I SEMESTER B. TECH DEGREE Assignment-1,
July- Dec 2023
SUBJECT: Mechanics of Solids (CIE_1071)

Date: 30/10/2023   **Submit by: 6/11/2023**   **TOTAL MARKS: 10**

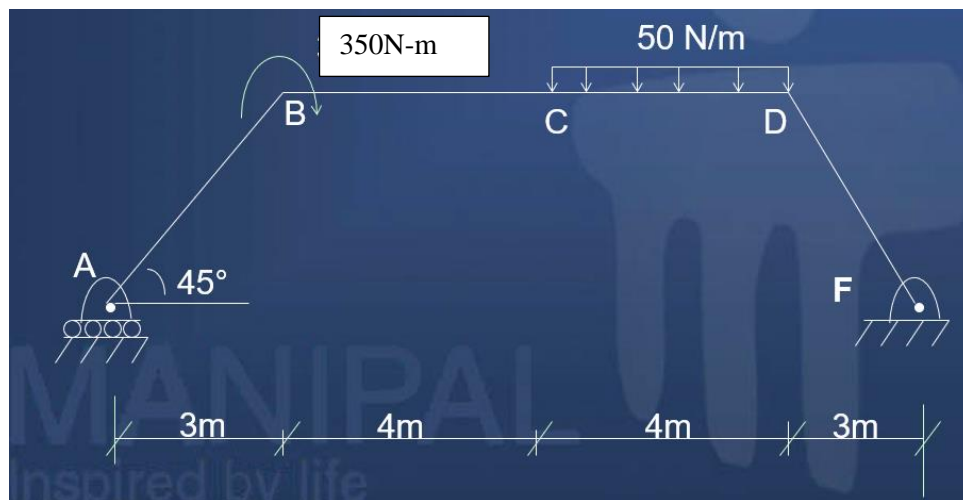--

Instructions:

- Answer all questions.
- Missing data, if any, may be assumed suitably.
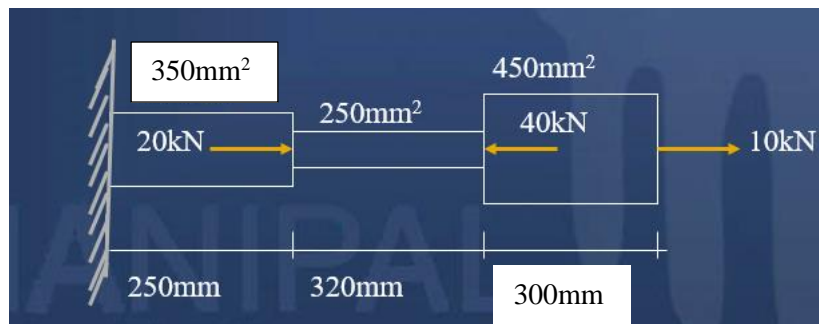- Calculator is allowed.

Q.1. Compute the reactions for the bent beam shown in the figure at A and F.   **[2]**
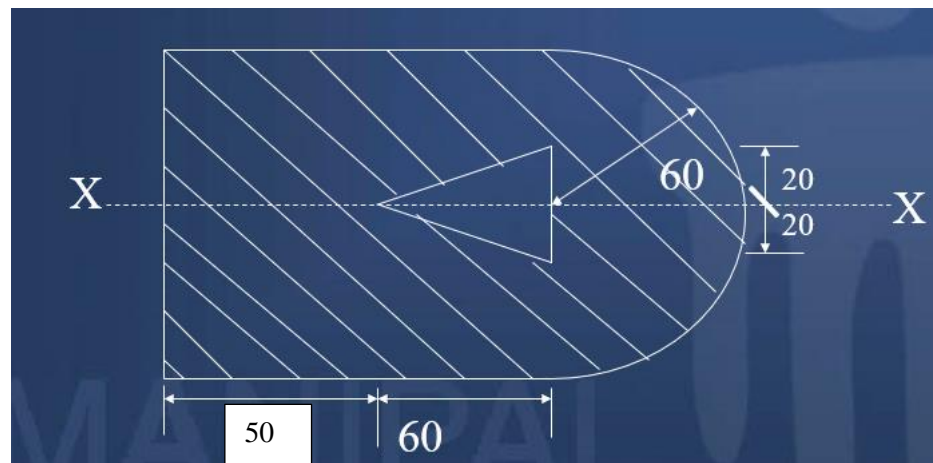

Q.2. A stepped bar with three different cross-sectional areas, is fixed at one end and loaded as shown in the figure. Determine the stress and deformation in each portion. Also find the net change in the length of the bar. Take E = 200GPa.   **[2]**
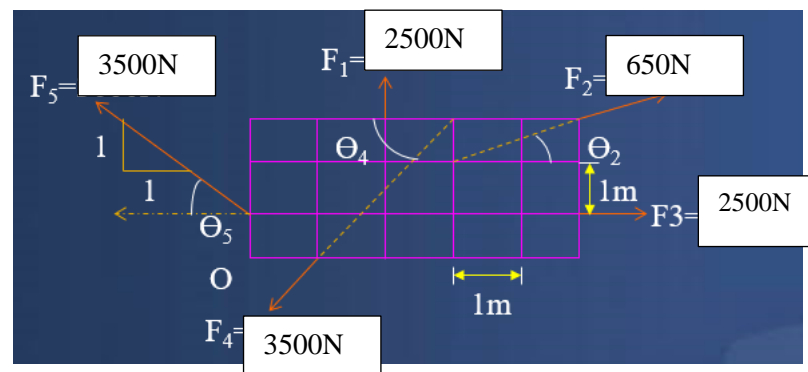
Q.3. Determine the horizontal and vertical centroidal moment of inertia of the shaded portion of the figure. **[2]**

Q.4. Find the resultant and its position w.r.to 'O' of the non-concurrent system of forces shown in the figure. **[2]**

Q.5. A block of weight 400 kN is lifted by a wedge as shown in the figure. Calculate force 'F' required to rise the block. Consider angle of limiting friction as 19° at all contact surfaces. **[2]**