

1a	<p>Explain</p> <ul style="list-style-type: none"> i) Principle of Transmissibility of forces ii) Principle of Superposition of forces iii) Principle of Physical Independence of forces 	08	L2	CO3
1b	<p>Solve for the magnitude and direction of the resultant for the force system shown in Fig 1(b)</p> <div data-bbox="705 606 1310 1165" data-label="Figure"> </div> <p>Fig. 1(b)</p>	09	L3	CO3
OR				

OR

2a	Explain i) Coplanar concurrent force systems ii) Non coplanar force system iii) Like parallel force system iv) Collinear force system	08	L2	CO3
2b	Four forces acting on a hook are shown in Fig 2(b). Determine the direction of the force 125 N such that the hook is pulled in the x-direction. Determine the resultant force in the x-direction	09	L3	CO3

Q. No.	Question	M	L	C
1a	<p>Explain</p> <p>i) Principle of Transmissibility of forces</p> <p>ii) Principle of Superposition of forces</p> <p>iii) Principle of Physical Independence of forces</p>	08	L2	CO3
1b	<p>Solve for the magnitude and direction of the resultant for the force system shown in Fig 1(b)</p> <div data-bbox="649 702 1254 1276"> </div> <p style="text-align: center;">Fig. 1(b)</p>	09	L3	CO3

2a	<p>Explain</p> <ul style="list-style-type: none"> i) Coplanar concurrent force systems ii) Non coplanar force system iii) Like parallel force system iv) Collinear force system 	08	L2	CO3
2b	<p>Four forces acting on a hook are shown in Fig 2(b). Determine the direction of the force 125 N such that the hook is pulled in the x-direction. Determine the resultant force in the x-direction</p>	09	L3	CO3

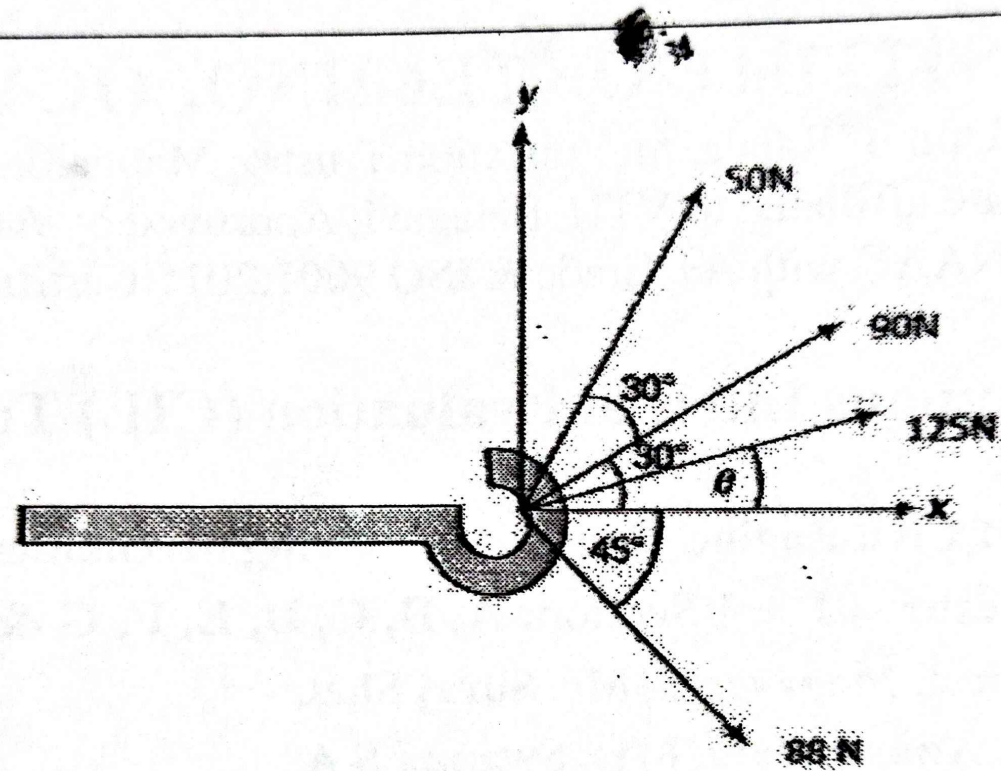
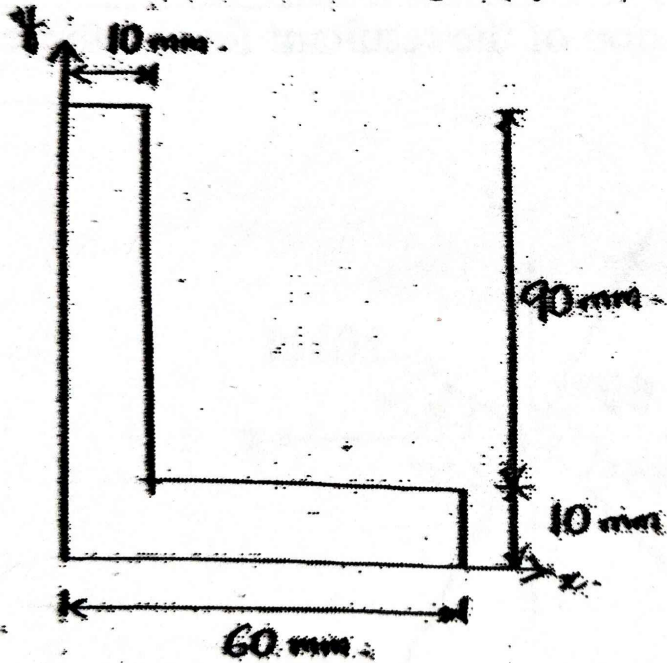
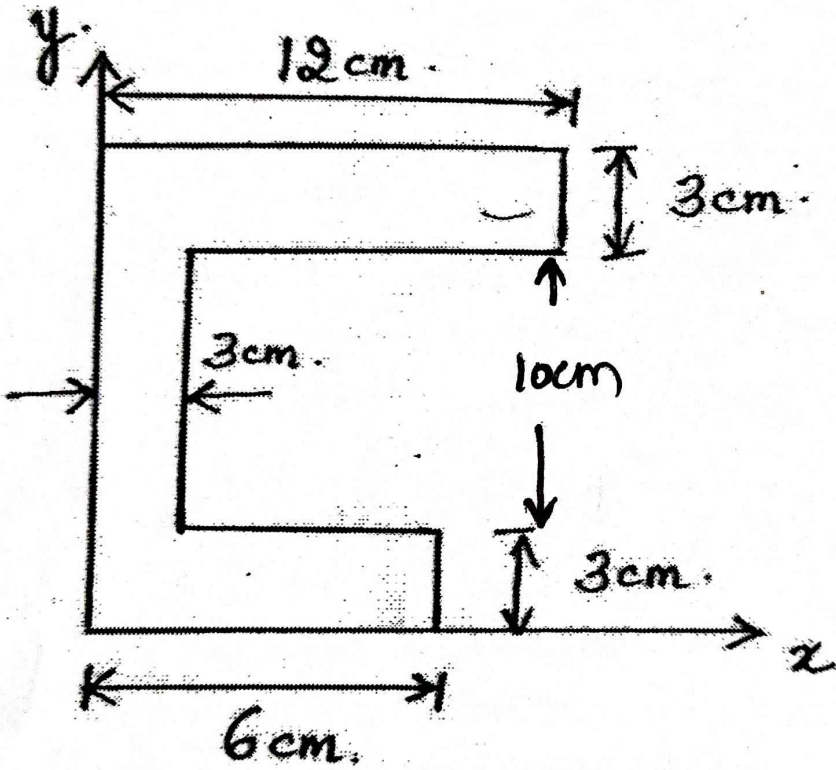


Fig 2(b)

3a	<p>Explain:</p> <ul style="list-style-type: none"> i) Free body diagram with a neat sketch ii) Moment of a force iii) Composition of forces 	07	L2	CO3
3b	<p>Solve for the centroid for the area shown in Fig 3 (b) with respect to the axis shown</p>  <p style="text-align: center;">Fig 3(b)</p>	10	L3	CO4

4a	Explain i) Characteristics of force ii) Resolution of force	07	L2	CO3
4b	Solve for the centroid for the area shown in Fig 4(b) with respect to the centroidal axis <div data-bbox="638 582 1243 1268" data-label="Figure"> <p>The diagram shows an I-shaped cross-section. The top flange is a rectangle with a width of 12 cm and a height of 3 cm. The web is a vertical rectangle centered under the flange, with a height of 10 cm and a width of 3 cm. The total height of the section is 13 cm. The bottom flange is a horizontal line with a width of 3 cm.</p> </div> <p data-bbox="862 1276 1041 1332">Fig 4(b)</p>	10	L3	CO4

5a	Apply the method of integration to derive the centroid of semicircle.	06	L3	CO4
5b	<p>Solve for the centroid for the area shown in Fig 5(b) with respect to the axis shown</p>  <p>The diagram shows a stepped L-shaped area in the first quadrant of a Cartesian coordinate system. The vertical axis is labeled y and the horizontal axis is labeled x. The shape is defined by the following dimensions: the top horizontal edge is 12 cm long; the right vertical edge of the top section is 3 cm high; the inner horizontal edge is 3 cm wide; the vertical distance from the inner horizontal edge to the bottom horizontal edge is 10 cm; the bottom horizontal edge is 6 cm long; and the right vertical edge of the bottom section is 3 cm high. An arrow points to the y-axis, indicating the reference axis for centroid calculations.</p> <p>Fig 5(b)</p>	10	L3	CO4

6a

Apply the method of integration to derive the centroid of rectangle

06

L3

CO4

Solve for the centroid for the area shown in Fig 6(b) with respect to the centroidal axis

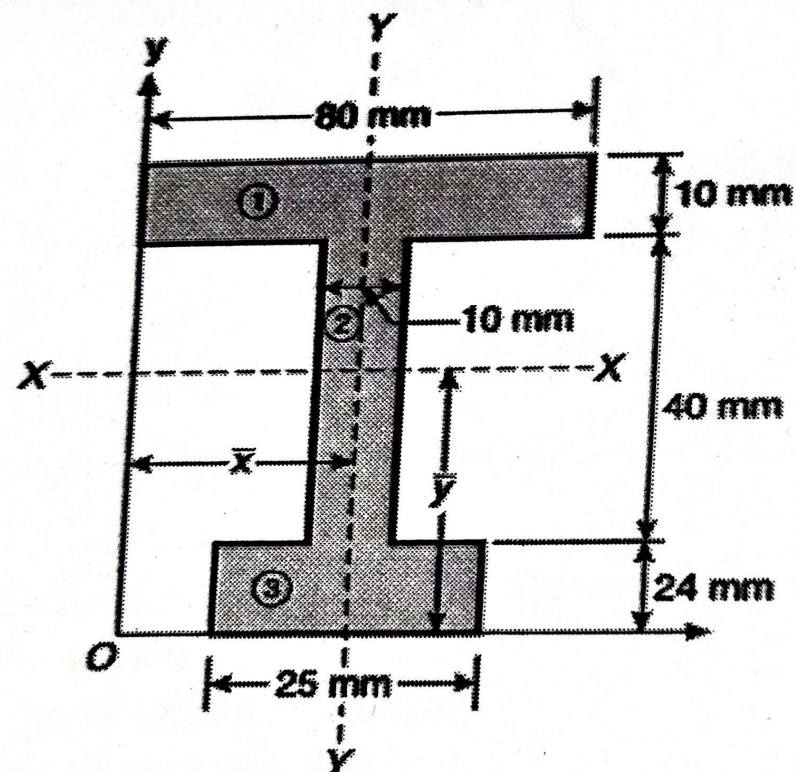


Fig 6(b)

10

L3

CO4