# Maharshi Dayanand University Rohtak

Syllabus and Courses of Reading for M.P.Ed. (Part-I) Examination

Session - 2009-2010

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#### PAPER - I (Professional Preparation and Curriculum Design in Physical Education and Sports Sciences)

#### Maximum Marks : 80+20 Time : 3 hrs.

**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

- Foundations of Professional preparation, features of Indian democracy with regard to contribution of Physical Edcation & Sports
- Understanding of Foundation of Physical Education and Sports.
- Meaning of profesiona, preparation, curriculum and Design, what is the meaning and definition of Physical Education.
- Basis of Professional Preparation in Physical Education and Sports Sciences.

#### UNIT - II

- Forces and Factors efecting educational policies and programmes
- Function of the state Government in mplementation of the educational and Professional Preparation of Physcal Education and Sports Programme

#### UNIT - III

- Contribution, Aims and purposes of general Education in the Professional Preparation of Physical Education and Sports.
- Aims and Objectives of Physical Education.
- Historical review of Phyical Education in USA (Russia)

#### UNIT - IV

- Historical review of Professional preparation in Greece & Rome.
- Professional Educational Qualification, desirable for Physical Education teachers for library, laboratory and Research

#### UNIT - V

- Historical review of Great Britain or England (United Kingdom) and Germany.
- Historical review of Sweedan & Denmark.

### References

- 1. Gupta Rakesh, Akhlish, Santosh, Professional Preparation and Curriculum Design in Physical Education.
- 2. Bhatia, K.K. and Narang, Principles of Education (Methods and Technique) Ludhiana Prakash Brothers Educational Publisher, 1991.
- 3. Bhatia, K.K. Kadian, K.S. Chandra, PC and Sharma's Contemporary problem of Indian Education, Jalandhar Prakash Brother Educational Publishers, 1990.
- 4. Graily, J. Byrant career potentials in Physical Activity Nw Jery, Prentic Hall in England cliffs USA 1990.

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#### **PAPER - II Kinesiology**

Maximum Marks : 80+20

#### Time : 3 hrs.

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**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

- Definition, scope and role of kinesiology in Physical Education and Sports
- Anatomical body position
- Fundamental body position
- Meaning and Factors affecting the Range of motion

#### UNIT - II

- Fundamental movements of joint and their terminology
- Meaning of planes, aims and their types.
- Axis and Planes involved in Joints movements
- Structural classification of Skelton muscles and types of contractions.
- Techniques of muscular analysis

### UNIT - III

- Classification of Joints (movable)-(Immoveable) (Partial Moveable)
- The attachment and action of the muscles of following joints :
  - a) Shoulder Girdle and Shoulder :- Trapezius, Lavetor Scapulae, Rhomboid, serratus anterior, Pactortis minor and pactorlis major, Deltoid, Supra Spinatus, Teres Major and minor, infra spinatus and Biceps.
  - b) Elbow Joint : Biceps brachii, Pronator teres, Supinator, Trieps, Brachilles, quadiratus,

c) Ankle and Foot :- Gastrocenenius, Soleus, Tibialls anterior and Posterior, Digitorum longus and brevis, Extensor hallucis longus, peronus brevis.

### UNIT - IV

- The attachment and action of the muscles of the following joints :
- <u>HIP JOINT</u>: Illiopsias Minor and Major, Pactinues, rectusfemoris, sartorius, Tensor, Fascielatea, Biceps and internus, Abductor Magnus, Longus and Brevis.
- <u>KNEE JOINT</u>: Quadriceps Rectus Femoris, Vastus Lateralis, Vastus Ingtermedius, Hamstring group - Biceps Femoris, Semibranosus, Sartorius, Gastrenemius, Popliteus.

#### UNIT - V

- Characteristic of skillful performance
- Tendon action of two muscles
- Body deformities and their remindes (a) Kyphosis (b) Lordosis(c) Scolosis (d) Knock- kness(e) Elat-foot

### References

Zatsiorsky V.M. Kir	matic of human motion - 1998
---------------------	------------------------------

Kelly DL Kinesiology, Fundamantal of Motion 1971

Lattiganus K. Others Kinesiology, Scientific basis of human motion Jenson, C.R. & Schutt, G.W.,

Applied Kinesiology : The Scientific study of human performnace (2nd edition) New York MC Grahs 1977

Hawley, G. The Kinesiology of corrective exercise, Phildelphia Lea ano Febiger, 1937

#### **PAPER - III Anatomy and Physiology**

#### Maximum Marks : 80+20

#### Time : 3 hrs.

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**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

#### Introduction to Anatomy & Physiology

- Meaning of Anatomy and Physiology
- Cell Structure (Animal)
- Properties of living matter
- The role of Anatomy and Physisiology in Phsyical Education & Sports

#### UNIT - II

#### Muscular System

- Grass and microscopic structure of skeltal muscles
- Mechanism of muscular contraction and relaxation
- Nature of neuromuscular activity
- Muscle tone, Law of reciprocal innervations
- Muscle work and fatigue
- Effect of exercise on Skelton muscles

#### UNIT - III

#### **Circulatory System**

- Anatomy of heart
- Systemic and Pulmonary Circulation, coronary circulaton
- Mecahnism of circulation
- Heart rate, stroke volume, cardiac output, reserve capacity.

- Cardiac cycle

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- Effect of exercise on circulatory system

#### UNIT - IV

#### Blood & Blood Pressure

- Composition of Blood and its fucntions, Types of blood
- Blood Pressure systolic and disystolic pressure
- Measurement of blood pressure
- Effect of exercise on blood pressure

#### UNIT - V

#### **Respiratory System**

- Structureof respiratory organs
- Mechanism of respiration
- Tissue and Pulmonary respiration
- Respiratory capacities
- Effect of exercise on respiratory system

- 1. Pearee Evelyn, C. Anatomy and Physiology for Nurses London, faber and Faber Ltd. 1962.
- 2. Pavat, J. Anatomy for students and teachers of Physcal Education, London Edward Arnold and Co. 1959.
- 3. Senson Wright : Applied Physiology
- 4. Willion J.F. : Anotomy and Physiology, London W.B. Sauders
- 5. Best and Taylor The living Body,New Delhi, Asian Club House 1960
- 6. Smount, C.F.V and Mcdonald, R.J.S. : Physiotherapy, Occupational theraphy and Gymnastics, Edward arnold Pvt. Ltd. 1969.
- 7. Kiober Grey Anatomy and Physiology
- 8. Stakpoles Anatomy and Physiology (6 th Edition)

# PAPER - IV Education technology and Pedagogic techniques in Physical Education)

# Maximum Marks : 80+20

#### Time : 3 hrs.

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**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

- Meaning and principles of class management
- Specfic principles (strength of class, pace and time of class, uniform class formation, safety measures and discipline
- Steps of class management
- Explanation of different teaching methods for presenting material

### UNIT - II

- Introduction, General and specific lesson plan
- Principles of Lesson plan
- Importance of lesson plan in Physical education and sports.
- Meaning, Importance of Audio- visual aids.

Steps of auio- visual aids, technology devices in Physical Eucation and Sports (Adobe Premier, underwater camera, various measuring tools, wind gauges, foul indicators, electronic gadgets adobe photoshop, Microsoft animation, laser beam technology, LCD display) Power Point Presentation.

### UNIT - III

- Introduction, Principles for planning facilities
- Types of facilities

- Meaning and types of command
- Meaning, need and importance of Public relation in Physical education.

#### UNIT - IV

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- Meaning, Objectives and types of Budget
- Principles of preparation of budget
- Meaning, need and importance of intamural and extramurals
- Types of tournaments.

# UNIT - V

- The need for office for Physical Education teacher, its location and set up.
- handling and communication- office writing, circulars, notification and invitation
- Writing reports and display, monitory

- 1. Kannup Clydo & E : teaching methos for Physical Education MC Graw Hill Book Co. Inc.
- 2. Tirunurayana, C & s Hariharan: Method in Physcal Education (South India Press Karalkudi India).
- 3. Kamlesh M.L. & Sangra, M.S. : Methods in Physical Education Prakash Brothers, Jullunder, 1982.
- 4. Two experienced Professors : Organization and Adminsitration and recreation in Physical Education, Prakash Brothers, Jullundur, 1982.
- 5. Wakharkar D.C. Manual of Physical Education, Pearl Publications, Bombay 1967
- 6. Dhakraborty S. Sports Management Delhi Sports Publications, 1998.
- 7. Kamlesh M.L. Management concept in Physical education and Sport, New Delhi, Metropolitan Book Co. Ltd. 2000.

#### PAPER - V (Techniques of Officiating & Coaching)

#### Maximum Marks : 80+20

#### Time : 3 hrs.

**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

### UNIT - I

- Meaning and Importance of Officiating
- Principles of Officiating
- Qualities and duties of a good official
- Responsibilities of a good official
- Qualifications an qualities of a good official.

#### UNIT - II

- Measurements, Marketing, Equipments, basic fundamantals and rules and regulation of following games
  - a) Football (b) Basketball (c) Kabaddi
  - d) Badminton (e) Table tennis
- Glossary of football, Basketball, Kabaddi, badminton and Table tennis
- Outstanding achiervers, trophies and award realted with Football.
- basketball, Kabaddi, Badminton and table tennis
- Preparation of Score-sheet of Footbal, Kabaddi, Badminton and table tennis.

### UNIT - II

- Measurements, Marketing, Equipments, basic techniques and rules and regulation of following
- Track and field events of athletics

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- SYLLABUS M.PEd. (Part-I)
- Preparation of Score sheet of track & field events
- Lay out of standard track
- Glossary of track and field events
- Achievers (outstanding) and trophies and award related with track and field events

#### UNIT - IV

- Principles and methods of Selection of Players/ teams for various competitions.
- Fundamantals of conditioning
- Methods of conditioning & training (progressive Resistance
- Exercise, circuite training, fortlak, interval, eight training
  UNIT V
- Warming up & Cooling down
- general principles of training Schedule
- Preparation of training schedule
- Competition Strategy for different games.

### References

Rules of games and Sports, YMCA, Publishing House Madras.

John Bunn - the art of Officiating

Clalls - Athletic Training

#### PAPER - VI (Health Education) (Theory)

# Maximum Marks : 80+20

#### Time : 3 hrs.

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**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

- Meaning and Importance and need of health Educational
- Health Education its relation with general Education
- Method and medium of Health Education
- Health during Camp & traveling

#### UNIT - II

- Meaning definition and different dimensions of health
- factors affecting health and Wellness
- Characteristics of healthy individual

### UNIT - III

- School Health programme and health environment
- Academic programme and health School health examination
- Health Insurance

#### UNIT - IV

- First aid and safety measures
- Prevention of communicable disease
- Nutrition macro and micro nutrients
- Weight Management/obesity control

#### UNIT - V

- Substance abuse(smoking, tobacco, Chewing etc.)
- Health organization and adminstraion structure
- Health organizations : World health Organization (WHO) redcross

Society National aids Control Organzation ((NACO) ental and emotional health Sex education.

#### References

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- 1. Daimple : Foundations of health
- 2. Dehl : Healthful living, Mc Graw Hill
- 3. Physical education and Health (Dr. A.K. Uppal, Dr. Gautam)
- 4. Physical and Health Education (Mr. V.D. Sharma & Granth Singh)

#### PAPER - VI (Optional) (Yoga-b) (Theory)

#### Maximum Marks : 80+20

#### Time : 3 hrs.

**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

- Definition, meaning and types of Yoga
- History and development of Yoga in India
- Concept of Yoga in Modern World

#### UNIT - II

Rules & Principles of Yoga

- Principles of Yoga
- Personal & Social rules of Yoga (Yam & Niyam)
- Yogic Diet :

#### UNIT - III

Astang Yog, Types of Astang Yog/ steps of Yoga, eigt paths of Yoga, Edternal and Internal system of Yoga and their effect.

i)Yamii) Niyamiii) Ashan iv) Pranayam v) Partihar

vi) Dhayan vii) Dharma viii) Samadhi.

#### UNIT - IV

Internal & External purification Yogic methods.

sat karmas/ Yogic Methods of personal Hygiene/ six methods of purification or cleaning process and their effect.

- i) YamNeti : Sutra neti, Jal Neti, Dugad Neti, Ghee neti, Rubber Neti
- ii) Dhoti: Jal Dhoti, Vastra Dhoti, Dand Dhoti, Kunnjal and gajkarni

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iii) Basti : Susak Basti, Jal Basti

iv) Nauli : Dakshin Nauli, Paschim Nauli, Madhya nauli

- v) Kapal Bhati
- vi) Taratak

# UNIT - V

Effect of Yogic exercise, asna's Kiryas and Pranayam on following desease Asthma, Joundice, Blood Presure, diabetes, low back pain, arthritis and stress.

- 1. Asana and Pranayam by Swami Kuvlayanand
- 2. Yoga for health Happiness and peace by Yoga Achrya Prakash Dev.
- 3. Yoga Method of Re-integration by Alain Dawal
- 4. Yoga personal hygiene by Shri Yogendra
- 5. Yoga for everymand by demands Dubee.
- 6. Message and Medical Gymnastics by Marg vilace.
- 7. Water cure by Kellage.
- 8. Message and remedials Gymnastics by trely.
- 9. Yog Shiksha/ Yog Education by Dr. S.K. Mangal, Dr. Uma Mangal and S.K. Mana.

#### PAPER - VII (Professional Preparation and Curriculum Design in Physical Education and Sports sciences)

#### Maximum Marks : 80+20 Time : 3 hrs.

**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

- Graduate level Professional Preparation, Purposesm admission area, curriculum, field experience, teaching practice, facilities and special resources for library, laboratory and Research.
- Post- graduate Professional Preparation, purposes, Admission, Professional avenues, Area of specialization and Resaerch regiorement.
- The specialization professional qualification of teaching staff at Post graduate level.

#### UNIT - II

- In service professional preparation programmes inPhysical Education
- Professional courses, advacement schemes of UGC and Professional programes, Definitions, Importance Process and its Applications.
- Role of Government and Institutes for Professional preparation of in service training programmes in Physical education & Sports Coaching.

#### UNIT - III

 In Service Education of professional personnels Nature & Scope of Responsibility for in service Training Programme.

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- Evaluation in Professional preparation programmes definition, importance, process and its applications.

#### UNIT - IV

- Meaning of curriculum Design and Basic principles of curriculum Design and Development
- Factors influences the Physical Education Curriculum Design.

#### UNIT - V

- Conceptual understanding of physical Education curriculum & Design.
- Historical review of professional preparation in India, Japan & China
- Concept of curriculum contents in Phsyical Education.
- Professional Preparataion curriculum programme.

- 1. Gupta Rakesh. Akhlish, santosh, professional Preparation and Curriculum Design in Physical Education
- 2. Bhatia, K.K. and Narang Principles of education (Methods and techniques) Ludhiyana Prakash Brothers Educational Publisher, 1991.
- 3. Bhatia, K.K. Kadian, K.S. Chandra PC and Sharma;'s Contemporary problem of Indian Education Jalandhar Prakash Brother Educational Publishers, 1990.
- 4. Graily, J. Byrant Career potentials in Physicals Activity new Jery, Prentice hall in Englewood cliffs USA 1990

M.P. Ed. Part - I (Semester II) PAPER - VIII (Biomechanics in Physical Education &

#### Sports)

#### Maximum Marks : 80+20 Time : 3 hrs.

**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

#### Introduction to Bio-Mechanics

- Meaning and concept of Biomechanics
- Importance of Biomecahnics in Phy.Education & Sports.
- Approaches for studying movement

#### UNIT - II

#### Mechanicals Concepts

- Motion and type of motion
- Distance and Displacement, Speeed Velocity and Uniform acceleration
- Force and Momentum, Pressure, Mass and weight, Gravity and Centre of Gravity, Work, Power, Energy.

#### UNIT - III

#### **Body Balance and Stability Control**

- Balance Equilibrium and stability
- Controlling balance in static positions.
- Controlling balance during movements.
- Structural of motor action and Bio- nmecahanical principle
  (a) Structure of cyclic and acyclic motor action and movement combination (b) Qualities of Motor Movements : Movement Rhythem, Movement Precision Movement Flow, Movement Amplitude (c) Principles of

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initial forces, Principle of optimum path of acceleration, Principles of conservation of momentum. Principle of action and reaction.

#### UNIT - IV

#### Newton's Law of Motion

- Law of inertia (Linear motion)
- Law of moment of inertia (Angular motion)
- Law of momentum (Linear motion)
- Law of Angular Momentum (Angular Motion)
- Law of Action and Reaction (Linear Motion)
- Law of Action and Reaction (Angular Motion)
- Fluid drag force
- Fluid Lift force
- Buoyancy and Floating
- Resistive forces in Swimming Skills
- Propulsive forces in swimming skills.

#### UNIT - V

#### **Forces and Movements**

- Forces action on a system
- Reaction forces
- Friction Forces
- Centripetal and Centrifugal forces
- Elastic force
- Internal & External forces
- Lever, types of lever and their mechanical advantages and disadvantage with special reference to Physical Education and sports.
- Projectile of Motion :Projecting for horizontal andvertical distane
- Projecting for Accuracy

SYLLABUS M.PEd. (Part-I)

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#### References

Gowitzke, B.A. and Milner M. 1998

Scientific basis of human movements (3rd Edition)

Hay. J (1978) The Biomechanics of sports techniques 2nd Edition Englewood Ciffs : Prentice Hall

Kreighbaum & Bartheles, Biomechanics, NY Macmillan 1985

Mood S.D. Beyond Biomechanics, Ny ; Taylor (1996)

Hall, S.J. Basic Biomecahnics, London. Mosy 1991

Hay, J & Reid (1982) the anatomial and mecahnical basis of human motion

SYLLABUS M.PEd. (Part-I)

M.P. Ed. Part - I (Semester II)

#### PAPER - IX (Anatomy & Physiology)

#### Maximum Marks : 80+20

#### Time : 3 hrs.

**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

#### **Skeletal System**

- Anatomy of bone and cartilage
- Kind and functions of bones
- Name and location of the bone of human body
- Types of joints
- Description of diarthodiat joints.
- Difference in male and female skeleton with speacial refernce to fucntional ability in sports.

#### UNIT - II

#### **Digestive System**

- Breif description and location and functions of the mouth, teeth tongue, salivary glands, stomach intestine.
- Structure & functions of elementary canal
- mecahnism of digetsion and absorption of food.
- Role of vitamins & oineral for sportsman.

#### UNIT - III

#### **Excretory System**

- Anatomy of Kidney
- Structure o organs of excretory system
- Functions of Kidneys, skin, lungs as organs of excretion
- Role of exercise on excretory system.

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20

#### **Nervous System**

- The neuron and the motor unit
- The motor and Sensory impulses
- Neuro-transmission and movement mechanism
- Locations, anatomy and functions of the brain.
- Spinal Cord and its functions
- Concepts of receptors
- Reflex action
- Role of exercise on nervous system

#### UNIT - V

#### **Endocrine glands**

- Meaning of endocrine glands
- The location and functions of the follwoing endocrine glands
- Pituitary glands, Thyroid and parathyroid glands,
- Adrenal glands
- Effect of exercise on endocrine glands

#### References

- 1. Pearee Evelyn, C. Anatomy and Physiology for Nurses London, Faber and Faber Ltd. 1962.
- 2. Pavat J. Anatomy for students and teachers of Physical Education, London Edward Arnold and Co.1959.
- 3. Senson Weight : Applied Physiology
- 4. Willion J.F. Anatomy and Physiology, London W.B. Sauders
- 5. Best and Taylor The living Body New Delhi, Asian Club House 1960
- 6. Smount, C.F.V and Medonald, R.J.S. : Physiotherapy, Occupational therapy
- 7. Kiober Grey Anatomy and Physiology
- 8. Stakpoles Anatomy and Physiology (6<sup>th</sup> Edition)

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#### M.P. Ed. Part - I (Semester II)

# PAPER - X (Sports Management)

#### Maximum Marks : 80+20

#### Time : 3 hrs.

**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

- Meaning and definition of sports management
- Nature and scope of sports management
- Aims and objectives of sports management
- Guiding principles of sports management
- Steps of Sports Management

# UNIT - II

- Role of Manger in Physical Education and Sports
- Explain the skills of management( Technical skill, human skills, conceptual skills, personal skill)
- Qualities and qualifications of manager in Physical Education & Sports.
- Layout of Play field and out door sports area, care and maintenance of play field.

#### UNIT - III

- Meaning and need for supervision
- Guiding principles of supervision
- Qualities of a good supervision
- Essential fetaures of Supervision
- Types of facilities aand their maintenance

# UNIT - IV

- Definition and meaning of planning

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- Need and importance of planning
- Principle of Planning
- Steps involved in Planning process
- Role of Planning for betterment in Physical Education & Sports

#### UNIT - IV

- Meaning, types and importance of records and registers.
- Manitenance of records and registers
- Role of Physical Education teacher manitenance records and register
- Need, Importance, types of Sports equipment
- Disposal of sports equipment

#### References

- 1. Kannup Clydo & E : Teaching Methods for Physical Education MC Graw Hill Book Co. Inc.
- 2. Tirunurayana, C &s Hariharan : Method n Physcal Education (South India Press Karalkudi India).
- 3. Kamlesh M.L. & Sangra, M. S. : Methods in Physical Education prakash Borthers, Jullundur, 1982.
- 4. Two experienced Professors : Organization and Administration and Recreation in Physical Education, Prakash Brothers, Jullundur, 1982.
- 5. Wakharkar D.C. Manual of Physical Education, Pearl Publications, Bombay 1967.
- 6. Dhakraborty S. Sports Management Delhi Sports Publications, 1998
- Kamlesh M.L. Management concept in Physical Education and Sports, New Delhi, Metropolation Book Co. Ltd. 2000.

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#### M.P. Ed. Part - I (Semester II)

#### PAPER - XI (Techniques of Officiating Coaching)

#### Maximum Marks : 80+20

#### Time : 3 hrs.

**Note :-**Paper Setter is required to set 10 questions from 5 Units atleast from each unit.Candidate is required to attempt five questions in all selecting one question from each unit. All questions carry equal marks.

#### UNIT - I

- Meaning & concept of coaching
- Basic Coaching Principles in games & Sports
- Qualities of good coach
- Responsibility of a Coach

#### UNIT - II

- Measurement, Marketing, Equaipments, basic fundamentals, Glossary, rules & regulations of following games.
- (i) Hockey (ii) Handball (iii) Volleyball (iv) Kho-Kho(v)
  Wrestling preparation of score sheet for Hockey, Handball, Volleyball, Kho-Kho and Wrestling
- Outstanding achievers, trophies and award related with Hockey, Handball, Volleyball, Kho-Kho and Wrestling.

#### UNIT - III

- Markleting, Measurement, techniques, Equipments, Glossary, Outstanding acheivers and rules & regulations of following athletic events :

(i) Combined Events (ii) Road Races

- General principles for marketing the route for Road races
- Preparation of Score- sheet for combined events & road races.

#### UNIT - IV

- Nutrition for Sports person