

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

[AHS 1123]

NOVEMBER 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

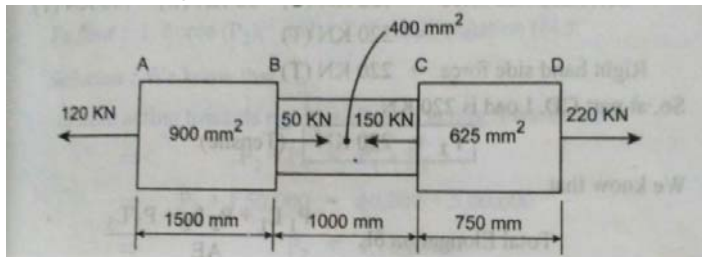
Answer All questions

Maximum : 100 Marks

I. Elaborate on :

(3X10=30)

1. Find the Centroid of an $100\text{mm} \times 150\text{mm} \times 30\text{mm}$ T-section
2. A member ABCD is subjected to loading as shown in Fig. Determine the total elongation. Taken $E = 2 \times 10^5 \text{ N/mm}^2$



3. State and prove Polygon Law of forces.

II. Write Notes on :

(8X5=40)

1. Combined and torsional stress.
2. Work, Energy and Power.
3. Characteristics of a force with neat sketch.
4. What is meant by derived unit and fundamental unit?
5. Causes of air pollution and preventive measures.
6. Different between closed coiled and open-coiled helical spring.
7. Assumption made in the Euler's column theory.
8. Define stress, strain and shear force.

III. Short Answers on :

(10X3=30)

1. What is simply supported beam?
2. State Newton's first law.
3. Stiffness of a spring.
4. Moment of Inertia.
5. What is meant by resultant force?
6. Modulus of elasticity.
7. Simple stress and compound stress.
8. Disadvantage of friction.
9. Find the power of an engine, which can do a work of 1200 Joules in 8 seconds.
10. Define Couple.
