

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

[AHS 0423]

APRIL 2023

Sub. Code: 2454

BACHELOR IN PROSTHETICS AND ORTHOTICS

FIRST YEAR (Regulation 2017-2018 onwards)

PAPER IV – APPLIED MECHANICS & STRENGTH OF MATERIALS

Q.P. Code: 802454

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on : (3X10=30)

1. A simply supported beam of 4 meter span carries two loads of 10 KN each at 1 meter and 2 meter from left hand support. Draw Shear Force and Bending Moment Diagram.
2. With neat diagram, describe Open and Closed Coiled Helical Spring and its applications.
3. Display devices for transmitting information from machine to man.

II. Write Notes on : (8X5=40)

1. Mechanics, S.I Units and Scalar and Vector Quantities.
2. Resolution of Forces.
3. Stress, Strain and Elastic Limit.
4. Types of Beams.
5. Theorem of Parallel Axis.
6. Buckling and Theories of Failure.
7. Centre of Gravity.
8. Control Systems in Upper limb Prosthetics.

III. Short Answers on : (10X3=30)

1. Newton's Law.
2. Free Body Diagram.
3. Stress.
4. Modulus of Elasticity.
5. Parallel and Non-parallel Forces.
6. Uniform Acceleration.
7. Friction.
8. Theories of Failure.
9. Cantilever Beam.
10. Ergonomics.
