

Q.2 [A] $f_x = \frac{250\text{N}}{2\text{m}}$, $f_y = \frac{187.5\text{N}}{2\text{m}}$, $F = \frac{312.5\text{N}}{2\text{m}}$ $\theta = 36.79^\circ$

Q.2 [B]: $R = 869.80\text{N}$, $\theta = 63.87^\circ$ — 3 marks
 $\Sigma M_{CO} = 18418.62\text{N}\cdot\text{m}$ $\curvearrowright$ — 2 marks
 Representation — 1 marks.

Q.2 [C]: FBD — 2 marks, $R_1 =$
 $R_2 =$ | 4 marks.

Q.3 [A]: FBD — 2 marks $m = 18.75\text{KN}\cdot\text{m}$ — 2 marks
 $R_B = 50\text{KN}$ (A) — 2 marks

Q.3 [B]: FBD — 2 marks, $H_A = 0$ — 1 mark
 $V_A = 74\text{KN}$ — 1 mark
 $m = 148\text{N}\cdot\text{m}$ — 2 marks

Q.3 [C]: FBD — 1 mark.
 Reactions — 1 mark.

AB = 83.71 KN	4 marks
BC = 60.62 KN	
CD = 89.48 KN	
DE = 44.24 KN	
AE = 47.85 KN	
BE = 37.52 KN	
CE = 31.75 KN	

Q.4 [A] / Each block FBD = 2 marks.

$T = 724.52\text{N}$ — 2 marks

$P = 853.52\text{N}$ — 2 marks

Q.4 | B FBD of block — 2 marks

$$T = 337.68 \text{ N} - 2 \text{ marks}$$

$$P_{\text{min}} = 237.68 \text{ N} - 2 \text{ marks}$$

Q.4 | C FBD — 1 mark.

$$R_1 = 929.13 \text{ N} \quad \left| \quad 3 \text{ marks} \right.$$

$$R_2 = 838.29 \text{ N}$$

$$x = 1.877 \text{ m from B} - 2 \text{ marks}$$

Q.5 | A : ① $\frac{b}{3}$, $\frac{h}{3}$ — 3 marks
compl. derivatg

~~Q.5 | B~~ ② proof : Perpendicular Axis theorem = 3 marks

Q.5 | B Ans . . . 6 marks.

Q.5 | C $I_{xx} =$ 6 marks