

PES University

Department of Civil Engineering

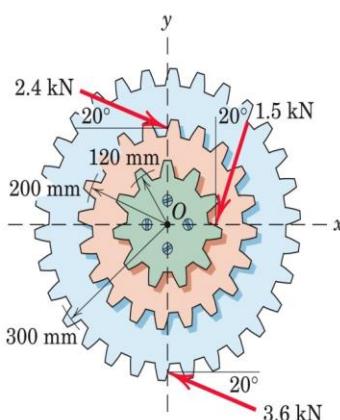
B.Tech – 1st Semester

Subject : Engineering Mechanics

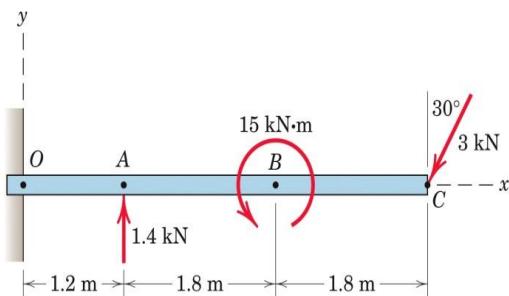
Unit:2 – Equilibrium

Assignment

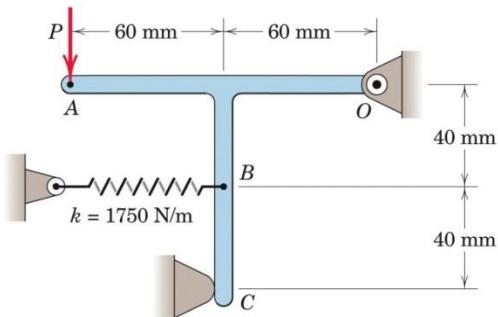
1	Define the term Equilibrium.
2	State and explain the conditions of equilibrium required for a system of coplanar, non-concurrent forces
3	Explain the difference between statical determinancy and statical indeterminacy of a structure
4	What is meant by Free Body Diagram and why are they important.
5	What do you understand by the terms ‘Roller Support’, ‘Hinge Support’, and ‘Fixed Support’.
6	For a coplanar concurrent force system, define the term “Resultant Force”. In terms of coplanar force x and y components, write expressions for R_x , R_y (x and y components of resultant force R), magnitude R and direction θ , where θ is the angle made by the resultant force R with respect to x axis.



- 7 The 500 kg uniform beam is subjected to the three external loads as shown in Figure 1(a). Compute the reactions at the support point O. The x-y plane is vertical.



- 8 When the 0.05 kg body is in the position shown in Figure 1(b), the linear spring is stretched 10 mm. Determine the force P required to break the contact at C. Complete solutions for (a) including the effects of the weight and (b) neglecting the weight.



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