

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

[LP 6277]

AUGUST 2019

Sub. Code: 6277

BPT DEGREE EXAMINATION
(Regulations for the candidates admitted from 2017-2018 onwards)
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746277

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Explain the details of joint classification with examples and add note on Joint receptors.
2. Describe the Kinetics and Kinematics of Knee joint. Add a note on applied anatomy of Knee Joint.

II. Write notes on:

(10 x 5 = 50)

1. Angles of Hip joint.
2. Viscoelasticity.
3. Factors affecting muscle functions.
4. Scapula humeral rhythm.
5. Determinants of Gait.
6. Supinator twist & Pronator twist.
7. Anterior cruciate ligament.
8. Ground reaction force.
9. Pregnancy posture.
10. Supra humeral arch.

III. Short answers on:

(10 x 2 = 20)

1. Avulsion.
2. Gomphosis.
3. Cubitus valgus.
4. Zona orbicularis.
5. Pes anserinus.
6. H zone.
7. Postural sway.
8. Stride length.
9. Trendelenburg gait.
10. Sacromere.

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

[LQ 6277]

FEBRUARY 2020

Sub. Code: 6277

BPT DEGREE EXAMINATION
(Regulations for the candidates admitted from 2017-2018 onwards)
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746277

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Explain about Postural analysis and Postural deviations.
2. What is Arch? Explain the details of plantar arches.

II. Write notes on:

(10 x 5 = 50)

1. Linear force system.
2. Length tension relationship.
3. Ligamentum Flavum.
4. Extensor mechanism of wrist & fingers.
5. Bursae around knee joint.
6. Subtalar Axis.
7. Meniscus.
8. Codman's paradox.
9. Sliding filament theory.
10. Sensory receptors.

III. Short answers on:

(10 x 2 = 20)

1. Torque.
2. Proteoglycans.
3. Volar plate.
4. Housemaid's knee.
5. Woven bone.
6. Ligamentum teres.
7. Trigger finger.
8. Mechanical advantage.
9. Lister's tubercle.
10. Hoop stress.

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

[LR 1220]

**DECEMBER 2020
(AUGUST 2020 EXAM SESSION)**

Sub. Code: 6277

**BPT DEGREE EXAMINATION
SECOND YEAR**

(New regulations for the candidates admitted from 2017-2018 onwards)

PAPER II – BIO-MECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746277

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Describe the details of static and dynamic stabilization of Shoulder joint.
2. Explain the structure of configuration of Knee joint with factors contributing for its stability.

II. Write notes on:

(10 x 5 = 50)

1. Stress and Strain.
2. Corocoacromial arch.
3. Muscles contribution to the arches.
4. Pelvic tilt.
5. Screw home mechanism.
6. Anatomical Pulleys.
7. Ideal posture.
8. Physiological valgus at knee.
9. Young Modulus.
10. 'T' tubules.

III. Short answers on:

(10 x 2 = 20)

1. Ovoid joint.
2. Alar ligament.
3. Patella alta & baja.
4. Power grip.
5. Index plus foot & index minus foot.
6. Angle of wiberg.
7. Hallux rigidus.
8. Cross eyed patella.
9. Potential energy.
10. Chondrocytes.

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

[BPT 0921]

SEPTEMBER 2021
(FEBRUARY 2021 EXAM SESSION)

Sub. Code: 6277

BPT DEGREE EXAMINATION
SECOND YEAR
(Regulations for the candidates admitted from 2017-2018 onwards)
PAPER II – BIO-MECHANICS, APPLIED ANATOMY & KINESIOLOGY
Q.P. Code : 746277

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Explain about the biomechanical properties of connective tissues.
2. Explain the structure configuration of hip joint in relation to weight bearing in unilateral and bilateral stance along with factors contributing for its stability.

II. Write notes on:

(10 x 5 = 50)

1. Sensory receptors in muscle.
2. Supination and pronation twist.
3. Extensor Expansion.
4. Scapulo-humeral rhythm.
5. Concurrent force system.
6. Triangular Fibro-Cartilage Complex (TFCC).
7. Determinants of gait.
8. Intervertebral disc.
9. Patello-Femoral joint reaction force.
10. Osteokinematic and arthrokinematics.

III. Short answers on:

(10 x 2 = 20)

1. Synergist.
2. Scaption.
3. Angle of Wiberg.
4. Lister tubercle.
5. Cadence.
6. Torque.
7. Patella baja.
8. Moment arm.
9. Fibrous joint.
10. Couple motion.

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

[BPT 0122]

**JANUARY 2022
(AUGUST 2021 EXAM SESSION)**

Sub. Code: 6277

**BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
SECOND YEAR (Regulations from 2017-2018 onwards)
PAPER II – BIO-MECHANICS, APPLIED ANATOMY & KINESIOLOGY
*Q.P. Code : 746277***

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Describe in detail the function and biomechanics of lumbar spine and also its Pathomechanics.
2. Give in detail the interaction between the spine, pelvis, hip, knee ankle and foot and upper limbs in gait.

II. Write notes on:

(10 x 5 = 50)

1. Hand Function.
2. Importance of angles and curves in femur.
3. Elasticity and it's effects over joints.
4. Arches of foot and its biomechanics.
5. Comment on Osteo kinematics and Arthro kinematics.
6. Role of Scapulo Humeral Rhythm.
7. Optimal muscle length, comment on its efficiency.
8. Grip and grasp functions.
9. Abdominals in posture maintenance.
10. Elbow joints – its biomechanics.

III. Short answers on:

(10 x 2 = 20)

1. Stride Length.
2. Pes Cavus.
3. Facet joints.
4. Opposition.
5. Arcuate lines.
6. Creeps phenomenon.
7. Convergent forces.
8. Line of gravity.
9. Joint reaction force.
10. Resting position of hand.

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

[BPT 0622]

**JUNE 2022
(FEBRUARY 2022 EXAM SESSION)**

Sub. Code: 6277

**BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
SECOND YEAR (Regulations from 2017-2018 onwards)
PAPER II – BIO-MECHANICS, APPLIED ANATOMY & KINESIOLOGY
Q.P. Code : 746277**

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on: (2 x 15 = 30)

1. Describe the structure and function of plantar arches in detail.
2. Explain the biomechanical properties of connective tissues.

II. Write notes on: (10 x 5 = 50)

1. Ligamentum flavum.
2. Meniscus.
3. Sliding filament theory.
4. Bursae around knee joint.
5. Triangular fibro cartilage complex.
6. Osteokinematic and arthrokinematics.
7. Factors affecting muscle functions.
8. Insufficiency.
9. Patella femoral joint reaction force.
10. Linear force system.

III. Short answers on: (10 x 2 = 20)

1. Cadence.
2. Calcaneal gait.
3. Motor unit.
4. Thoracolumbar fascia attachment.
5. Torque.
6. Nucleus pulposus.
7. Second order lever.
8. Hooke's law.
9. Optimal length.
10. Q - angle.

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

[BPT 1022]

**OCTOBER 2022
(AUGUST 2022 EXAM SESSION)**

Sub. Code: 6277

**BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
SECOND YEAR (Regulations from 2017-2018 onwards)
PAPER II – BIO-MECHANICS, APPLIED ANATOMY & KINESIOLOGY
Q.P. Code : 746277**

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Describe the structure and function of Patello Femoral Joint.
2. Discuss in detail about structure and function of Shoulder Joint.

II. Write notes on: **(10 x 5 = 50)**

1. Composition of the connective tissue.
2. Loading of the foot.
3. Excitation - contraction coupling.
4. Compare the action of anconeus and triceps.
5. Rotator cuff stabilization.
6. Load deformation curve.
7. Explain patella as an anatomic pulley.
8. Pronation twist of tarsometatarsal joint.
9. Functional position of the wrist.
10. Effects of immobilisation.

III. Short answers on: **(10 x 2 = 20)**

1. Pesplanus.
2. Pelvic balance.
3. Common hip axis.
4. Tarsal canal.
5. Articularis genu.
6. Corset muscle.
7. Postural set.
8. Volar plate.
9. Junctura tendinae.
10. Optimal Posture.
