[LJ 6177] AUGUST 2016 **Sub. Code: 6177**

SECOND YEAR BOT EXAMINATION
(New Regulations for the candidates admitted from 2014-2015 onwards)
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time: Three hours **Maximum: 100 Marks**

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

1. Explain in detail about the movement of Pelvis on the Femur with regard to Pelvic Tilts.
2. Define Joint? Mention and describe the various types of Synovial Joints.

II. Write notes on: **(8 x 5 = 40)**

1. Differentiate between kinetic and kinematics with examples.
2. Explain what is a plain and axis? Mention its types with examples?
3. What is Young's Modulus?
4. Describe the properties of the cardiac muscle.
5. What is reciprocal innervation?
6. What is artificial respiration?
7. Temporal components of gait.
8. What is a high arched foot?

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

1. Define Torque.
2. Define Anatomic pulley.
3. What is eccentric muscle contraction?
4. Define alpha motor neuron.
5. What is reverse action?
6. Function of intrinsic muscles of the hand.
7. Functional position of the hand.
8. Lateral pelvic tilting.
9. Open and closed kinematic chain.
10. Neuromuscular transmission.

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[LK 6177] FEBRUARY 2017 **Sub. Code: 6177**

BOT EXAMINATION
SECOND YEAR
(New Regulations for the candidates admitted from 2014-2015 onwards)
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time: Three hours **Maximum: 100 Marks**

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

1. Explain the biomechanics of the Wrist complex.
2. Describe in details the biomechanics of Shoulder joint abduction.

II. Write notes on: **(8 x 5 = 40)**

1. Types of displacement on a rigid segment.
2. What is carrying angle and why females have large carrying angle than men?
3. Explain the role of the structures that contribute to the anterior stability of the knee joint.
4. Differentiate between active and passive motion.
5. Describe a volar plate and its function.
6. Name the arches of the foot and importance of medical arch.
7. When and why is a cane used Ipsilaerally?
8. Antalgic gait.

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

1. Claw hand.
2. Oedema.
3. Double support.
4. Define moment arm.
5. Define Q angle.
6. Coxa Valga.
7. Ground Reaction Force.
8. What is optimal posture?
9. Khyphosis.
10. Hypertension.

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[LL 6177] AUGUST 2017 **Sub. Code: 6177**

BOT DEGREE EXAMINATION
(New Regulations for the candidates admitted from 2014-2015 onwards)
SECOND YEAR
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time: Three hours **Maximum: 100 Marks**

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

1. Describe the structure and function of the Knee joint.
2. Define Gait and determinants of Gait.

II. Write notes on: **(8 x 5 = 40)**

1. What are properties of muscle?
2. Describe a normal E.C.G.
3. Describe the mechanics of respiration.
4. Differentiate between agonist and antagonist muscle. Give example of their actions during an activity.
5. Explain the structure of the extensor expansion.
6. Methods of artificial respiration.
7. Tarsometatarsal joint function.
8. Anterior cruciate ligament injury.

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

1. Genu recurvatum.
2. Lung compliance.
3. Hypertonocity.
4. Diarthrodial joints.
5. Mechanical advantage in third class lever.
6. Define force.
7. Synergist muscle.
8. Tidal volume.
9. Define conductivity as a property of cardiac muscle.
10. Which is the structure responsible for gas exchange in the lungs?

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

[LM 6177] FEBRUARY 2018 **Sub. Code: 6177**

BOT DEGREE EXAMINATION
(New Regulations for the candidates admitted from 2014-2015 onwards)
SECOND YEAR
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time: Three hours **Maximum: 100 Marks**

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

1. Describe the structure and function of thumb musculature and its role in hand function.

2. Describe the structure and function of vertebral column.

II. Write notes on: **(8 x 5 = 40)**

1. Effects of gravity on posture.
2. Characteristics of motor unit.
3. Nervous control of respiration.
4. Pelvic tilts.
5. Inversion and eversion of foot.
6. Functions of the arches.
7. Carrying angle and its significance.
8. Effects of exercise on respiration.

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

1. Gait.
2. Grasp.
3. Voluntary control.
4. Lumbricals.
5. Hyaline cartilage.
6. Reaction forces.
7. Properties of connective tissue.
8. Reflex arc.
9. Muscles of inspiration.
10. Angular velocity.

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

[LN 6177] AUGUST 2018 **Sub. Code: 6177**

BOT DEGREE EXAMINATION
(New Regulations for the candidates admitted from 2014-2015 onwards)
SECOND YEAR
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time: Three hours **Maximum: 100 Marks**

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

1. Phases of gait cycle.

2. Dynamic stabilization of the Glenohumeral joint.

II. Write notes on: **(8 x 5 = 40)**

1. Functional position of the hand.
2. Palmar arches.
3. Scoliosis.
4. Scapulo-humeral rhythm.
5. Power grip.
6. Coxa Varum and Coxa Valgum.
7. Ideal posture.
8. Lung volume and capacities.

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

1. Waddling gait.
2. Lateral epicondylitis.
3. Annular pulleys.
4. Nurse maid elbow.
5. Entheses.
6. Stress.
7. Concentric contraction.
8. The motor unit.
9. Bucket handle movement of thorax.
10. Closed packed position of elbow.

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

[LO 6177] FEBRUARY 2019 **Sub. Code: 6177**

BOT DEGREE EXAMINATION
(New Regulations for the candidates admitted from 2014-2015 onwards)
SECOND YEAR
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time: Three hours **Maximum: 100 Marks**

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

1. Analysis of posture in the sagittal plane.

2. Define cardiac cycle. Describe the phases of cardiac cycle.

II. Write notes on: **(8 x 5 = 40)**

1. Carpal tunnel syndrome.
2. Precision handling.
3. Alpha motor neuron.
4. Movements of the ribcage.
5. Determinants of gait.
6. Contractile unit of muscle.
7. Passive insufficiency.
8. Properties of ventilatory muscles.

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

1. Anatomic pulley.
2. The motor unit.
3. Nutation of the Sacrum.
4. Effects of immobilization on muscle structure.
5. Pad to pad prehension.
6. Circumductory gait.
7. Locked position of knee.
8. Flat foot.
9. Anterior pelvic tilt.
10. Reverse action.

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

[LP 6177] AUGUST 2019 **Sub. Code: 6177**

BOT DEGREE EXAMINATION
(New Regulations for the candidates admitted from 2014-2015 onwards)
SECOND YEAR
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time: Three hours **Maximum: 100 Marks**

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

1. What is Kinetics and Kinematics? Describe in detail the Kinematic variables.

2. Explain the biomechanics of hip joint.

II. Write notes on: **(8 x 5 = 40)**

1. What are all the muscles that cross both hip and knee joint?
2. Write the contribution of scapula for the shoulder movement.
3. Explain patella as an anatomic pulley.
4. Phases of gait cycle.
5. Draw elbow joint.
6. Describe the prehension skills in the hand.
7. Describe the role of menisci in the knee joint.
8. Intervertebral disc prolapse.

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

1. Active insufficiency.
2. Action of lumbricals.
3. Gravity vector.
4. Newton's second law.
5. Function of synovial fluid.
6. Saddle joint.
7. Contractile unit of a skeletal muscle.
8. Define lever.
9. Types of equilibrium.
10. Center of gravity.

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

[LQ 6177] FEBRUARY 2020 **Sub. Code: 6177**

BOT DEGREE EXAMINATION
(New Regulations for the candidates admitted from 2014-2015 onwards)
SECOND YEAR
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time: Three hours **Maximum: 100 Marks**

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

1. Movements of the Ribcage. Artificial respiration.

2. Determinants of Gait.

II. Write notes on: **(8 x 5 = 40)**

1. Primary curves of the vertebral column.
2. Coupling.
3. Squat lift Vs Stoop lift.
4. Annular pulleys.
5. Scapulo-humeral rhythm.
6. Types of muscle contraction.
7. Cross bridges.
8. Genu Valgum and Varum.

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

1. Hammer toe.
2. Closed packed position of the elbow.
3. Trigger finger.
4. Compliance.
5. Nucleus pulposus.
6. Pump-handle movement.
7. Second-class lever.
8. Strain.
9. Hand to knee gait.
10. Limb Length Discrepancy (LLD).

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

[BOT 0921] **SEPTEMBER 2021** **Sub. Code: 6177**
(FEBRUARY 2021 EXAM SESSION)

BOT DEGREE EXAMINATION
SECOND YEAR - (Regulations for the candidates admitted from 2014-2015 onwards)
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY
Q.P. Code : 786177

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

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

1. Describe the classification of Joints in the human body.

2. Describe the biomechanics of Knee joint. Explain the structures that contribute for the stability of Knee joint.

II. Write notes on: **(8 x 5 = 40)**

1. Describe biomechanics.
2. How does center of gravity affect balance?
3. Describe the properties of skeletal muscle.
4. Lung volumes and capacities.
5. Describe the structure of lumbar vertebrae.
6. Describe the ligaments around the hip joint.
7. Write the deformities occur at the ankle joint.
8. Provide an example of third class lever system in body and explain.

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

1. Define Inertia.
2. Force couple.
3. Tail bone.
4. Carrying angle in females.
5. Functional position of hand.
6. Define flexion.
7. Action of latissimus dorsi.
8. Carpal tunnel syndrome.
9. Painful arc syndrome.
10. Coxa valga.

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

[BOT 0122] JANUARY 2022 Sub. Code: 6177
(AUGUST 2021 EXAM SESSION)

BACHELOR OF OCCUPATIONAL THERAPY DEGREE COURSE
SECOND YEAR - (Regulations for the candidates admitted from 2014-2015 onwards)
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY
Q.P. Code : 786177

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

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

1. Describe in detail about Carpometacarpal joints of fingers, Range of motion & its contribution to Palmar arch system.

2. Write in detail about Properties of mixed nerves.

II. Write notes on: **(8 x 5 = 40)**

1. Muscles in first & second class lever system.
2. Explain Stress & strain.
3. Write about Arthrokinematics.
4. Active insufficiency.
5. Explain Young's Modulus.
6. Motions of the Scapula.
7. Motions of the pelvis on the Femur.
8. Types of displacement on a rigid segment

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

1. Creep.
2. Tidal volume.
3. Legg –Calve-Perthes Disease.
4. Mention any 2 factors affecting active Muscle tension.
5. What is Volar Intercalated Segmental Instability.
6. Define moment arm.
7. Coxa Vara.
8. Housemaid's knee.
9. Angular velocity.
10. What is slipped Capital Femoral Epiphysis.

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

[BOT 0622] **JUNE 2022** **Sub. Code: 6177**

(FEBRUARY 2022 EXAM SESSION)

BACHELOR OF OCCUPATIONAL THERAPY DEGREE COURSE

SECOND YEAR - (Regulations for the candidates admitted from 2014-2015 onwards)

PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code : 786177

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

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

1. Explain in detail about Kinematics and Kinetics of the Vertebral Column.

2. Define Gait and determinants of Gait.

II. Write notes on: **(8 x 5 = 40)**

1. Write about ankle joint function.
2. Describe a normal E.C.G.
3. Inversion and eversion of foot.
4. Degeneration and re-generation of nerves.
5. Angulations of the Femur.
6. Lung volumes and capacities of client with Chronic Obstructive Pulmonary Disease.
7. Passive insufficiency.
8. Factors affecting Elbow Muscle Activity.

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

1. Khyphosis.
2. Eccentric contraction.
3. The motor unit.
4. Anti – Deformity Position.
5. Trendelenburg Gait.
6. Quadriceps Lag.
7. Hallux Valgus.
8. Ground Reaction Force.
9. Pressure Sores.
10. Any 2 Primary rules of Forces.

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

[BOT 1022] **OCTOBER 2022** **Sub. Code: 6177**
(AUGUST 2022 EXAM SESSION)

BACHELOR OF OCCUPATIONAL THERAPY DEGREE COURSE
SECOND YEAR - (Regulations for the candidates admitted from 2014-2015 onwards)
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY
Q.P. Code : 786177

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

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

1. Describe the Structure and Function of Vertebral Column.

2. Define Joint. Mention and Describe the Various Types of Synovial joints.

II. Write notes on: **(8 x 5 = 40)**

1. Temporal Components of Gait.
2. Pelvic Tilts.
3. Scoliosis.
4. Scapulo - Humeral Rhythum.
5. Movements of the Ribcage.
6. Passive Insufficiency.
7. Intervertebral Disc Prolapse.
8. Explain Patella as on Anatomic Pulley.

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

1. Define Torque.
2. What is reverse action?
3. Lateral Pelvic Tilting.
4. Neuromuscular Transmission.
5. Khyphosis.
6. Define Q angle.
7. Claw Hand.
8. Genu Recurvatum.
9. Hypertonicity.
10. Diarthrodial Joints

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

[BOT 0423] APRIL 2023 Sub. Code: 6177
(FEBRUARY 2023 EXAM SESSION)

BACHELOR OF OCCUPATIONAL THERAPY DEGREE COURSE
SECOND YEAR - (Regulations for the candidates admitted from 2014-2015 onwards)
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

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

1. Explain in detail about the Movement of Pelvis on the Femur with regard to Pelvic tilts.

2. Define gait and determinants of gait.

II. Write notes on: **(8 x 5 = 40)**

1. Ligaments of the Wrist complex.
2. Differentiate Kinetic and kinematics with examples.
3. What is a high arched food?
4. Differentiate between active and passive motion.
5. Genu valgum and Genu varum.
6. Anterior Cruciate Ligament injury.
7. Carrying angle and its significance.
8. Effects of exercise on respiration.

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

1. Limb length discrepancy (LLD).
2. Strain.
3. Trigger finger.
4. Hammer toe.
5. Newton's second law.
6. Saddle joint.
7. Define lever.
8. Center of gravity.
9. Anatomic pulley.
10. Flat foot.

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

[BOT 1123] **NOVEMBER 2023** **Sub. Code: 6177**
(AUGUST 2023 EXAM SESSION)

BACHELOR OF OCCUPATIONAL THERAPY DEGREE COURSE
SECOND YEAR - (Regulations for the candidates admitted from 2014-2015 onwards)
PAPER III – BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

Q.P. Code: 786177

Time : Three hours **Answer ALL Questions** **Maximum : 100 Marks**

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

1. Explain the general properties of connective tissue.

2. Describe the Kinetics and Kinematics of Knee joint. Add a note on applied anatomy of Knee Joint.

II. Write notes on: **(8 x 5 = 40)**

1. Arches of foot and its biomechanics.
2. Linear force system.
3. Effects of immobilisation.
4. Explain about stability and mobility aspect of cervical region.
5. Muscles and movements of Radioulnar joint.
6. Scapulo humeral rhythm.
7. Shoulder joint stability.
8. Functions of hand.

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

1. Tensile forces.
2. Talocalcaneonavicular joint.
3. Moment arm.
4. Agonist and antagonist.
5. Law of inertia.
6. Line of gravity.
7. Write about Lumbricals.
8. Nursemaid’s elbow.
9. Genu recurvatum.
10. Motor unit.

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