

## PET – 2020- Contents –PHYSICAL EDUCATION

<b>FOUNDATIONS OF PHYSICAL EDUCATION AND SPORTS</b>	
<b>Philosophical Basis of Physical Education</b>	a. Meaning and definition of Philosophy, Education, Physical Education Health Education and Recreation
	b. Aims and Objectives of Physical Education
	c. Idealism, Naturalism, Realism, Pragmatism, Existentialism and Humanism
<b>Historical Basis of Physical Education in India</b>	a. History of Physical Education in India
	b. Historical development of Ancient and Modern Olympic game
	c. Physical Education in Ancient Greece, Rome and contemporary Germany, Sweden, Denmark, and Russia
<b>Biological Basis of Physical Education</b>	a. Benefits of Exercise - Growth and exercise, exercise and well being
	b. Sex and age characteristics of Adolescent
	c. Body types, Posture
<b>Sociological Basis of Physical Education</b>	a. Socialization process, social nature of men and physical activities, theories, principles and Programmes of recreation for various categories of people
	b. Sports as a cultural heritage of men kind, customs, traditions and sports, competition and co-operation
	c. Sociometrics, economics and politics in sports
<b>RESEARCH METHODOLOGY AND COMPUTER APPLICATION IN PHYSICAL EDUCATION AND SPORTS</b>	
<b>Research in Physical Education and Types</b>	a. Meaning, need, scope and types of Research
	b. Formulation and Selection of Research Problem
	c. Hypothesis – Formulation, Types and Testing
<b>Sampling, Tools and Techniques for Data Collection</b>	a. Sampling Process and Technique
	b. Reliability and Validity of Research Tools
	c. Questionnaire: Types and Construction, Observation, Rating Scale, Interview, Opinionnaire and Various Test
<b>Methods of Research:</b>	a. Descriptive research, Survey, Case Study, Comparative and Genetic.
	b. Historical
	c. Experimental
<b>Writing Research Report</b>	a. Research proposal, synopsis of dissertation, thesis and abstract
	b. Reference and Appendices
	c. Evaluation of research report
<b>SCIENCE OF TRAINING AND COACHING IN SPORTS AND GAMES</b>	
<b>Sports Training, Coaching and Rules of Games and Sports</b>	a. Characteristics and Principles of sports training.
	b. Sports talent identification process and procedures.
	c. Rules of Games and Sports and their interpretation

<b>Training Load and Methods</b>	a. Important Features and Principles of Training Load.
	b. Overload: Principles, causes symptoms and tackling of over load.
	c. Methods and specific training programme for development of various motor qualities.
<b>Technical and Tactical Preparation for Sports</b>	a. Concept of Technique, Tactics and Strategy
	b. Methods for Developing Technique and Tactics training.
	c. Control and Evaluation of Tactical knowledge
<b>Planning, Periodization and Preparation for Competition</b>	a. Short term and long term training plans.
	b. Periodization and its types.
	c. Preparation and Planning of Build up competition, main competition, competition frequency, psychological preparation
<b>EXERCISE AND SPORTS PHYSIOLOGY</b>	
<b>Introduction of Exercise Physiology</b>	a. Definition, Importance and role of Exercise Physiology in the field of Physical Education and sports.
	b. Gross and Microscopic Structure of Skeletal Muscle.
	c. Contractile mechanism: - Sliding Filament Theory, chemical composition of skeletal muscle, Muscle fiber type (Red and White Muscle). Neuro-Muscular junction and transmission of nerve impulse
<b>Work Performance &amp; Environment</b>	a. Exercise at medium and high Altitude.
	b. Mechanism of thermoregulation (Cold stress, Heat stress)
	c. Oxygen debt, Second Wind, force expiratory volume, breathing capacity recovery rate
<b>Bioenergetic</b>	a. Aerobic and Anaerobic Metabolism. Energy for muscular contraction and biochemical changes during muscular contraction.
	b. Heat Production and thermodynamics of muscle contraction, Aerobic and Anaerobic muscular activity.
	c. Neuron and motor unit, transmission of nerve impulse, Bio-electric potentials, Action Potential and resting membrane potential.
<b>Responses and Adaptations to Exercise and Training</b>	a. Effect of Exercise and Training on Cardiovascular and Respiratory Parameters
	b. Effect of Exercise and Training on Hormones
	c. Muscular and thermo-regulatory systems and Exercise.
<b>TEST, MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION AND SPORTS</b>	
<b>Introduction to Test, Measurement and Evaluation</b>	a. Concept of test, measurement and evaluation in physical education
	b. Principles of measurement and Evaluation
	c. Criteria of test selection
<b>Construction and Classification of test</b>	a. Principles of test construction: Knowledge test , sports skill tests
	b. Administration and classification of tests
	c. Criteria of test evaluation
<b>Fitness Testing</b>	a. Physical fitness tests: concept and assessment
	b. Concept and assessment of motor fitness, motor ability and motor educability
	c. Anthropometric measurement and body composition
<b>Sports Skill and</b>	a. Skill Test for Badminton, Basket ball and Hockey

<b>Psychological Tests</b>	b. Skill Test for Lawn Tennis, Soccer and Volleyball
	c. Psychological Testing: Competitive Anxiety, Aggression, Team cohesion, Motivation, Self-concept, Personality
<b>PSYCHOLOGY OF PHYSICAL EDUCATION AND SPORTS</b>	
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	b. General principles of Growth and Development.
	c. Play and Play theories.
<b>Learning in Physical Education and Sports</b>	a. Learning process, Theories and Laws of learning, Transfer of training effects.
	b. Principles of motor skill acquisition
	c. Individual differences and their impact on skill learning.
<b>Motivation and Personality</b>	a. Meaning of motivation, motives, drive, need and Level of aspiration, achievement motivation.
	b. Theories and dynamics of motivation in sports.
	c. Personality, its dimensions, theories, personality and performance.
<b>Psychology of Competition</b>	a. Psychological factors affecting sports performance.
	b. Group dynamics, team cohesion and leaderships in sports.
	c. Place of Sports Psychology in India
<b>STATISTICS IN PHYSICAL EDUCATION AND SPORTS RESEARCH</b>	
<b>Introduction of Statistics</b>	a. Meaning, definition and need of statistics in Physical Education and Sports
	b. Organization and tabulation
	c. Graphical representation Histogram, Frequency polygon and Frequency curve
<b>Normal Probability Curve</b>	a. Meaning and importance
	b. Important properties of normal curve
	c. Skewness and Kurtosis
<b>Descriptive Analysis of Data</b>	a. Measurement of Central Tendency – Mean, Median and Mode
	b. Measurement of Variability – standard deviation and quartile deviation
	c. Percentiles and Spearman's rank order correlation coefficient
<b>Inferential Analysis of Data</b>	a. Concept and Interpretation of Inferential Statistical Measures The Null Hypothesis, Degrees of freedom, Level of significance, Type I & Type II error, Standard Error of the Mean
	b. Parametric tools- t-test , One Way ANOVA, Two Way ANOVA
	c. Non-Parametric tools- Chi-square test of testing association between two attributes, Sign test, Mann Whitney test
<b>SPORTS BIOMECHANICS</b>	
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	b. Basic concepts related to Kinetics and Kinematics
	c. Laws of motion , principles of equilibrium and force, spin and elasticity

<b>Human movement and biomechanics</b>	a. Mechanical analysis of various sports activities
	b. Principles of application of biomechanics –Force-motion principles, Force time principles, Stability-balance principles, Principles of leverage system, Power and Energy and projectiles 30
	c. Mechanical analysis of fundamental movements-(running, jumping, throwing, pulling and pushing
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	b. Joints and their movement, fundamental concept of planes and axes
	c. Posture, postural deformation and their corrective measures
<b>Applied kinesiology</b>	a. Neuromuscular base of kinesiology, Classification and Kinds of muscular contractions
	b. Application of kinesiology to basic skills- Walking, Jumping, Running and Throwing
	c. Elementary problems related to motion, speed, velocity, force and projectiles
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<b>Introduction of Yoga</b>	a. Concept of yoga, physical Education and health
	b. Misconceptions about Yoga
	c. Physical Education Exercise and Yogic Exercises.
<b>Yoga and Exercise for Health</b>	a. Concept of exercise in Physical Education and its comparison with yogic exercise
	b. Principles governing various exercises in yoga like Asana, Pranayam, Bandha, Mudra, Kriya and Meditation.
	c. Role of yoga and exercise in relation to health
<b>Effect of Yogic Exercise</b>	a. Emotional stability and yogic exercises.
	b. Effect of various yogic exercises on different system of the body.
	c. Yoga for Stress Management
<b>Application of Yoga</b>	a. Application of yoga in sports and Physical Education
	b. Therapeutical application of yoga.
	c. Yogic Methods and Techniques for Total Living
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<b>Fitness and Wellness</b>	a. Concept, meaning and Components of fitness and wellness
	b. Development and maintenance of physical, health related and motor skill related variables
	c. Identifying dimensions of wellness, achieving and maintenance of wellness, Relationship of wellness towards positive lifestyle
<b>Behavior Modification</b>	a. Barriers to change, Process of change (6 stages) SMART
	b. Technique of change & smart goal setting.
	c. Healthy lifestyle approach. (Introduction, prevention, and treatment of inactivity diseases)
<b>Daily Schedule of Achieving Quality of Life and Wellness</b>	a. Daily schedule based upon one's attitude, gender, age & occupation.
	b. Basic – module: - Time split for rest, sleep, diet, activity & recreation.
	c. Principles to achieve quality of life:- positive attitude, daily regular

	exercise, control over food habits & healthy hygienic practices
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<b>Health and Health Education</b>	a. Meaning, definition, , objectives, scope, guiding principles and importance Health and Health Education.
	b. Meaning of personal hygiene and School Health Programs.
	c. Factors influencing health
<b>Health and Fitness</b>	a. Meaning, Definition, importance and components of Health related fitness
	b. Definition of obesity and its management
	c. Communicable diseases-their preventive and therapeutic aspect
<b>Environmental Health</b>	a. Need and Importance of Environmental Health, public health and Environment
	b. Fundamental concepts of pollution, types and its measures
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<b>Diseases and Health</b>	a. Meaning and definition of Communicable and non- communicable diseases
	B .Factors responsible for communicable diseases
	c. Preventive and therapeutic aspect of Communicable and non-communicable diseases
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	b. Role of physician, athlete trainer & coaches, Team medical care concept & approaches
	c. History of Sports medicine in India and abroad
<b>Injury &amp; tissue response</b>	a. Micro & macro trauma, over use trauma
	b. Tissue response to stress Different steps of wound healing
	c. Regional, Specific injuries related to games and sports & their management (head, neck, face, thorax, abdomen, pelvis, upper & lower limbs).
<b>Therapeutic modalities &amp; rehabilitation</b>	a. Hydrotherapy, Cryotherapy, thermotherapy, Contrast & paraffin bath
	b. Diathermy, infra-red, ultra sound
	c. Approach to rehabilitation
<b>Medical Problem and Rehabilitation</b>	a. Lower Back, old age and postural problems and there corrections
	b. Advantages and Disadvantages of exercises
	c. Massage manipulations and therapeutic exercises
<b>MANAGEMENT AND PROFESSIONAL PREPARATION IN PHYSICAL EDUCATION AND SPORTS</b>	
<b>The Management Process</b>	a. Concept and principles of management
	b. Organization and function of sports bodies
	c. Concept of techniques of supervision
<b>Aspects in Physical education and Sports Management</b>	a. Intramural and Extramural.
	b. Management of Equipment: Need, selection, purchase, storing, issuing, maintaining and supplier.
	c. Management of Infrastructure, financial and personal

<b>Teacher Education</b>	a. Development of teacher education in physical education.
	b. Professional courses in physical education and sports in India.
	c. Professional ethics and qualities and qualification of physical education personnel
<b>Curricular aspects</b>	a. Principles of curriculum planning, course content for academic and professional courses
	b. Age, Characteristics of pupils and selection of activities, construction of class and school physical education time table pupils-teacher interaction and relationship
	c. Methods and technique of teaching, principles of lesson planning,
<b>SPORTS NUTRITION</b>	
<b>Overview of Nutrition</b>	a. Introduction to sport nutrition and its principles
	b. Role of Nutrition in promotion of health
	c. Importance of Nutrition to athletic performance and food guide Pyramid
<b>Human Energy</b>	a. Definition of energy and human energy system
	b. Energy Transduction
	c. Influence of diet for utilization of energy
<b>Dietary Requirement</b>	a. Need of Energy, Carbohydrate and Protein
	b. Manipulation of energy balance to Induce weight loss and weight gain
	c. Competition nutrition – Before week and the day, on the day of competition and after the competition.
<b>Vitamin, water, electrolyte and temperature</b>	a. Vitamins, Mineral and Antioxidants
	b. Regulation of water in body and factors influencing body temperature
	c. Meaning and components of electrolyte, Dehydration and hypo hydration affect on physical performance