**G-131005**          Seat No.
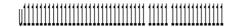
# Bachelor of Physiotherapy (Sem. I) Examination
### March / April - 2019
## BPTOC - 105 : Basic Principles of Biomechanics

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)          **3x5=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)          **5x2=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)                    **1x15=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)                 **3x5=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)           **5x2=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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