

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

[AHS 0423]

APRIL 2023

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. Mechanical Characteristics of Bone and Muscle.
2. Explain in detail Instrumented GAIT Analysis.
3. GAIT Deviations in Trans Tibial Prosthesis.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Biomechanical Principals of HKAF0.
2. Force distribution in Symes Prosthesis.
3. Biomechanics of Ankle Foot Orthosis (AFO).
4. Function of Ligaments and Muscle.
5. Whip and Circumduction gait deviation.
6. Function of Knee cap in KAFO.
7. Merits and demerits of Polycentric Knee joint.
8. Trans femoral Prosthetic Socket Design variants.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Kinetics and Kinematics.
2. Pathological gait deviation in Cerebral Palsy.
3. Define Genu-recurvatum.
4. Gait benefits in Carbon fiber foot pieces.
5. Microprocessor Knee joint.
6. Foot Slapping gait deformity.
7. Lateral Trunk bending gait deviation.
8. Advantages of pyramid alignment system.
9. Force distribution in SMO.
10. Advantages of quadrilateral socket design for TF amputee.

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