

# **RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER**

## **SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF PHYSICAL TRAINING INSTRUCTOR COLLEGE EDUCATION DEPARTMENT**

### **PAPER – II**

#### **Unit -I:**

Research in physical education- its importance and classification. Ethical issues in research. Methods of research- Descriptive, historical and experimental. Experimental research designs.

Identification and formulation of research problem. Types of research hypotheses and their formulation. Hypotheses testing.

Tools of research- Questionnaires, opinionnaires, interviews and observation.

Sources and steps of literature search- library, research data bases, internet-search engines, online journals. Note taking and critical reading.

Sampling Techniques- Probability and non-probability. Data its types and collecting measures. Normal probability curve and grading scales.

Statistical processes, their importance and uses in research. Application of parametric and non-parametric statistical techniques in research.

Computer applications- statistical packages for data analyses- SPSS, e-mail, search engines and Microsoft office.

Preparation of research proposal, report, abstract, paper for publication and paper for presentation.

#### **Unit -II:**

Exercise physiology its scope and importance in the field of physical education and sports.

Cardio respiratory adaptations to long and short term physical activities.

Muscle- its types, characteristics and functions. Microscopic structure of muscle fibre. Sliding filament theory of muscular contraction. Types of muscle fibres and sports performance. Muscular adaptations to exercise.

Neuro-muscular junction and transmission of nerve impulse, kinesthetic Sense organs and neural control of motor skills.

Bio-chemical aspects of exercise - Metabolism of food products. Aerobic and anaerobic systems during rest and exercise. Direct and indirect methods of measuring energy cost of exercise.

Recovery process - Physiological aspects of fatigue. Restoration of energy stores. Recovery oxygen. Nutritional aspects of performance.

Environmental influence on human physiology under exercise.

Women in sports- trainability. Physiological gender differences and special problems of women athletes.

Aging - Physiological consequences, life style management and healthful aging.  
Physiological responses of various therapeutic modalities and rehabilitation.  
Physiological aspects of various Ergogenic aids. Massage manipulations and their physiological responses.  
Effects of Exercise on various systems.

### **Unit- III:**

Kinesiology and biomechanics. Modern trends in biomechanics. Planes and Axes of human body. Joints and their movements.  
Muscle attachments - Origin, insertion, action and leverage of the principal muscles used in sports.  
Motion: its laws and their application in sports. Projectile and principles of projections, Force, Equilibrium & Stability.  
Linear and angular kinematics and kinetics. Friction, Spin, impact and elasticity.  
Air and water dynamics.  
Mechanical advantage and applications of Levers in sports. Posture and its deformities with their corrective exercises.  
Kinesiological, Muscular and mechanical analyses of fundamental movements:  
Mechanical analyses of major sports skills.

### **Unit – IV:**

Sports psychology- its importance in the field of physical education and sports.  
Motivation in sports- types, theories and dynamics.  
Psychological factors affecting sports performance- Emotions, Anxiety, aggression, stress, self confidence, concentration, mental practice and goal setting.  
Personality- Theories of personality, measurement of personality.  
Group dynamics, Group cohesion and leadership in sports.  
Cognitive process- memory and thinking. Principles of Motor skill learning.  
Transfer of training and its types with its implication in sports.  
Long and short term psychological preparation for performance/ competition.  
Psychological skill training for activation and relaxation.  
Spectators and sports performance. Gender inequalities in Sports.

### **Unit - V:**

Management- its principles and theories. Scope of management in physical education and sports. Guiding principles for organizing physical education & sports programmes in institutions, International, National & State Organization, Sports Association/ Federations, Conduct of Competition/ Tournaments.  
Personnel management- objectives and principles. Self-appraisal, communication skills and time management. Essential skills of administration.  
Financial management- objectives, purposes, principles and scope. Planning and

preparation of budget. Mechanics of purchase and auditing.  
Supervision - objectives, principles and importance of supervision. Techniques of supervision. Duties and responsibilities of a supervisor.  
Facility management- planning, procuring and maintenance of facilities- indoor and outdoor facilities. Planning and management of sports infrastructure.  
Management of records.  
Role of sports manager- interpersonal, informational and decision making.  
Managerial skills – technical, human and conceptual. Qualities and qualification of sports manager/ Director.  
Event management- its principles, planning, check list, rehearsal, itinerary, execution, reporting and follow-up procedures of an event.  
Public relation- principles of public relations in physical education and sports.  
Mass Media- communication and publicity, qualifications of Public relation officer.  
Sports Technology: Sports Materials, Playfields, equipments & gadget.

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**Note: - Pattern of Question Paper**

1. Objective type paper
2. Maximum Marks: 75
3. Number of Questions: 150
4. Duration of Paper: Three Hours
5. All questions carry equal marks.
6. There will be Negative Marking.
7. Medium of Competitive Exam: Bilingual in English & Hindi.