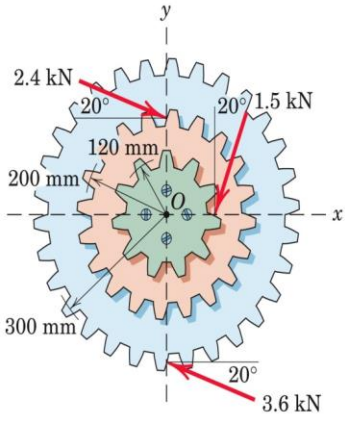
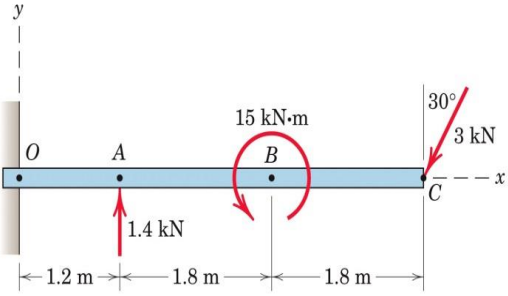
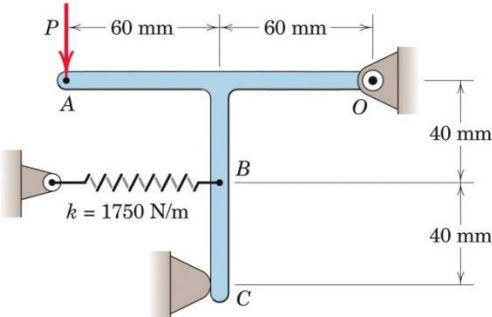


<b>PES University</b>
<b>Department of Civil Engineering</b>
<b>B.Tech – 1st Semester</b>
<b>Subject : Engineering Mechanics</b>
<b>Unit:2 – Equilibrium</b>
<b>Assignment</b>

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 determinacy 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	<p>For a coplanar concurrent force system, define the term “Resultant Force”.  In terms of coplanar force <math>x</math> and <math>y</math> components, write expressions for <math>R_x</math>, <math>R_y</math> (<math>x</math> and <math>y</math> components of resultant force <math>R</math>), magnitude <math>R</math> and direction <math>\theta</math>, where <math>\theta</math> is the angle made by the resultant force <math>R</math> with respect to <math>x</math> axis.</p> 

7	<p>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.</p> 
8	<p>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.</p> 

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