

BACHELOR IN PROSTHETICS AND ORTHOTICS
FIRST YEAR
PAPER V – BIOMECHANICS - I

Q.P. Code: 802455

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on: **(3 x 10 = 30)**

1. What are the types of muscles in the body? What do you understand by eccentric contraction of a muscle? Explain with an Example and draw diagrams.
2. Write down the properties of specific tissues with in the human joints and brief.
3. Explain with the help of a diagram, kinematics of knee joint during one gait cycle.

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

1. Explain degree of freedom.
2. State the law of motion with example.
3. Draw a labelled diagram and explain stress strain curve for connective tissue.
4. Explain three point force principle and give any one orthotic example.
5. Draw and explain the anatomical planes.
6. EMG, its recording and its applications.
7. Tensile forces with examples.
8. Factors determining the active tension in the muscle.

III. Short answers on: **(10 x 3 = 30)**

1. Explain Joint reaction forces.
2. What is Force platform?
3. What are concurrent forces?
4. What is vaulting?
5. What is pistoning effect?
6. Is displacement a vector or scalar quantity? Justify with an example.
7. Define Velocity and Acceleration.
8. Define motion and explain the types of motion.
9. Define terms Kinesiology and Biomechanics.
10. Name the different arches of foot?
