

**MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI**

1	Name of Course	Diploma Course in Physical Education								
2	Max no. of Students	25	Course Code - 404401							
3	Duration	2 year								
4	Course Type	Full Time								
5	No. of Days per week	6 days								
6	No. of hours per day	7 Hrs								
7	Space require	Theory Class Room – 200 sqft + Sport Ground								
8	Entry qualification	S.S.C. Pass								
9	Objective of syllabus	To create awareness of the necessity for vigour and efficiency through physical fitness. To develop knowledge and understanding of the requirements of healthy living, nutrition, exercise and relaxation. To develop spirit of courtesy, sportsmanship, social skills, democratic conduct and ideals. To develop appreciation of the aesthetics and cultural aspects of movement.								
10	Employment opportunities	Can work as Physical Education Teacher, Sports activity manager, sportsman, referee etc								
11	Teachers Qualification	For Vocational Subject - B. P.Ed. + 2 year experience or Equivalent and for Non Vocational Subject Master Degree in concern Subject.								
12] Teaching Scheme –										
Ppr		Subject Code	Clock Hours / Week		Total					
			Theory	Practical						
1	English (Communication Skill)	90000001	2 Hrs	1 Hrs	3 Hrs					
2	Elective – I		2 Hrs	1 Hrs	3 Hrs					
3	Elective – II		2 Hrs	1 Hrs	3 Hrs					
4	SOCIOLOGICAL ASPECT OF PHYSICAL EDUCATION	40440001	3 Hrs	8 Hrs	11 Hrs					
5	HEALTH and SAFETY EDUCATION	40440002	3 Hrs	8 Hrs	11 Hrs					
6	Organisation & Administration of Physical Education	40440003	3 Hrs	8 Hrs	11 Hrs					
Total					42 Hrs					
13	Internship	Two Month Summer Internship from 1st May to 30th June is Compulsory.								
14] Examination Scheme – Final Examination will be based on syllabus of both years.										
Sl. No.	Subject	Subject Code	Theory			Practical			Total	
			Duration	Max	Min	Duration	Max	Min	Max	Min
1	English ( Communication Skill)	90000001	3 Hrs	70	25	3 Hrs	30	15	100	40
2	Elective – I		3 Hrs	70	25	3 Hrs	30	15	100	40
3	Elective – II		3 Hrs	70	25	3 Hrs	30	15	100	40
4	SOCIOLOGICAL ASPECT OF PHYSICAL EDUCATION	40440001	3 Hrs	100	35	3 Hrs	100	50	200	85
5	HEALTH and SAFETY EDUCATION	40440002	3 Hrs	100	35	3 Hrs	100	50	200	85
6	Organisation & Administration of Physical Education	40440003	3 Hrs	100	35	3 Hrs	100	50	200	85
Total									900	375
15	Teachers – Three Teachers per batch for vocational component. For English, Elective-I & II guest faculty on clock hour basis.									
16 Student have to choose any one subject for Elective-I and Elective-II from below given subjects										
17	a) For Elective I – Student can choose any one subject					b) For Elective II – Student can choose any one subject				
	Code Subject Name					Code Subject Name				
	90000011 Applied Mathematics					90000021 Applied Sciences (Physics & Chemistry)				
	90000012 Business Economics					90000022 Computer Application				
	90000013 Physical Biology (Botany & Zoology)					90000023 Business Mathematics				
	90000014 Entrepreneurship									
90000015 Psychology										

## **Subject-1 – SOCIOLOGICAL ASPECT OF PHYSICAL EDUCATION (THEORETICAL)**

**(Subject code : 40440001)**

### **1st year**

#### **Sociological Aspect of Physical Education**

**1. Role of Physical Education :** Integration development of attitudes, helpfulness, tolerance, patience, team spirit and unity etc.

**2. Objective of Physical Education :** Physical development, mutual development, emotional development, social development, spiritual development.

**3. Effect of Physical Education:**

i) Mental effect -

ii) Physical effect.

**4. Sociological aspects of physical education**

i) Games and sports as man's heritage

ii) Development of the individual through games and sports

**5. History of Physical Education:**

iii) Ancient physical education

iv) Olympics a) Ancient

b) Modern

**6. Principles of Physical Education:**

Meaning of physical education

Definition of physical education : need of understanding the true meaning of physical education, relationship of physical education to education.

**II. I Foundation of Physical Education and Sports:**

i) Meaning, nature, need and scope of physical education and sports.

ii) Aims and objectives of physical education and sports.

a) Physical development

b) Mental development

c) Social development

d) Emotional development

e) Development of neu-muscular Co- ordination

f) Development of good citizenship

g) Worthy use of leisure.

### **2nd year**

## **OBJECTIVES OF PHYSICAL EDUCATION - (THEORETICAL)**

**1. a) Objectives of Physical Education**

(i) Self realization

(ii) Human relationship

(iii) Economic efficiency

(iv) Civic responsibility

**b) Intermediate or Specific Objectives of physical education:**

(i) Physical development

(ii) Mental development

(iii) Emotional development

(iv) Social development

(v) Spiritual development

**c) Intermediate objectives of physical education**

Enjoyment of participation. Pleasing and satisfying experiences.

**2. Foundation of Physical Education:**

- a) Biological
- b) Psychological
- c) Sociological

**3. Scope of physical education:**

- a) Types of human activities
- b) Classification of exercises

**4. Effects of Physical Education:**

- a) Mental effects
- b) Physical effects

**5. Obstacles facing physical education:**

- a) Public misunderstanding
- b) Lack of leadership

**6. History of Physical Education:**

- a) Physical education

Ancient and Modern physical education.

- b) Prevalent in India
- c) Original contributors – Aristotle, Plato, Faocbel, John and others
- d) Playground movement
- e) Y.M.C.A.
- f) Boy Scouts Association, etc.

**7. What is Psychology**

- a) Place of Psychology in education
- b) Heredity and environment
- c) Physical basis of mental life, reflex action, habit, permanence of habit, its characteristic uses and disuses.
- d) Play theory
- e) Attention and interest
- f) Stages of development
- g) Emotion, characteristics of emotion
- h) Laws of learning, improvement of learning fatigue in learning
- i) Memory, Laws of memory, remembering and forgetting.

**Suitable Study Practical, Study Report, Project, Seminar, type Practical based on above theory should be taken and Journal is prepared.**

## **Subject – 2 – HEALTH and SAFETY EDUCATION (THEORETICAL)** **(Subject code : 40440002)**

### **1st year**

#### **HEALTH EDUCATION : FIRST AID**

##### **Health :**

- 1) Meaning of health, brief description of physical, mental-emotional and social health, inter-relationships among these aspects of health.
- 2) Importance of health for an individual, family, community and nation.
- 3) Favourable and non-favourable factors and conditions as determination of the levels of health and disease on a continuance of health extending from zero health to optimal health. Characteristics of a healthy person.
- 4) Fitness and physical fitness : It's relationship to health sub-components and elements of physical fitness, exercise and health, indicators of physical fitness, improving physical fitness, recreation, relaxation, rest, sleep and posture, dental health, vision, elimination of body wastes, personal health practices.

##### **Health Education :**

- 1) Meaning of health education, its need, scope for school/college students, aim and objectives of health education.
- 2) Health education principle, methods and media of health education.
- 3) Characteristics of health education.
- 4) School/college health programme and opportunities for students participation.

##### **Hygiene:**

Need and importance of personal hygiene, environment, and food hygiene. Associated practices related to maintenance and promotion of health.

##### **Food and Nutrition**

Nutrition status of Indian people, misconception about food, functions of food in the body, body's requirements of various components of foods for athlete, basis for planning diet, food to nutrients.

##### **Mental Health:**

1. Meaning of mental health, foundation factors for mental health, mental health problems of school/college students, characteristics of a healthy personality, principle of mental health.
2. Adjustment process, development of interest, attitudes and habits, development and control of emotions, guidelines for controlling emotions.
3. **NATIONAL HEALTH PROGRAMME**
4. **WORLD HEALTH ORGANISATION** – Organisational structure, activities, co-operation with other International Agencies.

##### **FIRST AID :**

- 1) Definition of first aid.
- 2) Different kinds of bandages, sling.
- 3) Dislocations
- 4) Fractures
- 5) Wounds
- 6) Shocks
- 7) Burns
- 8) Poisons
- 9) Dog bite

10) Ordinary athletic injuries and their care

1. Application of bandages on different parts of the body. Various common dislocation, fractures and to stop bleeding (tourniquets).
2. Artificial respiration.
3. Carrying of patient.

#### **Functions of various organ systems**

- a) Nervous system
- b) The excretory system
- c) The circulatory system
- d) The important Endocrine glands
- e) Skeletal system
- f) Muscular system
- g) Respiratory system
- h) Digestive system
- i) Study of cells and tissues

## **2nd year**

### **HEALTH AND SAFETY EDUCATION (THEORETICAL)**

#### **HEALTH AND SAFETY EDUCATION**

- I. 1) Health programme at home, Laws of health.
- 2) Personal cleanliness: Care of teeth, care of eyes, throat, nose, skin, bad effect of spitting.
- 3) Nutrition – types of food and their values, vitamins, minerals, balance diet, cooking of food, diet and diseases, danger of alcohol and nicotine, value of water, a diet chart.
- 4) Clothing – proper clothing for exercise and other occupation
- 5) Value of sunshine and fresh air.
- 6) Effect of heredity and environment of health.
- 7) Sexual hygiene, family planning, common venereal diseases.
- 8) Fatigue, rest and sleep, inter relation of physical and mental health.
- 9) Preventive measures, Immunity, Sources of infection.
- II. 1) Health programme in school.
- 2) Ventilation, composition of air, modern principals of air conditioning.
- 3) Common ailments of school children, how to detect and how to protect them.
- 4) Health service, routine health parade.
- 5) Methods of proper water supply, proper urinal and lavatory.
- 6) Inspection of fingers, nails, eyes, ears, teeth, clothing and bodily cleanliness of student.
- 7) Maintaining hygienic condition of classroom, latrine, drains, gymnasium and playground.
- 8) Vaccination and inoculation arrangement for the student.

#### **SAFETY EDUCATION**

1. Importance of safety education for preventing accidents its general principles. The need for safety education for teacher in physical education.
2. a) Safety in physical education and sports, principles of safety with respect to building and play fields.
- b) Policies and practices to prevent accident and rendering first aid and treatment.
- c) Principle of safety with respective equipments, dresses etc. Principles of safety with respect to organization of classes, demonstrations and matches.
- d) Accident reporting and maintenance of records.
3. Safety in roads, picnic and tours.
4. Safety in water, fire, floods, hurricane, thunders and lightning and air raids.
5. Measures of life saving emergencies like drowning Asphyxia, head injury etc.

## **Subject – 2 Practical – 1st and 2nd year**

### **PHYSICAL EFFICIENCY TEST**

The skill, technique and performance of the candidates will be assessed by the Teacher(s) responsible for preparing them for the examination.

#### **PRACTICAL**

### **PHYSICAL EFFICIENCY TEST**

- a) 50 metre run, standing start
- b) Standing long jump
- c) Distance run – 1000 metres for boys. 600 metres run for girls.
- d) Floor push-ups for boys.
- e) Push-ups for girls.
- f) Shuttle run
- g) 60 second sit-up

#### **ATHLETICS**

**Track events** – Sprints, middle and long distance races

Boys – 100 m, 200 m, 400 m, 800 m, 1500 m 3000 m.

Girls – 100 m, 200 m, 400 m, 800 m, (Technique and skill)

**Hurdles** (Track events)

Boys – 110 m and 400 m.

Girls – 100 m

**Field events** – Jumps and Throws

Boys: Broad jump, high jump, triple jump, pole vault, shot put, discus throw, javelin throw, hammer throw.

Girls: Broad jump, high jump, shot put, discus throw (skill and technique from take-off to landing).

#### **MAJOR GAMES**

- 1) Cricket
- 2) Hockey
- 3) Football
- 4) Volley ball
- 5) Basket ball

Soft ball/tennis/badminton - Candidates will be required to demonstrate competency in the rules, skill and fitness training related to the game.

#### **SWIMMING**

Boys - Free style – 100 m, 200 m, 400 m, 800 m,

Breast stroke – 100 m and 200 m.

Diving - Forward dive, backward dive, reverse dive and inward dive.

Girls - Free style – 100 m, 200 m,

Breast stroke – 50 m, 100 m

Back stroke – 50 m, 100 m

Butterfly stroke – 50 m and 100 m

Diving - Forward dive, backward dive, reverse dive and inward dive.

#### **DANCING**

**Indian dancing** - Bharatnatyam, Kuchipudi, Kathakali, Kathak, Manipur, Odissi, Mohiniattam, Bhangra and other folk dances.

**Western dancing** - Ballet, Ballroom, Waltz, Fox Trot, Tango, Samba, Charleston, Square dancing, popdancing, jitterbug, Twist, Rock-and-Roll.

**GYMNASTICS** : Floor exercise

**Boys** Handspring to front somersault (tucked). Two headspring cartwheel to arabesque, arab spring, side

somersault, back roll to handstand cabriole jump throw, flic-flacs. **Girls** Leap and cabriole, step into ball of either foot, flic-flacs, round off, cat leap, legs split in air, cartwheel, handstand.

**Balancing beam**

**(Girls only)** Run 2-3 steps, leap to riding seat with ½ turn, rise to squat stand, ballet stand with ½ turn

leap on either foot, step forward leap, changing legs to rear leap, lunge to side, stag leap, one arm cartwheel.

**Boys only** Parallel bar Vaulting horse Horizontal bar

**YOGA**

- 1) Vrishasana
- 2) Garuda asana
- 3) Utitha Trikonasana
- 4) Utitha Pravakonasana
- 5) Virabhadrasana I
- 6) Virabhadrasana II
- 7) Padakastasan
- 8) Adho Mukha Shvana asana
- 9) Parvata asana
- 10) Supta Vijrasana
- 11) Ushtrasana
- 12) Dhanur asana
- 13) Andhra Chandra asana
- 14) Matsya asana
- 15) Upa Vista Kona asana
- 16) Jaru Shipsha asana
- 17) Paschimottom asana
- 18) Andhra Matsya asana
- 19) Paripoorna Nav asana
- 20) Mola asana

## **Subject – 3 – Organisation & Administration of Physical Education (THEORETICAL) (Subject code : 40440003)**

### **1st year**

#### **Organisation and Administration of Physical Education**

- a) Definition of organization and administration, purpose of organization and administration, branches of physical education to be organized. Physical education different agencies.
- b) Physical education in schools and colleges-leadership, facilities, physical education and parks and playgrounds – programmes, organization of competitions, major games, athletics, aquatics, boxing wrestling, gymnastics, test and measurement, organization of health education, organization of service programme, youth camp, planning of physical education, recreation and youth service. Layout of track and other games.
- c) Physical education and sports, sports talent search, scholarship, coaching scheme, Rural sports, Woman sports, National physical fitness programme, Scouting and Guiding.
- d) Organisation of Olympics, Asian games and Commonwealth Games and the countries usually. Participating in them should be taught.
- e) Various terms and terminologies connected with each game should be clearly defined.

#### **METHOD IN PHYSICAL EDUCATION**

Meaning of the term “Method” and factors to be considered determining the method of teaching, learning process and condition of learning.

##### **a) Age and Sex characteristics**

- i) Pre-school, Primary school, Middle school, Higher Secondary school.
- ii) Sex differences of boys and girls.
- iii) Activity planning according to age and sex characteristics.
- iv) Physiological, psychological and sociological needs.

##### **b) Method of teaching : (With special reference to:-)**

- i) Calisthenics/squad drill (different kinds of physical activities)
- ii) Gymnastics
- iii) Major games
- iv) Minor games
- v) Rhythmic activities
- vi) Athletics

##### **c) Principles of teaching**

- i) Simple to complex
- ii) Whole to complex
- iii) Learning by doing
- iv) Intrinsic and extrinsic motivation
- v) Material taught and capacity of the learner
- vi) Frequency and duration of instruction periods
- vii) Factors in teaching.

##### **d) Command and class management**

- i) Types of command – Situation when used different command.
- ii) Types of formation.
- iii) Class management – Principle of good class management.



## **2nd year**

# **Organisation & Administration of Physical Education**

### **METHODS OF PHYSICAL EDUCATION AND RECREATION**

1. Main topic a) Introduction

b) Teachers

c) Pupil

d) Subject

e) Physical education of the handicapped

f) Safety education

2. Introduction

a) What is teaching

b) Factors in teaching

c) Teaching methods in physical education

d) Fundamentals of teaching Teacher

a) The idea of teacher.

b) Functions of the teacher together with the function of the School and of education.

c) Attributes of a good teacher – Preparation, voice and mental social qualities, position of the teacher.

d) Self-examination of the teacher.

e) Number of students in one single class. Pupil

a) General qualities of the pupil.

b) Relation between the teacher and pupil.

c) The nature of pupils.

d) How does the pupil learn ? Laws of learning.

e) Evaluation. Subject

a) Aim of lesson

b) Lesson plan

c) Class arrangements- formal and informal.

d) Progression

e) Signs of success

f) Modification of the lesson – according to age, according to the object of the teacher, according to the effects of environments.

g) Brief points in teaching.

### **METHODS OF TEACHING**

a) Calisthenics

b) Squad drill

c) Major and Minor games

d) Rhythmic activities

e) Athletics

f) Command and class management.

# **Subject – 3 (PRACTICAL) 1st and 2nd year**

## **Organisation & Administration of Physical Education**

### **METHOD OF COACHING AND OFFICIATING**

#### **1. Individual sports :**

- a) Swimming
- b) Gymnastics
- c) Athletics

#### **2. Team sports:**

- a) Football
- b) Cricket
- c) Hockey
- d) Basket ball
- e) Volley ball
- f) Kabaddi
- g) Kho-kho

#### **3. Recreational sports :**

- a) Soft ball
- b) Tennis
- c) Badminton
- d) Net ball
- e) Throw ball
- f) Minor games

#### **4. Rhythmics:**

- a) Folk dances of India
- b) Creation songs
- c) Basic step of rhythms
- d) International folk dance.

#### **5. Combatives:**

- a) Judo
- b) Wrestling
- c) Boxing

#### **6. International Sports :**

- a) Gymnastics
- b) Aquatics
- c) Athletics
- d) Recreational sports and camping

#### **7. Camping :**

- a) Outgoing, picnic, day camp
- b) Excursion, overnight trips, camps
- c) Hiking
- d) Trekking and Mountaineering
- e) Week-end camp

#### **8. National Integration:**

- a) Ideals and citizenship
- b) The national flag
- c) National and community songs
- d) Celebration of national festivals and school festivals.

### **YOGA**

- 1. Vrishasana 2. Utitha Trikonasana
- 3. Parivrtta Trikanasana 4. Utitha Pravakonasana
- 5. Puriivrita Parvakonasana 6. Virabhadrasana
- 7. Uthitha Hasta Padangusthanana 8. Parasuottansasan

9. Ushtrarsan 10. Gurudasan
11. Padakastasan 12. Navasrna
13. Vajrasana 14. Supta Vajrasana
15. Kukutasana 16. Jannsirasaana
17. Ardha Buddha Padma paschimattanasana 18. Triang Mahaikapada Paschimatanasana
19. Moridriasana 20. Akanrava Dhannrasana

## **BOOKS FOR REFERENCE**

### **PHYSICAL EDUCATION AND SPORTS**

1. BUCHER, CHARLES A. FOUNDATION OF PHYSICAL EDUCATION ST. LOUIS: THE C.V. MOSBY CO. 1983
2. NIXON EUOGENCE E. AND COZENS W. AN INTRODUCTION OF PHYSICAL EDUCATION. LONDON W.B. SAUNDERS CO, 1974
3. OBERTUFFERS, DELBERT. PHYSICAL EDUCATION NEW YORK; HARPER AND BROTHERS PUBLISHERS 1970
4. SHARMAN, JACKSON R. INTRODUCTION TO PHYSICAL EDUCATION, NEW YORK: A.S.BARNES AND CO. 1964
5. WILLIAMS, JESSE FEIRING: THE PRINCIPLES OF PHYSICAL EDUCATION, LONDON.

### **FIRST AID**

1. FIRST AID TO THE INJURED – NEW DELHI ST. JOHN’S AMBULANCE ASSOCIATION.
2. ROYADDA – DR. DAISY JOSEPH & L.K. GOBINDARAJUL – SAFETY EDUCATION.

### **BOOKS RECOMMENDED FOR STUDY OF PHYSIOLOGY AND PHYSIOLOGY OF EXERCISE :-**

1. GUYTON A.C. TEXT BOOK OF MEDICAL PHYSIOLOGY W.B. SAUDERS CO. PHILEDELPHIA, 1981
2. DEVRIES H.A. PHYSIOLOGY OF EXERCISE FOR PHYSICAL EDUCTION AND ATHLETICS LONDON : STAPLE PRESS, 1976
3. KARPOVICH P.V. AND SINNING W.E. PHYSIOLOGY OF MUSCULAR ACTIVITY.
4. BOWRNE C.H. THE STRUCTURE AND FUNCTION OF MUSCLE. LONDON ACADEMIC PRESS, 1972.
5. MOREHOUSE L.E. AND MILLER, A.T. PHYSIOLOGY OF EXERCISE ST. LOUISE. THE C.V. MOSBY CO.

### **SELECTED REFERENCES :**

1. DOHERTY J. MENNETH – MODERN TRACK AND FIELD ENGLEWOOD CLIFFS NJ PRENTICE HALL INC.
2. DOMOSEY JC – BETTER BADMINTON FOR ALL.
3. WADE ALLEN – THE FA GUIDE TO TRAINING AND COAHING.
4. AMBRUSTER – ALLEN AND BILLING – SWIMMING AND DIVING.
5. RAIJKI BELA – WATER POLO
6. KUNZLE G.C. AND TMOMAS B.W.–OLYMPIC GYMNASTICS. VOL.NO:I & II.
7. MCC – THE MCC CRICKET COACHING BOOK
8. BUNN J.W. – BASKETBALL TECHNIQUES AND TEAM PLAY.
9. KEITH ART – COMPLETE GUIDE TO CHAMPIONSHIP WRESTLING.
10. BARRY C. PELTON - TENNIS
11. DR. FEEUNC MEZO – THE MODERN OLYMPIC GAME, BHUDAPEST PENNONIA PRESS.
12. SEETON DC DHYTON, IA LEIBU H.C. AND MESSURMITH I – BASIC OF SPORTS, EAGLEWOOD CLIFFS, NJ PRENTIC HALL
13. BUCHER, CHARLES A. – FOUNDATION OF PHYSICAL EDUCATION. ST. LOUIS : THE LV. MOSBY CO. 1983

14. OBERTIFFERS. DELBERT. PHYSICAL EDUCATION, NEW YORK : HARPER AND BROS.PUBLISHERS, 1970.
15. SHARMAN, JACKSON R. – INTRODUCTION TO PHYSICAL EDUCATION NEW YORK, A.S. BARNES & CO. 1964.
16. WILLIAMS, JESSE FIERING, THE PRINCIPLES OF PHYISCAL EDUCATION. LONDON WB SAUNDERS CO. 1964.
17. WAKHARKAR D.G. MANUAL OF PHYSICAL EDUCTION IN INDIA. PEARL PUBLISHERS PVT.LTD. BOMBAY 1967.
18. GYTON A.C. – FUNCTIONS OF THE HUMAN BODY, LONDON : WB SAUNDERS COMPANY,1969.
19. SRIVASTAVA ET AL. TEXT BOOK OF PRACTICAL PHYSIOLOGY, CALCUTTA SCIENTIFIC BOOK AGENCY, 1976.
20. MOREHOUSE AND MILLER, PHYSIOLOGY OF EXERCISE, ST. LOUSIE, CV MOSBY CO. LATEST (ED) \$ 7.75
21. KARPOVICH AND SINNING. PHYSIOLOGY OF MUSCULAR ACTIVITY, LONDON: WB SAUNDERS COMPANY, 1965.
22. DAVIS, DV GRAY’S ANATOMY, LONDON, LONGSMAN GREEN & CO. LTD. 1967
23. PEARCE, EVELYN B, ANATOMY AND PHYSIOLOGY FOR NURSES, LONDON: FABER LTD. 1981
24. PEARCE JN, ANATOMY FOR STUDENTS AND TEACHERS OF PHYSICAL EDUCATION, LONDON, EDWARD ARNOLD & CO. 1959.

#### **BOOKS RECOMMENDED**

1. ALDORMER A.B. PSYCHOLOGICAL BEHAVIOUR IN SPORTS. W.B. SAUNDER (1974)
2. CRATTY B.J. PSYCHOLOGY AND PHYSICAL ACTIVITY, PARENTICE HALL INC. LONDON (1961)
3. CRATTY B.J. PSYCHOLOGY IN CONTEMPORARY SPORTS,(1973) PARENTICE HALL INC. EAGLEWOOD CLIFF.
4. CRATTY B.J. SOCIAL DIMENSION OF PHYSICAL ACTIVITY, PARENTICE HALL INC. NJ (1981)
5. CRATTY B.J. SOCIAL PHYSIOLOGY IN ATHLETIC. PARENTICE HALL INC. NJ (1981)

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