays, Diathermy, Ultrasound electric muscle stimulation.

Soft tissue and muscular- skeletal injuries. Tissue response to injuries, stress related injuries, Injuries of head and face. Visceral injuries.

Principles of injuries prevention, Principles of diagnosis, Principles of treatment, Doping – its use and misuse.

Sports Biomechanics

Meaning of Biomechanics, Biomechanics in physical Education, Terminology of the movements around a joint. Movement Analysis: definition of Kinesiological analysis, Mechanical analysis and Biomechanical analysis.

Linear kinematics: Distance and Displacement, speed and velocity, acceleration, Uniform Motion. Properties of force - magnitude, direction, point of application, line of application, internal and external force, and muscular force.

Linear kinetics- inertia, mass, weight, power, Newton's first law of motion, Newton's second law of motion, Newton's third law of motion. Law of conservation momentum

Stability and equilibrium types of stability, principles of stability. Factors affecting stability, conditions for static and dynamic stability

Angular kinetics: Centripetal and centrifugal force. The Lever system: introduction of lever, functions of lever, classification of lever.

Fluid Mechanics: static consideration: buoyancy and flotation, dynamic consideration: resistance and propulsion, drag force and lift force. Magnus effect, spin and its effects.

Frictional force: starting and stopping friction, sliding friction, rolling friction.

Freely falling Bodies (Projectile), vertical projection, horizontal projection, diagonal projection.

