August 2011

[KZ 6256] **Sub. Code : 6256**

BACHELOR OF PHYSIOTHERAPY EXAMINATION

SECOND YEAR

Paper II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code : 746256

Time : Three hours **Maximum : 100 marks**

ANSWER ALL QUESTIONS

I. LONG ESSAYS (2X20=40)

1. Describe in detail about Newton's laws of motion.
2. Discuss the biomechanical analysis of running gait versus walking.

II. SHORT NOTES (8X5=40)

1. Calculation of centre of gravity of the body.
2. Muscular weakness and atrophy
3. Closed chain motion of the elbow.
4. Functional position of the wrist.
5. Analyze placing the hand behind the head.
6. Balancing of the head and vertebral column.
7. Load-deformation curve.
8. Loading of the foot.

III. SHORT ANSWERS (10X2=20)

1. Ballistic movement.
2. Articularis genu.
3. Postural set.
4. Corset muscle.
5. Tarsal canal.
6. Common hip axis.
7. Kinesthesia and proprioception.
8. Pelvic balance.
9. Gluteus medius limp.
10. Patellar plicae.

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February 2012

[LA 6256] **Sub. Code: 6256**

BACHELOR OF PHYSIOTHERAPY EXAMINATION
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code: 746256

Time: Three Hours **Maximum: 100 marks**

Answer ALL questions

I. Elaborate on: **(2X20=40)**

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

2. Describe the normal curves of vertebral column and discuss the factors responsible for its mobility and stability.

II. Write notes on: **(8X5=40)**

1. Parameters of gait
2. Scapulo humeral rhythm
3. Determinants of gait
4. Bursae around knee
5. Talocalaneo navicular joint
6. Optimal posture
7. Reverse action
8. Pivot joint

III. Short Answers: **(10X2=20)**

1. Synergist
2. Angular Velocity
3. Concentric Exercise
4. Sacral vertebrae
5. Acromic clavicular joint
6. Lumbricals
7. Lordosis
8. Line of gravity
9. Second class lever
10. Law of inertia

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[LB 6256] **AUGUST 2012** **Sub. Code: 6256**

SECOND YEAR BPT EXAM

PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code : 746256

Time: Three Hours **Maximum: 100 marks**

(180 Min) Answer ALL questions in the same order.

I. Elaborate on:	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. Analyze posture and explain the postural deviations.	19	33	20
2. a. Enumerate the effect of limitation of hip joint motion on lumbar spine. b. Compare architectural characteristics on functions of quadriceps versus hamstring muscles.	19	33	20

II. Write notes on:			
1. Composition of the connective tissue.	3	8	5
2. Axial rotation in the knee joint.	3	8	5
3. Ways to reduce forces acting on the femoral head.	3	8	5
4. Rotator cuff stabilization.	3	8	5
5. Loading of the foot.	3	8	5
6. Excitation-contraction coupling.	3	8	5
7. Compare action of anconeus and triceps.	3	8	5
8. Cross-eyed patella.	3	8	5

III. Short Answers:			
1. Point of application of force.	1	5	2
2. Junctura tendinae.	1	5	2
3. Scaption.	1	5	2
4. Isoinertial exercise.	1	5	2
5. Perturbation.	1	5	2
6. Quadriceps angle.	1	5	2
7. Convex-concave principle.	1	5	2
8. Sustentaculum tali.	1	5	2
9. Volar wrist musculature.	1	5	2
10. Vincula tendinum.	1	5	2

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[LC 6256] **FEBRUARY 2013** **Sub. Code: 6256**

SECOND YEAR BPT EXAM

PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code: 746256

Time: Three Hours **Maximum: 100 marks**

(180 Min)

I. Elaborate on: **(2X20=40)**

1. Describe the tissue present in human joints and mention general effects of injury and disease.
2. Explain about effect of injury and developmental defects of vertebral column.

II.Short Notes: **(8X 5=40)**

1. Structures limiting motion in supination and pronation
2. Cumulative strain in tendons
3. Clavicular contribution to elevation of arm
4. Effects of immobilization in a lengthened versus a shortened position
5. Compensatory posture
6. Index of Insall and Salviti
7. Joint receptors
8. Triceps surae

III.Short Answers: **(10X2=20)**

1. Reverse action
2. Bunnell's sign
3. Pes Anserinus
4. Lister's tubercle
5. Dowager's hump
6. Sternoclavicular disk
7. Nutation
8. Divergent muscle pull
9. Voluntary control
10. Hysteresis.

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[LD 6256] **AUGUST 2013** **Sub. Code: 6256**

SECOND YEAR BPT EXAM

PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code : 746256

Time: Three Hours **Maximum: 100 marks**

I. Elaborate on: **(2X20=40)**

1. Discuss in detail the articulating structure, osteokinematics and arthrokinematics of the tibio-femoral joint. Add a note on pathomechanics of knee joint
2. Explain the general properties of connective tissue

II. Write Notes on: **(8X5=40)**

1. Codman's paradox
2. Passive insufficiency
3. Triangular fibrocartilage complex (TFCC)
4. Pelvic tilts
5. Determinants of gait
6. Pronation twist of tarsometatarsal joint
7. Lordosis and Kyphosis
8. Power grip

III. Short Answer: **(10X2=20)**

1. Cadence
2. Agonists and Antagonists
3. Waddling gait
4. Volar plate
5. Pars interarticularis
6. Subacromial space
7. Functional position of the hand
8. Close – packed position
9. Carrying angle
10. Angulation of the femur

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[LE 6256] **FEBRUARY 2014** **Sub. Code: 6256**

SECOND YEAR BPT EXAM

PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code : 746256

Time: Three Hours **Maximum: 100 marks**

I. Elaborate on: **(2X20=40)**

1. What is Prehension? Explain power grip and precision handling in detail with examples.
2. Explain the structure and function of Plantar arches in detail.

II. Write notes on: **(8X5=40)**

1. Explain about Pes planus
2. Phases of Gait cycle
3. Explain patella as an Anatomic Pulley
4. Stress and strain
5. Explain about the function of cervical region
6. Advantages and disadvantages of Coracoacromial arch
7. Explain Tennis Elbow
8. Differentiate Coxa valga from Coxa vara

III. Short Answers: **(10X2=20)**

1. What is Cadence?
2. What is Calcaneal gait?
3. Define Torque
4. What is the instantaneous axis of rotation?
5. What is a motor unit?
6. Attachment of thoracolumbar fascia
7. What is glenoid labrum?
8. What is carrying angle?
9. Name the ligaments of Hip joint
10. What is patella baja?

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[LF 6256] **AUGUST 2014** **Sub. Code: 6256**

SECOND YEAR/III & IV SEMESTER BPT EXAM
PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code : 746256

Time: Three Hours **Maximum: 100 marks**

I. Elaborate on: **(2X20=40)**

1. What is Scapulohumeral rhythm? Explain the phases of scapulohumeral rhythm in detail with neat diagram.

2. Describe why using a cane on the side opposite to hip joint pain or weakness is more effective than using the cane on the same side.

II. Write Notes on: **(8X5=40)**

1. What is "Q" angle of knee joint? How is it measured and what implications does it have for patellofemoral problems?
2. Explain the coupled movements of subtalar pronation and supination
3. Fixed support synergies
4. Explain stair gait cycle.
5. Explain the factors affecting muscle function
6. Explain the ligaments of Radioulnar joints
7. Explain about the extensor mechanism of wrist and hand
8. Explain Newton's law of inertia with example.

III. Short Answer: **(10X2=20)**

1. What is Scaption?
2. Attachment of medial collateral ligament of knee joint
3. State the ligaments of Talonavicular joint
4. What is the normal postural sway?
5. Define moment arm
6. Give example for a trochoid joint
7. What are zygapophyseal joints?
8. What is lumbosacral angle?
9. What are the pelvic floor muscles?
10. What is Nutation and counternutation?

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[LG 6256] **FEBRUARY 2015** **Sub. Code: 6256**

SECOND YEAR / III & IV SEMESTER BPT EXAM
PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code : 746256

Time: Three hours **Maximum: 100 marks**

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

1. Describe in detail about the articulating structures kinematics of Tibiofemoral joint and related Pathomechnics.
2. Pathomechanics of gait.

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

1. Osteokinematics of hip joint
2. Winging of scapula
3. Locking and Unlocking of knee
4. Tensile forces
5. Centre of gravity and Line of gravity
6. Functions of hand
7. Talocalcaneo navicular joint
8. Trabecular system of hip joint

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

1. Moment arm
2. Fibrous joint
3. Slow-twitch oxidative fibres
4. Lumbar-pelvic rhythm
5. Ballistic movement
6. Agonist and antagonist
7. Law of inertia
8. Cross eyed patella
9. Volar wrist musculature
10. Junctura tendinae

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[LH 6256] **AUGUST 2015** **Sub. Code: 6256**

B.P.T. DEGREE EXAMINATION

SECOND YEAR / III & IV SEMESTER

PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code: 746256

Time : Three Hours **Maximum : 100 marks**

Answer ALL questions

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

1. Analyse posture and explain the postural deviation.
2. Describe the structure and function of vertebral column.

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

1. Codman's paradox.
2. Triangular fibrocartilage complex.
3. Index of Insall and Salviti.
4. Proprioception.
5. Shoulder joint stability.
6. Anconeus and Triceps.
7. Optimal posture.
8. Nurse maid's elbow.

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

1. Pars Interarticularis.
2. Angulations of femur.
3. Bunnell's sign.
4. Dowgers hump.
5. Patella Alta and Baja.
6. Seasamoid bone.
7. Coupled motions.
8. Claw toe and hammer toe.
9. Levers.
10. Carrying angle.

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[LI 6256] FEBRUARY 2016 **Sub. Code: 6256**

SECOND YEAR / III & IV SEMESTER BPT EXAM
PAPER II – BIOMECHANICS, APPLIED ANATOMY AND KINESIOLOGY

Q.P. Code : 746256

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

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

1. Kinetics, Kinematics and Pathomechanics of lumbar spine.
2. Explain the structure, configuration of hip joint in relation to weight bearing in unilateral and bilateral stance with stability factors.

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

1. Tonic and Phasic muscles.
2. Metatarsal break.
3. Inversion and Eversion.
4. Osteokinematics and Arthrokinematics.
5. Lumbricals.
6. Active and Passive insufficiency.
7. Torque.
8. Factors affecting normal posture.

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

1. Pulleys.
2. Gait determinants.
3. Mechanical advantage.
4. Pes Planus.
5. Supinator twist.
6. Vertical steering muscles of Shoulder joint.
7. Fast-twitch fibres.
8. Cubitus Valgus and Cubitus Varus.
9. Force and Acceleration.
10. Load deformation curve.

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[LJ 6256] AUGUST 2016 **Sub. Code: 6256**

SECOND YEAR BPT EXAM
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746256

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

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

1. Biomechanics of Knee joint.

2. Factors of mobility and stability in Spine.

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

1. Explain active and passive tension.
2. Plantar arches – mechanism.
3. Centre of gravity and its application.
4. Reverse scapulohumeral rhythm.
5. Weight transference in single stance.
6. Prehension.
7. Coxa valga and coxa vara.
8. Mechanical advantage - therapeutic use.

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

1. Extensor hood.
2. Trendelenberg sign.
3. Line of gravity.
4. Accessory movements.
5. Role of upperlimb in gait.
6. Rocker bottom foot.
7. Grip.
8. Osteokinematics.
9. Arcuate lines.
10. Tensile forces.

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[LK 6256] FEBRUARY 2017 **Sub. Code: 6256**

BPT DEGREE EXAMINATION
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746256

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

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

1. Compare and contrast biomechanics of Hip and Shoulder Joint.

2. Biomechanics of Gait.

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

1. Anatomical pulley.
2. Stress and strain.
3. Squat lifting versus stoop lifting.
4. Pronation and supination.
5. Insufficiency.
6. Factors affecting muscle functions.
7. Functions of intervertebral disc.
8. Gravity its uses in therapeutics.

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

1. Nucleus pulposus.
2. Posture.
3. Grasp.
4. Angle of femoral torsion – function.
5. Second order lever an example.
6. Resistance.
7. Functional position of hand.
8. Hookes law.
9. Optimal length.
10. Q-angle.

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[LL 6256] AUGUST 2017 **Sub. Code: 6256**

BPT DEGREE EXAMINATION
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746256

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

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

1. Discuss in detail the prehension activities of the Hand.

2. Discuss in detail the kinematic variables that describe the motion.

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

1. Describe coupled motions with two examples.
2. Intervertebral disc – its structure and function.
3. Pathomechanics of supraspinatus impingement.
4. Kinematic chains.
5. Mechanical stress and structural adaptation of femur.
6. Effects of gravity on posture.
7. Temporal and distance variables in gait.
8. Coxa valga and coxa vara.

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

1. Ataxic gait.
2. Nursemaid's elbow.
3. Extensor expansion.
4. Force couple.
5. Arthrokinematics.
6. Passive insufficiency of muscle.
7. Cadence.
8. Enthesis.
9. Layers of articular cartilage.
10. Phases of gait cycle.

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

[LM 6256] FEBRUARY 2018 **Sub. Code: 6256**

BPT DEGREE EXAMINATION
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746256

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

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

1. Explain three orders of Levers with examples. Add a note on mechanical advantage.

2. Describe the relationship between the Zygapophyseal joints and the Interbody joints of vertebral column.

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

1. Describe dynamic stabilization of glenohumeral joint.
2. Explain the structure and function of the ligaments associated with proximal radioulnar joint.
3. Draw and explain the angulation of the femur.
4. Explain fixed support synergies with examples.
5. Differentiate isokinetic and isoinertial exercise and testing.
6. Explain the structure and function of plantar aponeurosis.
7. Explain the determinants of gait.
8. Write about the attachments and functions of cruciate ligaments of tibiofemoral joint.

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

1. What is synostosis?
2. What is a motor unit?
3. What is Bunnell's Sign?
4. What is dorsal inter-calated segmental instability?
5. Write the attachment of spring ligament.
6. What is Genu recurvatum?
7. State two functions of volar plate.
8. What is metatarsal break?
9. Draw the Feiss line.
10. Name two structures that maintain the palmar arch.

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

[LN 6256] AUGUST 2018 **Sub. Code: 6256**

BPT DEGREE EXAMINATION
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746256

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

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

1. Write the structure and function of the Hip joint, with the Hip joint pathology.

2. Write the structure and contractile unit of a muscle. Write the types of muscle fibre and the types of muscle contraction.

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

1. Active insufficiency.
2. Locking and unlocking mechanism of knee joint.
3. Concurrent force system.
4. Synovial joint and its subdivision.
5. Law of inertia.
6. Knee joint incongruence.
7. Pelvic tilt.
8. Centre of gravity.

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

1. Claw toes.
2. Axes and planes.
3. Hook grip.
4. Arches of foot.
5. Spurt and shunt muscle.
6. Facet joint.
7. Tenodesis.
8. Synostosis.
9. Shear.
10. Golgi tendon.

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

[LO 6256] FEBRUARY 2019 **Sub. Code: 6256**

BPT DEGREE EXAMINATION
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746256

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

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

1. Difference between Phasic and Tonic muscle and add the notes on active and passive insufficiency.

2. Describe the general effects of injury and disease of the joint structure.

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

1. Centre of gravity.
2. Isokinetic exercise.
3. Concentric exercise.
4. Intervertebral disc.
5. Carrying Angle.
6. Coxa vara.
7. Tennis and nurse – maid's Elbow.
8. Q angle of knee joint.

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

1. Synarthrosis.
2. What is scaption?
3. Pescavus.
4. Waddling gait.
5. Postural muscle.
6. Pad to pad grip.
7. Synovial joint.
8. Scapulo humeral rhythm.
9. Force vectors.
10. Accessory movements.

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

[LP 6256] AUGUST 2019 **Sub. Code: 6256**

BPT DEGREE EXAMINATION
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746256

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

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

1. Discuss the Kinematics and Kinetics of Patella Femoral Joint adding note on applied anatomy also.

2. Discuss in detail the Kinematic variables that describe the motion of Scapulothoracic and Glenohumeral joint.

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

1. Frontal plane deviations from optimal vertebral alignment.
2. Properties of tendon.
3. Flexor mechanism of hand.
4. Analysis of sitting posture.
5. Types of muscle fibers and its function.
6. Abnormal gait due to muscle paralysis.
7. Muscles and movements of Radioulnar joint.
8. Ligaments of knee.

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

1. Intercalated segment.
2. Squeeze film lubrication.
3. Step width.
4. Campers chiasma.
5. Counternutation.
6. Function of metatarsophalangeal joint.
7. Ligamentum teres.
8. Latissimus Dorsi.
9. Muscle spindle.
10. Joint play.

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

[LQ 6256] FEBRUARY 2020 **Sub. Code: 6256**

BPT DEGREE EXAMINATION
SECOND YEAR
PAPER II – BIOMECHANICS, APPLIED ANATOMY & KINESIOLOGY

Q.P. Code : 746256

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

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

1. Describe the structure and functions of Hip joint.

2. Analyze posture with respect to the optimal alignment and brief about postural deviations.

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

1. Describe the role of sternoclavicular joint in shoulder movements.
2. Describe the role of muscles that maintain the erect posture.
3. Describe the role of Cruciate ligaments in knee stability
4. Describe the intrinsic and extrinsic foot muscles.
5. Factors affecting the mobility of the lumbar vertebral column.
6. Describe scapula humeral rhythm and codman's paradox.
7. Describe the role of interossei and lumbricals at the MCP and IP joints.
8. Describe the functions of Tibiofemoral joint.

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

1. Cadence.
2. Anteversion and Retroversion.
3. Coracoacromial arch.
4. Equinus gait.
5. Types of hand grip.
6. Muscles of elevation of shoulder.
7. Components of force.
8. Synergist and fixator.
9. Ligaments of Bigelow.
10. Prehension.

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

[LR 1220] **DECEMBER 2020** **Sub. Code: 6256**
(AUGUST 2020 EXAM SESSION)

BPT DEGREE EXAMINATION
SECOND YEAR
PAPER II – BIO-MECHANICS, APPLIED ANATOMY & KINESIOLOGY
Q.P. Code : 746256

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

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

1. Describe the postural deviations from optimal alignment in the frontal plane.

2. Describe in detail the structure and function of Humeroulnar and Humeroradial joints.

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

1. Explain the structure and function of scapulothoracic joint.
2. Describe the structure and function of thoracolumbar fascia.
3. Explain force velocity relationship.
4. Describe the layers and functions of joint capsule.
5. Write about the ligaments supporting the subtalar joint.
6. Explain the mechanism of finger flexion.
7. Compare running verses walking gait.
8. Describe the motions of patella with diagrams.

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

1. State the six main ligaments associated with intervertebral and zygapophyseal joints.
2. What is normal sway envelope?
3. What is spodylolisthesis?
4. Draw the angle of wiberg.
5. What is patellar plica?
6. Define torque.
7. Write the attachment and function of Ligamentum Teres.
8. What is Hysteresis?
9. What are joint reaction forces?
10. What is Young's modulus?

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

[BPT 0921] **SEPTEMBER 2021** **Sub. Code: 6256**
(FEBRUARY 2021 EXAM SESSION)

BPT DEGREE EXAMINATION
SECOND YEAR - (Regulations of 2004-2005 and 2006-2007 admitted candidates are merged with 2010-2011)
PAPER II – BIO-MECHANICS, APPLIED ANATOMY AND KINESIOLOGY
Q.P. Code : 746256

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

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

1. Define gait and explain in detail about the pathomechanics of gait.
2. Describe the tissues present in human joints and mention general effects of injury and disease.

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

1. Structure and function of Plantar arches.
2. Differentiate coxa valga from coxa vara.
3. Explain about function of the cervical region.
4. Explain about pes planus.
5. Centre of gravity.
6. Concurrent force system.
7. Volar plate.
8. Lumbar pelvic rhythm.

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

1. Moment arm of a force.
2. Shear force.
3. Grip.
4. Subacromial space.
5. Force vectors.
6. Joint Play.
7. H zone.
8. Intercalated segment.
9. Squeeze film lubrication.
10. Waddling gait.

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

[BPT 0122] JANUARY 2022 Sub. Code: 6256
(AUGUST 2021 EXAM SESSION)

BACHELOR OF PHYSIOTHERAPY DEGREE COURSE
SECOND YEAR – (Regulations of 2004-2005 & 2006-2007 are merged with 2010-2011)
PAPER II – BIO-MECHANICS, APPLIED ANATOMY AND KINESIOLOGY
Q.P. Code : 746256

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

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

1. Describe hip joint in brief and give its biomechanics in detail. Brief on its Pathomechanics also.
2. Define and describe Gait. Explain any three pathological gaits in detail.

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

1. Length – tension relationship in a muscle.
2. Ergonomics.
3. Lumbo sacral rhythm.
4. Bilateral stance.
5. Motor unit and its firing.
6. Prehension.
7. Arthro kinematics in shoulder.
8. Pes Cavus.

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

1. Genu Valgum.
2. Arcuate lines.
3. ISO inertia.
4. Extensor expansion.
5. Plane of thumb.
6. Carrying angle.
7. Creep behavior.
8. Trendelenberg's sign.
9. Locking mechanism.
10. Angle of pull.

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