



**G-131005**

Seat No. \_\_\_\_\_

**Bachelor of Physiotherapy (Sem. I) Examination**

**March / April – 2019**

**BPTOC - 105 : Basic Principles of Biomechanics**

Time : 3 Hours]

[Total Marks : 80

- Instructions :** (1) Answer should be brief and to the point.  
(2) Illustrate answers with suitable diagrams.  
(3) Figures to the right indicate full marks.

**SECTION - I**

- 1 Long answer : (Any One out of Two) 1×15=15**  
(a) Explain in detail about the Principles of Stability.  
(b) What is Axes and Planes ? Correlate Axes & Planes with suitable human bodily examples.
- 2 Short answer : (Any Three out of Four) 3×5=15**  
(a) Classification of Muscles with suitable examples.  
(b) Brief about the components of force.  
(c) Write about arthrokinematics and osteokinematics with suitable examples.  
(d) Define Equilibrium with its types.
- 3 Very short answer : (Any Five out of Seven) 5×2=10**  
(a) Centripetal Force  
(b) Action of 2 joint muscles  
(c) Friction  
(d) Center of Gravity  
(e) Composite effect of two or more forces  
(f) What is work?  
(g) Newton's Law of Inertia

## SECTION - II

- 4 Long answer : (Any **One** out of Two) **1×15=15**
- (a) What is Lever ? Write about the orders of Lever with suitable examples.
  - (b) What is Impetus ? Explain the principles of giving and receiving impetus with suitable examples.
- 5 Short answer : (Any **Three** out of Four) **3×5=15**
- (a) Explain the types of muscle contractions.
  - (b) Brief the effects of injury and immobilization on joints.
  - (c) Define Pulleys. Brief about anatomical pulleys.
  - (d) Properties of the connective tissues.
- 6 Very short answer : (Any **Five** out of Seven) **5×2=10**
- (a) Line of Pull
  - (b) What is Force couple effect ?
  - (c) Classification of motion
  - (d) What are Red fibers and White fibers of muscles ?
  - (e) Newton's Third law of motion
  - (f) What is torque ?
  - (g) Momentum.
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