

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0424]

APRIL 2024

Sub. Code: 2464

**BACHELOR IN PROSTHETICS AND ORTHOTICS
SECOND YEAR (Regulation 2017-2018 onwards)
PAPER IV – BIOMECHANICS II
*Q.P. Code: 802464***

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. Instrumental gait analysis system and its components.
2. Gait deviation of KAFO and force system.
3. Describe various designs of transfemoral socket with biomechanics.

II. Write notes on:

(8 x 5 = 40)

1. Differentiate between moment and torque.
2. SACH foot and its function.
3. Offset Knee joint and its principles.
4. Alignment procedures for KAFO.
5. Prosthetic hip joint and its location.
6. Trendelenburg gait.
7. Determinant of gait.
8. Hip hiking Vs Vaulting.

III. Short answers on:

(10 x 3 = 30)

1. Differentiate between torsional stress and axial bending stress.
2. Arches of foot and its function.
3. Effects of malalignment.
4. What is windlass mechanism?
5. Swing to Vs Swing through crutch gait.
6. Biomechanical advantage of patella.
7. What is the advantage of ischial containment socket?
8. Single axis Vs Polycentric knee joint.
9. Force system in knee orthosis.
10. Inversion and eversion of foot and shoe modification.
