[KU 1002X]   **Sub. Code: 6215**

BACHELOR OF PHYSIOTHERAPY DEGREE EXAMINATION
Second Year
Revised Non-Semester Regulations
Paper II – BIOMECHANICS AND APPLIED ANATOMY
Q.P. Code : 746215

Time : Three hours   **Maximum : 100 marks**
Answer All questions
Draw suitable diagrams wherever necessary

I. Essays: **(2 x 15 = 30)**
   1. Describe in detail about the articulating structure, kinematics of tibiofemoral joint and related pathomechanics.

   2. Explain the elbow joint and its function.

II. Short Notes: **(10 x 5 = 50)**
   1. Synovial joint and its sub classification.
   2. Osteokinamatics of wrist joint.
   3. Passive insufficiency.
   4. Dynamic stability of glenohumeral joint.
   5. Power grip.
   6. Trabecular system of hip joint.
   7. Supinator twist.
   8. Tonic and phasic muscles.
   9. Metatarsal break.
  10. Determinanats of gait.

III. Short Answer: **(10 x 2 = 20)**
   1. Anatomical pulleys.
   2. Moment Arms.
   3. Friction force.
   4. Synovial fluid.
   5. Tide mark.
   6. pes cavus.
   7. Differentiate collagen and elastin.
   8. Horizontal steering muscles of shoulder joint.
   9. Differentiate cubitus valgus and cubitus varus.
  10. Facet joint.

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[KV 1002X]   **Sub. Code: 6215**

BACHELOR OF PHYSIOTHERAPY DEGREE EXAMINATION
Second Year
Revised Non-Semester Regulations
Paper II – BIOMECHANICS AND APPLIED ANATOMY
Q.P. Code : 746215

Time : Three hours   **Maximum : 100 marks**
Answer All questions
Draw suitable diagrams wherever necessary

I. Essays: **(2 x 15 = 30)**

   1. Describe the function of vertebral column.

   2. General properties of connective tissue.

II. Short Notes: **(10 x 5 = 50)**

   1. Concurrent force system.
   2. Winging of scapula.
   3. Supinated foot.
   4. Lumbar pelvic rhythm.
   5. Arthokinematics of tibiofemoral joint
   6. Gibbus.
   7. Volar plate.
   8. Centre of gravity.
   9. Radio carpal joint.
  10. Explain creep and stress relaxation.

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

   1. What is sway envelope?
   2. What is Wartenberg's sign?
   3. What is titin and mention its functions?
   4. Patella alta and patella bajja differentiate.
   5. Differentiate rehension and precision.
   6. Toe region.
   7. Pes planus.
   8. Joint capsule.
   9. Mechanical advantage.
  10. Fibrous joints.

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[KW 1002X]   **Sub. Code: 6215**

BACHELOR OF PHYSIOTHERAPY DEGREE EXAMINATION
Second Year
Revised Non-Semester Regulations
Paper II – BIOMECHANICS AND APPLIED ANATOMY
Q.P. Code : 746215

Time : Three hours   **Maximum : 100 marks**
Answer All questions
Draw suitable diagrams wherever necessary

I. Essays: **(2 x 15 = 30)**
　　1. Describe in detail about the wrist joint and its function.

　　2. Define gait and explain in detail about the pathomechanics of gait.

II. Short Notes: **(10 x 5 = 50)**
　　1. Kinematic chain with suitable examples.
　　2. Scoliosis.
　　3. Active insufficiency.
　　4. Spurt and shunt muscles.
　　5. Lumbricals.
　　6. Role of extensor mechanism in fingers.
　　7. Tennis elbow.
　　8. Supinator twist.
　　9. Locking and unlocking mechanism of knee joints.
　10. Static stability of dependant arm.

III. Short Answer: **(10 x 2 = 20)**
　　1. Concurrent force systems.
　　2. Quadriceps lag.
　　3. Shear force.
　　4. Coupled motions.
　　5. Ligament of bigelow.
　　6. Sesamoiditis.
　　7. Vertical steering muscles of shoulder joint.
　　8. Coupled motion.
　　9. Centre of pressure.
　10. Slow - Twitch oxidative fibre.

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[KX 1002X]   **Sub. Code : 6215**
BACHELOR OF PHYSIOTHERAPY DEGREE EXAMINATION

Second Year Revised Non-Semester Regulations
Paper II – BIOMECHANICS AND APPLIED ANATOMY
Q.P. Code : 746215

Time : Three hours   **Maximum : 100 marks**
ANSWER ALL QUESTIONS
Draw suitable diagrams wherever necessary

I. Essays: **(2X15=30)**

1. What is Muscle Tension? Classify it and explain in detail length, tension relationship and factors affecting Muscle Tension.
2. Describe in detail the anatomy of Lumbar Vertebra. Explain in detail the Kinetics and Kinematics of Lumbar region.

II. Short Notes :   **(10X5=50)**

1. Pronation Twist.
2. Static Stabilization of Shoulder.
3. Effect of Muscle Paralysis in Gait.
4. Parallel Force System.
5. Torque.
6. Coxa Valga.
7. Nurse – Maid's Elbow.
8. Tonic and Phasic Muscle.
9. Plantar arches and their function.
10. Explain Tensile forces with example.

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

1. Claw toe and Hammer toe.
2. Force and Acceleration.
3. Cubitus Valgus and Cubitus Varus.
4. What is Patella Aita?
5. What is Flexion Relaxation Phenomenon in Spine?
6. Gibbus.
7. Explain Resting angle of Scapula.
8. What is angle of Wibers and its importance?
9. Scapulo Humeral and Lumbar Pelvic Rhythm.
10. Difference between Pronation and Supination Twist.

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[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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[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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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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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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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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