

[KY 751]

MAY 2011

Sub. Code: 8151

MASTER OF PHYSIOTHERAPY (MPT) DEGREE EXAMINATION

FIRST YEAR

(Common to all Branches)

New Regulations : For candidates admitted from 2010-2011 onwards

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 278151

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

Draw suitable diagrams where ever necessary

I. Elaborate on:

(2 x 20 = 40)

1. Explain the scales of measurements with physiotherapeutic examples for each scale.
2. Pathomechanics of skeletal muscles.

II. Write notes on:

(10 x 6 = 60)

1. Role of arm in maintaining body Equilibrium.
2. Exercise at different altitudes.
3. Doping.
4. Ergonomics.
5. Validity.
6. Experimental Research design.
7. Principles of training.
8. Pathomechanics of Antalgic gait.
9. Isometric Training.
10. Closed kinetic chain.

MASTER OF PHYSIOTHERAPY (MPT) DEGREE EXAMINATION**FIRST YEAR****(Common to all Branches)****PAPER I – APPLIED BASIC SCIENCES****Q.P. Code: 278151****Time: Three Hours****Maximum: 100 marks****Answer ALL questions in the same order.****I. Elaborate on :****Pages Time Marks
(Max.) (Max.) (Max.)**

- | | | | |
|---|----|---------|----|
| 1. Pathomechanics of mal posture. | 17 | 40 min. | 20 |
| 2. Explain in detail about the functional adaptation of bone under pathological conditions. | 17 | 40 min. | 20 |

II. Write notes on :

- | | | | |
|---|---|---------|---|
| 1. Measures of dispersion. | 4 | 10 min. | 6 |
| 2. Factors affecting training. | 4 | 10 min. | 6 |
| 3. Test of significance. | 4 | 10 min. | 6 |
| 4. Fibonacci sequence. | 4 | 10 min. | 6 |
| 5. Static deformities in knee joint. | 4 | 10 min. | 6 |
| 6. Paralysis of scapulohumeral muscles. | 4 | 10 min. | 6 |
| 7. Stability of wrist joint. | 4 | 10 min. | 6 |
| 8. Hypothesis. | 4 | 10 min. | 6 |
| 9. Uses of vital statistics. | 4 | 10 min. | 6 |
| 10. Thermoregulation in heat stress. | 4 | 10 min. | 6 |

MASTER OF PHYSIOTHERAPY (MPT) DEGREE EXAMINATION**FIRST YEAR****(Common to all Branches)****PAPER I – APPLIED BASIC SCIENCES****Q.P. Code: 278151****Time: Three Hours****Maximum: 100 marks****Answer ALL questions in the same order.****I. Elaborate on :****Pages Time Marks
(Max.) (Max.) (Max.)**

- | | | | |
|--|----|---------|----|
| 1. Describe in detail about biomechanics and pathomechanics of thorax and abdominals in respiration. | 17 | 40 min. | 20 |
| 2. Discuss about exercise at different altitudes and various climatic conditions. | 17 | 40 min. | 20 |

II. Write notes on:

- | | | | |
|---|---|---------|---|
| 1. Group designs. | 4 | 10 min. | 6 |
| 2. Exit assessment. | 4 | 10 min. | 6 |
| 3. Outcome research. | 4 | 10 min. | 6 |
| 4. Statistical reasoning. | 4 | 10 min. | 6 |
| 5. Weighted capabilities. | 4 | 10 min. | 6 |
| 6. Energy spectrum of exercise. | 4 | 10 min. | 6 |
| 7. Pathomechanics of paraplegia. | 4 | 10 min. | 6 |
| 8. Publishing physiotherapy research. | 4 | 10 min. | 6 |
| 9. Biomechanical examination of foot. | 4 | 10 min. | 6 |
| 10. Back care for physiotherapist in clinics. | 4 | 10 min. | 6 |

[LB 751]

OCTOBER 2012
MPT DEGREE EXAMS
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES
Q.P. Code : 278151

Sub. Code: 8151

Time : 3 hours
(180 Min)

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

	Pages (Max.)	Time (Max.)	Marks (Max.)
1. Describe about injury prevention and ergonomics.	17	40	20
2. Discuss about heavy exertion and energy demands of various occupations.	17	40	20

II. Write notes on :

1. Matrix.	4	10	6
2. Adult education.	4	10	6
3. Funding in research.	4	10	6
4. Ground reaction forces.	4	10	6
5. Implementing the projects.	4	10	6
6. Static loading of the upper limb.	4	10	6
7. Principles of experimental design.	4	10	6
8. Biomechanics of peripheral nerves.	4	10	6
9. Measurement tools for physiotherapy research.	4	10	6
10. Energy delivery and utilization in endocrine system.	4	10	6

[LC 751]

APRIL 2013

Sub. Code: 8151

MASTER OF PHYSIOTHERAPY (MPT) DEGREE EXAMINATION

FIRST YEAR

(Common to all Branches)

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 278151

Time: Three Hours

Maximum: 100 marks

Answer All questions

I. Elaborate on:

(2 x 20 = 40)

1. Explain about the arches of the plantar vault and its pathomechanics.
2. Explain about the sources of review of literature and its uses in a research.

II. Write notes on:

(10 x 6 = 60)

1. Acclimatization.
2. Job analysis.
3. Nutation and counter nutation.
4. Effects of regular exercise on c.v.s.
5. Industrial therapy team.
6. Scales used to classify data.
7. Neuro muscular fatigue.
8. Inversion of muscular action at hip.
9. Energy expenditure during walking and running.
10. Ergonomical modifications for a software Professional.

[LD 751]

OCTOBER 2013

Sub. Code: 8151

MASTER OF PHYSIOTHERAPY (MPT) DEGREE EXAMINATION

FIRST YEAR

(Common to all Branches)

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 278151

Time: Three Hours

Maximum: 100 marks

Answer All questions

I. Elaborate on:

(2 x 20 = 40)

1. Biomechanically analyze forces acting at the hip joint and its pathomechanical variations in coxa vara.
2. Discuss in detail back injury prevention strategies.

II. Write notes on:

(10 x 6 = 60)

1. Type I & II Error.
2. Swan Neck Deformity.
3. Abstract.
4. DOMS.
5. Body Surface Area (BSA).
6. Work Conditioning.
7. Review of Literature.
8. General training principles.
9. Precompetition Meal.
10. Plyometrics.

[LE 751]

APRIL 2014

Sub. Code: 8151

MASTER OF PHYSIOTHERAPY (MPT) DEGREE EXAMINATION

FIRST YEAR

(Common to all Branches)

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 278151

Time: Three Hours

Maximum: 75 marks

Answer All questions

I. Elaborate on:

(2 x 20 = 40)

1. Enumerate the steps in research report writing.
2. Explain the biomechanical properties of bone and its behaviour under various types of load.

II. Write notes on:

(7 x 5 = 35)

1. Strategies to prevent back injury.
2. DOMS.
3. Measures of Central Tendency.
4. Hallux Valgus.
5. Set Point theory.
6. Glycemic Index.
7. Job Simulation.
8. Pre-Competition Meal.
9. Work Conditioning.
10. SAID Principle.

[LF 751]

OCTOBER 2014

Sub. Code: 8151

MASTER OF PHYSIOTHERAPY (MPT) DEGREE EXAMINATION

FIRST YEAR

(Common to all Branches)

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 278151

Time: Three Hours

Maximum: 75 marks

Answer All questions

I. Elaborate on:

(2 x 20 = 40)

1. Discuss the Dynamics of Shoulder Complex and Pathomechanics of Paralytic Shoulder.
2. Discuss in detail about Back Care Programme for Industrial Workers.

II. Write notes on:

(7 x 5 = 35)

1. Types of Research.
2. Importance of Reliability and Validity in Research Process.
3. Methods of Sampling.
4. Hypothesis Testing.
5. Energy Expenditure during Skeletal Muscle Work.
6. Vitamins and Exercise Performance.
7. Assessment of Fatigue.
8. Explain Cardiovascular Conditioning effect following exercise Training.
9. Kinetics of Patello Femoral joint during Squat Exercise.
10. Work Hardening.

MASTER OF PHYSIOTHERAPY (MPT) DEGREE EXAMINATION

FIRST YEAR

(Common to all Branches)

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code: 278151

Time: Three Hours

Maximum: 75 marks

Answer All questions

I. Elaborate on:

(2 x 20 = 40)

1. Biomechanics and Pathomechanics of vertebral column.
2. Explain about the Research Designs, Experimental Designs and Non-Experimental Designs.

II. Write notes on:

(7 x 5 = 35)

1. Theory in Physiotherapy Research.
2. Measurement tools in Physiotherapy Research.
3. Pathomechanics of Ankle joint.
4. Biomechanics of Elbow joint.
5. Pathomechanics of Chest wall.
6. Integrated Functions in Gait.
7. Job analysis.
8. Work Hardening Programme.
9. Inversion of Muscle Action.
10. Functional adaptation of bone under pathological conditions.

[LH 751]

OCTOBER 2015

Sub. Code: 8151

MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES

Q.P. Code : 278151

Time : Three hours

Maximum : 100 marks

I. Elaborate on:

(2 x 20 = 40)

1. Discuss the Basic Principles and Methods of Research Designs.
2. Explain about the:
 - (a) Aerobic Power Training
 - (b) Anaerobic Power Training
 - (c) Special Aids
 - (d) Sport Diving
 - (e) Obesity and Weight Control
 - (f) Clinical Exercise Physiology

II. Write notes on:

(10 x 6 = 60)

1. Energy delivery of Endocrine system.
2. Nutrition and Performance.
3. Industrial therapy.
4. Injury prevention and Ergonomics.
5. Biomechanical Examination of Foot.
6. Knee Joint Stability.
7. Group Design.
8. Qualitative Research.
9. Plyometrics.
10. Prehension.

[LI 751]

APRIL 2016

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Discuss the Various Methods of Collecting Data.
2. Ergonomic Guidelines required to plan a Work Station for a Computer Professional.

II. Write notes on:

(10 x 6 = 60)

1. Review of Literature.
2. Endurance Training.
3. Fat Metabolism and Energy Production.
4. Mechanical Properties of Articular Cartilage and its response to injury.
5. Exercise Capacity at altitude.
6. Discuss the Kinematics and Kinetics during Over Head Activity.
7. Factors Influencing Normal Posture.
8. Effects of Weakness and Tightness of Vastus Medialis.
9. Biomechanics of Normal Respiratory Movement.
10. Job simulation.

[LJ 751]

OCTOBER 2016

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Biomechanical analysis of Posture.
2. Explain in detail about the process of Research.

II. Write notes on:

(10 x 6 = 60)

1. Factors involved in balance.
2. Educational program for prevention of injury.
3. Measurement of human energy expenditure.
4. Aerobic power training.
5. Testing of hypothesis.
6. Basic concepts in biomechanics.
7. Statistical analysis of relationship.
8. Biomechanical examination of ankle and foot.
9. Theories of pain.
10. Principles of training.

[LK 751]

MAY 2017

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain in detail about the functional adaptation of bone under pathological conditions.
2. Explain the role of physiotherapist in industrial set up.

II. Write notes on:

(10 x 6 = 60)

1. Pathomechanics of vertebral column.
2. Balance and equilibrium.
3. Qualitative research.
4. Publishing and presenting the research.
5. Mechanics of joint and muscle action.
6. Nutrition and performance.
7. Exercise at different altitudes.
8. Obesity and weight control.
9. Job task analysis.
10. Anaerobic training.

[LL 751]

OCTOBER 2017

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Analyze the forces acting on shoulder joint and its pathomechanical variation in Winged Scapula.
2. Discuss about exercise at different altitudes and various climatic conditions.

II. Write notes on:

(10 x 6 = 60)

1. Role of arm in maintaining body equilibrium.
2. Factors affecting training.
3. Role of physiotherapy in industrial set up.
4. Uses of vital statistics.
5. Nutation and counter nutation.
6. Neuro muscular fatigue.
7. Ergonomical modifications for a software professional.
8. Type I and II Error.
9. Functional adaptation of bone.
10. Plyometrics.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LM 751]

MAY 2018

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Discuss the Arthrokinematics of the knee joint and explain briefly about the Patello femoral joint reaction forces.
2. Discuss about the research problems, questions and Hypothesis.

II. Write notes on: **(10 x 6 = 60)**

1. Functions of menisci.
2. Types of sampling techniques.
3. Eccentric muscle training.
4. Delayed Onset of Muscle Soreness (DOMS).
5. Work capacity analysis.
6. Text neck.
7. Non experimental research.
8. Special aids in sports performance.
9. Hemodynamic Response to Maximal Exercise.
10. Snapping hip syndrome.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LN 751]

OCTOBER 2018

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Explain the basic structural and mechanical properties of Ligaments and how will it adapt to the injuries?
2. Discuss detail about the components of Pre-employment screening.

II. Write notes on: **(10 x 6 = 60)**

1. Various methods to estimate the body composition.
2. Types of research validity.
3. Anaerobic power training.
4. Lactate threshold.
5. Role of physiotherapy in industrial setup.
6. Worker care spectrum.
7. Survey research.
8. Factors of body balance and equilibrium.
9. Various types of joint lubrication.
10. The effects of exercise on the Lungs.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LO 751]

MAY 2019

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Discuss the components of the static and dynamic stabilisers of the shoulder joint and add a note on Bankart's lesion.
2. Explain the various system of energy transfer during exercise.

II. Write notes on: **(10 x 6 = 60)**

1. Types of Patellar Morphology.
2. Methods of qualitative research.
3. Closed pack position and loose pack position of joint.
4. Acclimatization.
5. Causes of work related musculoskeletal disorders.
6. Common Pathological gait in neurological disorders.
7. Research ethics.
8. How to control ergonomic risk factors?
9. Carbohydrate loading diet.
10. Types of muscle fibre.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LP 751]

OCTOBER 2019

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Discuss about static, dynamic stabilization of Glenohumeral joint and altered rhythm of shoulder complex with paralyzed deltoid.
2. Definition, characteristics, purposes, concepts and ethics of research in Physiotherapy.

II. Write notes on: **(10 x 6 = 60)**

1. Cardio vascular drift.
2. Athlete's Heart.
3. Anaerobic fatigue.
4. Blood Doping.
5. Tibial Torsion.
6. Beam and Column theory.
7. Pilot study.
8. Hip dysplasia.
9. Windloss effect.
10. Occupational HEAT stress.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LQ 751]

**NOVEMBER 2020
(MAY 2020 SESSION)**

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES**

Q.P. Code : 278151

Time : Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Discuss the factors affecting the stability and mobility of Ankle and foot and its pathomechanics of muscle paralysis.
2. Discuss about exercise at different altitudes and various climatic conditions.

II. Write notes on: **(10 x 6 = 60)**

1. Back care for physiotherapist in clinics.
2. Closed kinematic chain exercises.
3. Role of arm in maintaining body Equilibrium.
4. Test of Significance.
5. Swanneck Deformity.
6. Neuromuscular fatigue.
7. Plyometrics.
8. Biomechanics of elbow joint.
9. Job analysis.
10. Co-publishing physiotherapy research.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MPT 0321]

**MARCH 2021
(OCTOBER 2020 SESSION)**

Sub. Code: 8151

**MPT DEGREE EXAMINATION
(Common to all Branches)
FIRST YEAR
PAPER I – APPLIED BASIC SCIENCES
Q.P. Code : 278151**

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain in detail about movement of the upper extremity in closed and open kinematic chain.
2. Define Sampling. Write in details about the principles, methods, design and process of Sampling.

II. Write notes on:

(10 x 6 = 60)

1. Pilot study.
2. Fatigue and recovery.
3. Precompetition meal.
4. Postural examination.
5. Industrial Injury prevention and ergonomics.
6. AV aids.
7. Sport diving.
8. Isometric training.
9. Pathomechanics of antalgic gait.
10. Hypothesis.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MPT 0921]

**SEPTEMBER 2021
(MAY 2021 EXAM SESSION)**

Sub. Code: 8151

MPT DEGREE EXAMINATION

FIRST YEAR - (Regulations for the candidates admitted on or before the A.Y.2017-2018)

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code : 278151

Time : Three hours

Answer ALL Questions

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain in detail about biomechanics of integrated function of Gait.
2. Define Research Design. Write in detail about experimental design and Non experimental design.

II. Write notes on:

(10 x 6 = 60)

1. Job task analysis.
2. Obesity and weight control.
3. Health statistics.
4. Arches of plantar vault and its pathomechanics.
5. Muscle imbalance due to quadriceps paralysis.
6. Oxygen debt.
7. Scapula humeral rhythm.
8. Acclimatization.
9. Central tendency.
10. Bilateral stance.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MPT 0222]

**FEBRUARY 2022
(OCTOBER 2021 EXAM SESSION)**

Sub. Code: 8151

MPT DEGREE EXAMINATION

FIRST YEAR - (Regulations for the candidates admitted on or before the A.Y.2017-2018)

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code : 278151

Time : Three hours

Answer ALL Questions

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Describe in detail about the factors affecting the stability of knee joint.
2. Explain about the sources of review of literature and its uses in a research.

II. Write notes on:

(10 x 6 = 60)

1. Job analysis.
2. Effects of regular exercise on cardio vascular system.
3. Scales used to classify data.
4. Swan neck deformity.
5. Plyometrics.
6. Glycemic index.
7. Types of muscle contraction.
8. Ergonomical modification for Computer Operator.
9. Biomechanical properties of bone.
10. Off-season exercises for athletes.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MPT 0622]

**JUNE 2022
(MAY 2022 EXAM SESSION)**

Sub. Code: 8151

MPT DEGREE EXAMINATION

FIRST YEAR - (Regulations for the candidates admitted on or before the A.Y.2017-2018)

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code : 278151

Time : Three hours

Answer ALL Questions

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Describe Pathomechanics of Pelvic Girdle and Hip deformities.
2. Detail about Experimental and Non-Experimental study Design.

II. Write notes on:

(10 x 6 = 60)

1. Influence of Posture on Shoulder Dysfunction.
2. Exit Assessment.
3. Articular Cartilage Changes with Ageing.
4. Inverse Muscle Action.
5. Injury Prevention.
6. Pathomechanics of Osteoarthritis Knee.
7. Basic Physical Properties of Bone.
8. Project Implementation.
9. Anthropometry Assessment.
10. Worker care spectrum.
