

[KM 927]

Sub. Code : 5317

II. Short Notes :

(10 × 5 = 50)

BACHELOR OF PHYSIOTHERAPY DEGREE
EXAMINATION.

Fourth Semester

(New Modified Regulations)

Paper III — BIOMECHANICS

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay Questions : (2 × 15 = 30)

(1) Describe the role of external forces applied on knee complex in dynamic stability. Add a note on functional variations of ~~knee joint~~ knee joint structure during gait cycle.

(2) Explain the Kinematic Analysis of the thoracic vertebral region. Describe the role of ligamentous contribution in static stability of the vertebral column.

- (a) Angle of Tibial Torsion.
 - (b) Normal joint envelope.
 - (c) Loading of foot.
 - (d) Opposition of little finger.
 - (e) Ground Reaction forces.
 - (f) Kinetics of Supination/Pronation.
 - (g) Biomechanical principles and Traction.
 - (h) Functional Analysis of Triceps Suræ.
 - (i) Arches of foot.
 - (j) Genu Valgum.
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EXAMINATION.**

Fourth Semester

(New Modified Regulations)

Paper III — BIOMECHANICS

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

Theory : Two hours and forty minutes

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

Answer ALL questions.

Draw suitable diagrams wherever necessary.

1. Essay questions : (2 × 15 = 30)

(1) Discuss the static and dynamic stability of the vertebral column.

(2) Discuss the structure of the glenohumeral joint and explain about Dynamic stability.

II. Short notes : (10 × 5 = 50)

(a) Note on synovial fluid and its function

(b) Support your view, use of cane on contralateral side

(c) Note on possible gait alternations incase of leg length discrepancy

(d) Explain closed and open kinematic chain

(e) **Locking and unlocking mechanism of knee**

(f) Determinants of gait

(g) Explain varieties of precision handling

(h) Explain the types of motion

(i) Note on curves of vertebral column

(j) Explain the functions of disk in specific to the joints were it present.

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Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay questions :

(1) Describe the Ankle-Subtalar Complex. What are the movements occurring in this complex. Add a note on triplanar nature of Ankle Joint Motion. (20)

(2) Describe the effects of gravity, location of the gravity line in the sagittal plane in optimal posture. (15)

(3) Describe normal human locomotion. (15)

II. SIX Short notes :

(6 × 5 = 30)

(a) Torque

(b) Advantages and disadvantages of coracoacromial arch

(c) Conjunct and adjunct rotation

(d) Carrying angle

(e) Flat Foot

(f) Lumbopelvic Rhythm.

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EXAMINATION.

Fourth Semester

(New Modified Regulations)

Paper III — BIOMECHANICS

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay questions :

(1) Describe static and dynamic stabilisation of
shoulder complex. (20)

(2) Describe Length-Tension relationship and
Force-Velocity relationship. (15)

(3) Describe Patello femoral joint and its
reaction forces. (15)

II. Short notes :

(6 × 5 = 30)

- (a) Linear force system.
 - (b) Role of Lumbricals.
 - (c) Distraction Injury.
 - (d) Isokinetic Exercises.
 - (e) Atrial compression.
 - (f) Postural changes in Pregnancy.
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**BACHELOR OF PHYSIOTHERAPY DEGREE
EXAMINATION.**

Fourth Semester

(Modified/ New Modified Regulations)

Paper III → BIOMECHANICS

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks
forty minutes

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay questions : (2 × 15 = 30)

(1) Describe in detail about various type of motion and add the notes on torque and momentarm in relation to type of motion.

(2) Describe in detail about kinematic and kinetic of sacroiliac joint.

II. Short notes : (10 × 5 = 50)

(a) Difference between close packed position and loose pack position.

(b) Difference between spurt muscle and shunt muscle.

(c) Passive insufficiency.

(d) Sterno clavicular joint kinematics.

(e) Intervertebral disk.

(f) Difference between closekinematic chain and open kinematic chain.

(g) Kinematics of wrist joint.

(h) Triangular fibrous cartilage.

(i) Role of abdominal muscle in inspiration.

(j) Factors affecting muscle function.

FEBRUARY 2008

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Sub. Code : 5317

**BACHELOR OF PHYSIOTHERAPY DEGREE
EXAMINATION.**

Fourth Semester

(Modified/New Modified Regulations)

Paper III — BIOMECHANICS

Q.P. Code : 745317

Time : Three hours Maximum : 100 marks

**Theory : Two hours and Theory : 80 marks
forty minutes**

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

**1. Difference between phasic and tonic muscle and
add the notes on active and passive insufficiency**

**2. Describe in detail about kinematic and kinetics of
knee joint.**

II. Short notes : (10 × 5 = 50)

1. Classification of joint.

2. Biomechanical behaviours of cartilage.

3. Kinematics of angle joint.

4. Kinematics of Hip joint.

5. Factors affecting angular velocity of muscle.

**6. Lumbar pelvic rhythm in close and open kinematic
chain.**

7. Kinetic of shoulder abduction.

8. Describe various types of muscle fibers.

9. Anatomical and mechanic axis of knee joint.

10. Unilateral stability in Hip joint.

AUGUST 2008

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**BACHELOR OF PHYSIOTHERAPY DEGREE
EXAMINATION.**

Fourth Semester

(Modified/New Modified Regulation)

Paper III — BIOMECHANICS

Q.P. Code : 745317

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

- I. Long Essay : (2 × 15 = 30)**
- 1. Explain the ankle mortise and give a detailed description of ankle joint function.**
 - 2. What is muscle tension? Explain the factors affecting of muscle tension. Give a detailed account of length tension relationship and its applications.**

AUGUST 2008

II. Short notes : (10 × 5 = 50)

1. Differentiate pronator and supinator twist.
2. Differentiate spurt and shunt muscle.
3. Patello femoral joint reaction forces.
4. Angulations of the femur.
5. Determinants of gait.
6. Torque.
7. Distraction injury.
8. Muscle fibre types and their classification.
9. Static stabilisation of dependent arm.
10. Analysis of cylindrical grip.

III. Write short answers: (10 × 2 = 20)

1. Define moment arm.
2. What is tide mark?
3. What is doms?

4. What is lumbar pelvic rhythm?
 5. What do you mean by steering muscle?
 6. What is tardy ulnar palsy?
 7. What is wartenburg's sign?
 8. What do you mean by trabecular system?
 9. What is quadriceps lag?
 10. Define metatarsal break?
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