

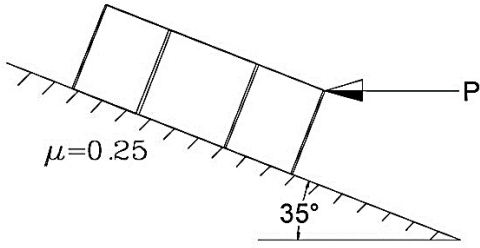
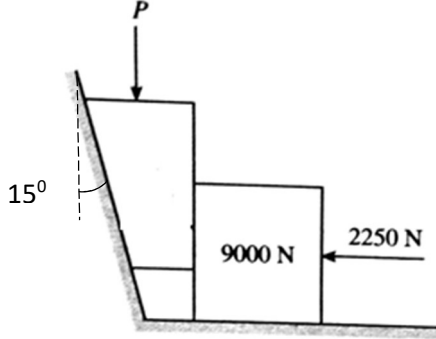


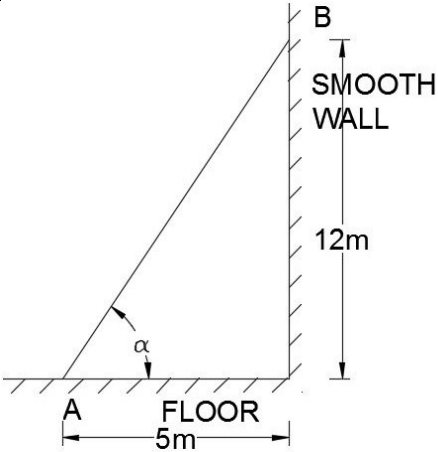
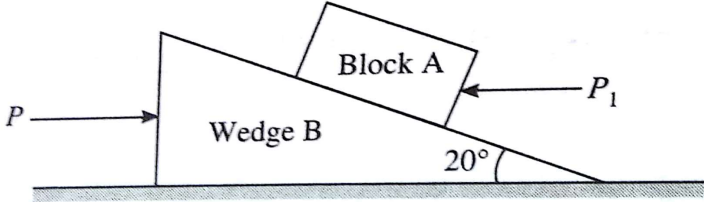
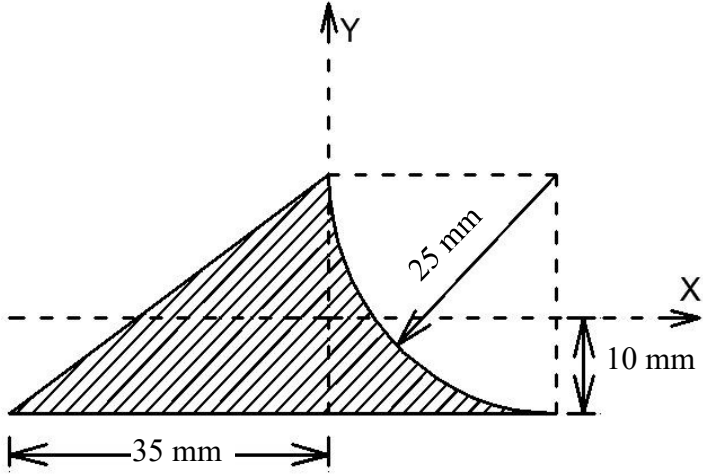
Subject (Name & Code): Mechanics of Solids (CIE 1051)

Date of Examination:

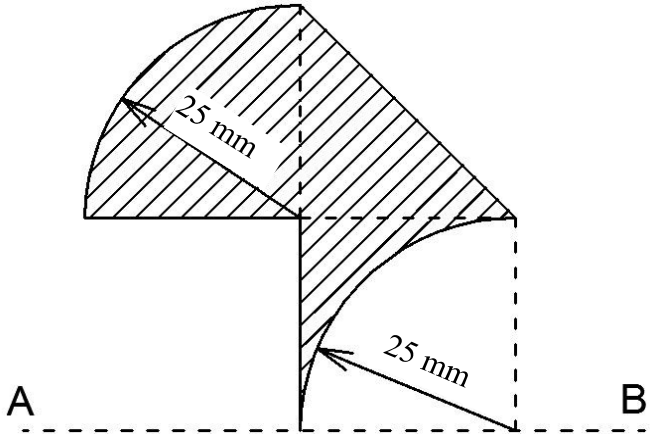
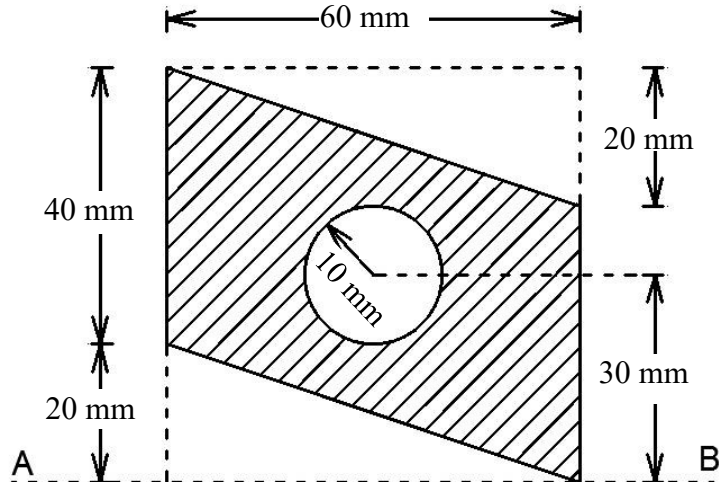
Assignment Test - II

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Total Marks:

Q. No	Questions	Marks	CO
1	<p>The block shown in figure has mass of 5689.8N.</p> <p>i) If $P = 6000\text{N}$, find the magnitude and sense of the frictional force which acts on the block.</p> <p>ii) What value of P will cause the block to have impending motion up the plane?</p> 	5	2
2	<p>Determine force P required to drive the wedge down as shown in figure. Take $\Phi = 15^\circ$ for all contact surfaces.</p> 	5	2
3	<p>A uniform ladder of weight 250N is placed against a smooth vertical wall as shown in figure. Coefficient of limiting friction between all rubbing surfaces is 0.3. Calculate α.</p>	5	2

	 <p>A diagram showing a block being raised by a wedge. The wedge is on a horizontal floor, with its base labeled 'A' and its top labeled 'B'. The height of the wedge is 12m, and its base is 5m. The angle of the wedge is α. The block is against a smooth wall. The floor is labeled 'FLOOR'.</p>		
4	<p>Block A weighing 12 kN is to be raised by means of 20° wedge by the application of horizontal forces P and P_1 as shown in the figure. Determine the forces P and P_1. The angle of limiting friction is 14° for all rubbing surfaces.</p>  <p>A diagram showing Block A on a wedge labeled 'Wedge B'. The wedge has an angle of 20°. A horizontal force P is applied to the left side of the wedge. A horizontal force P_1 is applied to the right side of Block A.</p>	5	2
5	<p>Locate the position of centroid of hatched portion w.r.to reference axes shown in figure.</p>  <p>A diagram showing a hatched portion of a shape. The shape is defined by a horizontal base of 35 mm, a vertical height of 10 mm, and a curved boundary. The centroid is to be located relative to reference axes X and Y. A dashed line indicates a distance of 25 mm from the vertical axis to the curved boundary.</p>	5	3
6	<p>Locate the position of centroid of hatched portion w.r.to reference axes shown in figure.</p>	5	3

	<p>Diagram of a hatched L-shaped composite area. The shape is defined by a 50 mm wide base, a 35 mm wide top flange, and a 15 mm high stem. A semi-circular cutout with a 20 mm radius is located in the top-left corner. Reference axes X and Y are shown at the bottom-left corner.</p>		
7	<p>Locate the position of centroid of hatched portion w.r.to reference axes shown in figure</p> <p>Diagram of a hatched quarter-circle area. The quarter-circle has a radius of 100 mm. A semi-circular cutout with a 70 mm radius is located in the bottom-right corner. Reference axes X and Y are shown at the bottom-left corner.</p>	5	3
8	<p>Determine second moment of area w.r.to reference axis AB shown in figure.</p> <p>Diagram of a hatched semi-circular area. The outer semi-circle has a radius of 5 m. A semi-circular cutout with a radius of 5 m is located in the top-left corner. Reference axis AB is shown as a vertical dashed line passing through the center of the outer semi-circle.</p>	5	3

9	<p>Determine second moment of area w.r.to reference axis AB shown in figure</p> 	5	3
10	<p>Determine second moment of area w.r.to reference axis AB shown in figure</p> 	5	3