

**DETAILED SYLLABUS FOR THE POST OF  
INSTRUCTOR IN PHYSICAL EDUCATION (PHYSICAL INSTRUCTOR)**

**TECHNICAL EDUCATION (GOVERNMENT POLYTECHNICS)**

*(Category Nos: 405/2022)*

**(TOTAL MARKS – 100)**

**Unit-I Introduction to Physical Education and Sports**

**(10 Marks)**

Meaning, Definition and Scope of Physical Education, Aims and Objective of Physical Education, Importance of Physical Education in present era, Organization and Administration in sports and physical education

Sports Sciences including Sports Medicine, Biomechanics, Kinesiology, Exercise Physiology, Sports Psychology

Physical fitness: Definition of Physical fitness, health related physical fitness -skill/performance related physical fitness-components of physical fitness

Definition of Conditioning, training, coaching and Sports training-Objectives and principles of sports training-Training load-Load adaptation process, super compensation, overload-signs and symptoms of overload, remedial measures and methods of overcoming overload

**Yoga**

- Meaning Definition, aims and objectives of yoga.
- Need and importance of Yoga in Physical Education.
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**Foundation of Yoga**

- Astanga yoga, Yama, Niyama, Asana, Pranayama, Dharma, Dhyana and Samadhi
- Definition – Asanas and Pranayama
- classification of Asanas
- Benefits of Various Asanas
- Definition of Meditation and relaxation

## **Unit-II Anatomy, Physiology, Kinesiology and Biomechanics (20 Marks)**

Anatomy and physiology in the field of Physical Education - Introduction of cell and tissue, skeleton, joints of the body and their types, types of muscles.

Blood and circulatory system - clotting of blood, the structure of the heart, circulation of blood, cardiac cycle, blood pressure, Lymph and Lymphatic circulation, cardiac output.

The Respiratory system - respiratory passage, the lungs and their structure and exchange of gases in the lungs, mechanism of respiration (internal and external respiration) lung capacity, tidal volume

The Digestive system - structure and functions of the digestive system, digestive organs, Metabolism

The Excretory system - structure and functions of the kidneys and the skin

The Endocrine glands - functions of glands pituitary, thyroid, parathyroid

Nervous systems - function of the autonomic nervous system and Central nervous system

Definition of physiology and its importance

Role of oxygen- physical training, oxygen debt, second wind, vital capacity

Effect of exercise and training on cardiovascular system, respiratory system, muscular system

Physiological concept of physical fitness, warming up, conditioning and fatigue

Basic concept of balanced diet - Diet before, during and after competition

Meaning and definition of kinesiology and sports biomechanics, importance of Kinesiology and Sports biomechanics

Fundamental concepts of - Axes and Planes, Centre of Gravity, Equilibrium, Line of Gravity

Fundamental concepts of - Angle of Pull, All or None Law, Reciprocal Innovation

Force, Lever, Newton's Laws of Motion, Projectile

- Health Education and School Health Service
- Definition of Health, aims and objectives of Health Education
- Objectives of School Health Service
- Importance of School Health Service
- Health problems of School going students
- Mental Health
- Health problems in India, Nutrition problems
- Communicable and non communicable diseases
- Nutrition – Classification of Food and role of nutrients, malnutrition
- Food adulteration
- Food Additives

### **Unit-III Management of Physical Education and Sports (20 Marks)**

Meaning, Importance and Scope of Management-Principles and guidelines of Management

Management Structure of Physical Education and Sports Programmes (SAI, SGFI, IOA, KSSC,...)

Functions of Management – Planning, Organizing, Staffing, Directing, Controlling

Planning and their basic principles, Program planning: Meaning, Importance, Principles of program planning in physical education.

Facility Management-Playfield preparation, layout and maintenance-purchase, care, maintenance and repair of equipment

Planning and budgeting-storekeeping, stock register, stock verification

Meaning and importance of organization and administration in physical education, qualification and responsibilities of physical education teacher

Leadership in sports and physical education

### **Unit-IV: Organizing Competition (20 Marks)**

Importance of tournament, Types of tournament and its organization structure - Knock-out

Tournaments, League or Round Robin Tournaments, Combination Tournament and challenge Tournament.

Organization structure of Athletic Meet

Sports Event- Intramurals & Extramural competitions-objectives, planning & organizing

Introduction of Officiating and coaching, Concept of officiating and coaching, Importance and principles of officiating, Duties of coach in general, pre, during and post game, Philosophy of coaching, Responsibilities of a coach on and off the field, Psychology of competition and coaching

Duties of Official - Duties of official in general, pre, during and post game.

Understanding of major games, minor games and recreation activities

Games and Athletics-Play field, equipment, rules and regulations

### **Unit-V Test and Measurement (20 Marks)**

Meaning of terms: test, measurement and evaluation

Need and importance of test, measurement and evaluation in physical education-criteria in selection of tests - Scientific authenticity, validity, reliability, objectivity, norms, administrative feasibility, educational applications - Administration of a testing programme - duties before, during and after

testing-measurement of cardio respiratory function-Coopers 12 minutes run/walk test, Harvard's step test and its modifications-measurement of motor fitness-AAHPER physical fitness test battery, JCR Test-Measurement of gender motor ability-Barrow motor ability test (men), Scott motor ability test (women), McCloy's general motor ability test-measurement of strength-Kraus-Webber minimum muscular fitness test, Roger's physical fitness index

Construction of tests- assessment of skills and physical fitness

Measurement of organic functions-Physiological testing, cardiovascular respiratory function, motor fitness, general motor ability

Anthropometry, posture, body mechanics

Measurement of social and psychological factors

Principles of evaluation, statistical techniques

## **Unit-VI Sports Technology & Computer Applications in Physical Education and Sports** **(10 Marks)**

Meaning, definition, purpose and principles

Science of sports materials, surfaces of play fields, modern equipment, training gadgets

Introduction to Computer - meaning, need and importance of information and communication technology (ICT)

Application of Computers in Physical Education - components of computer, input and output device , application software used in physical education and sports , MS word , MS Excel ,MS Power Point, skill and movement analysis software,...

**NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper**