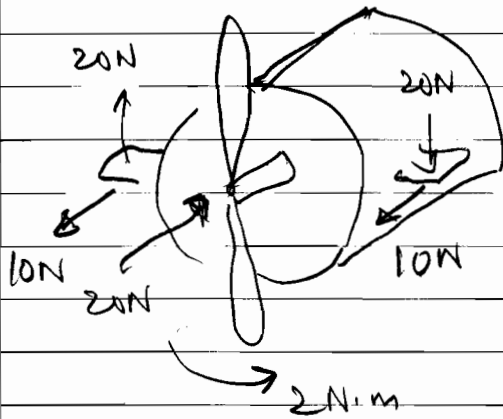


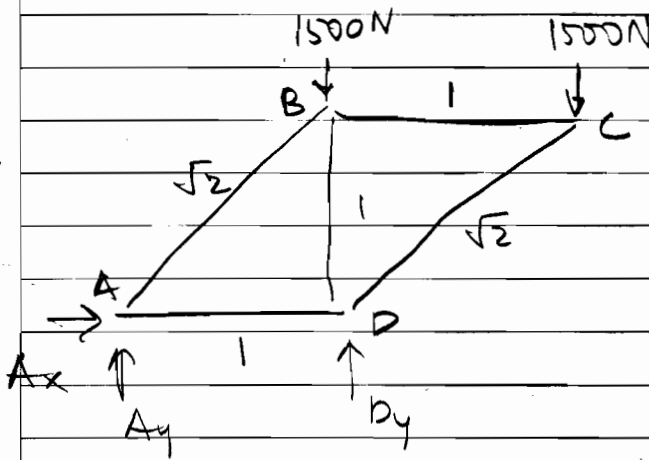
$$D = \frac{1000}{\sin \theta}, \quad C = \frac{1000}{\tan \theta}$$

$$E = \frac{1000}{\tan \theta}, \quad F = 1125 \text{ N}$$

3



2



$$A_x = 0$$

$$A_y = 3000 \text{ N}$$

$$D_y = 4500 \text{ N}$$

$$DC = 2121 \text{ N}, CB = 1500 \text{ N}$$

$$AB = 2121 \text{ N}, DA = 1500 \text{ N}$$

$$BD = 3000 \text{ N}$$

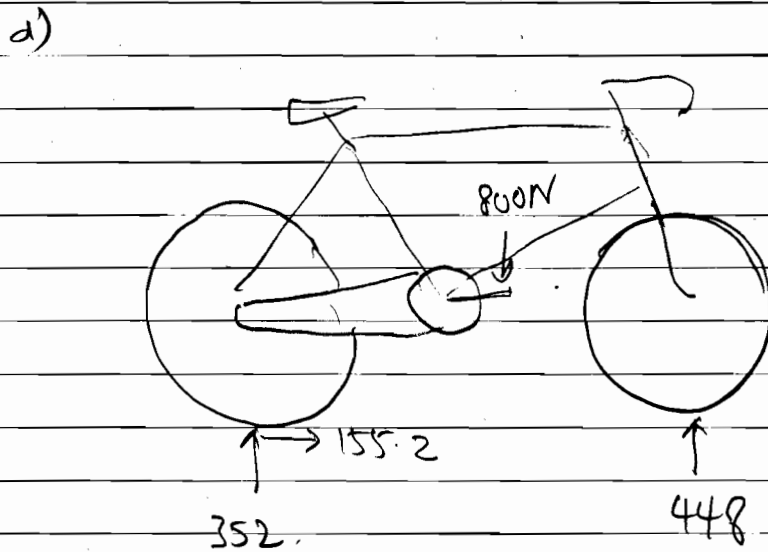
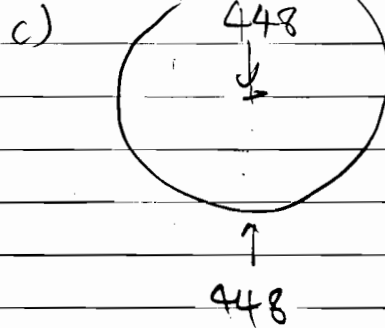
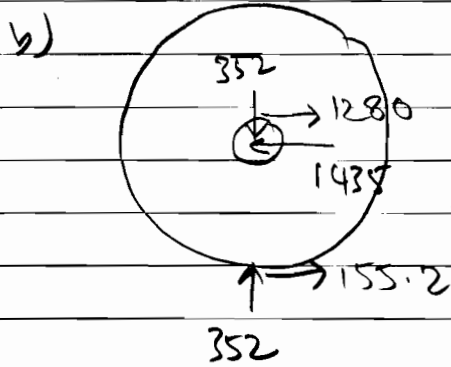
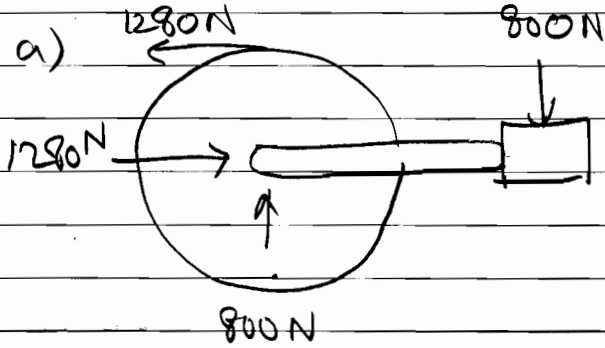
No. Kad Pengenalan

No. Soalan

Muka surat

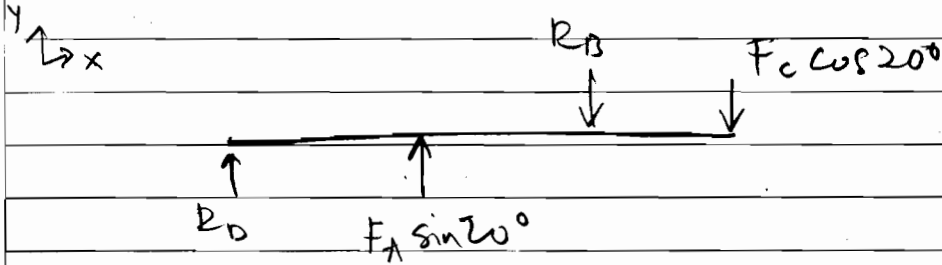
Jangan tulis apa-apa di kedua-dua belah garisan

4

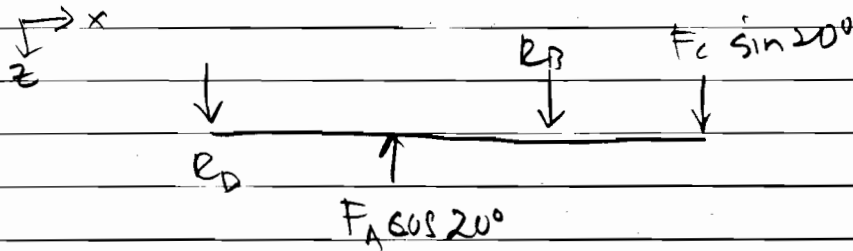


5 FBD for shaft:

XY plane:



YZ plane:

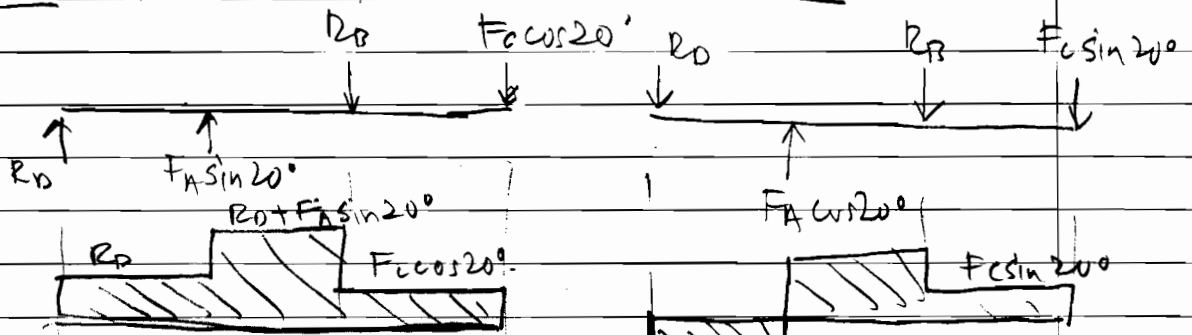


Shear and moment diagrams

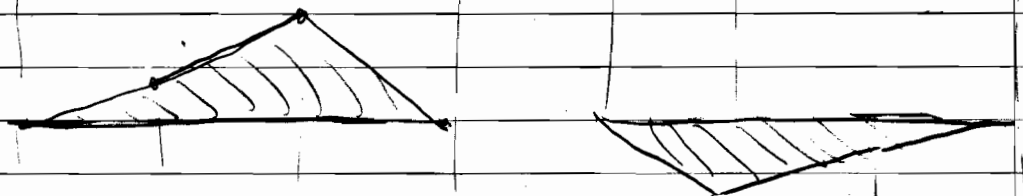
XY plane

YZ plane.

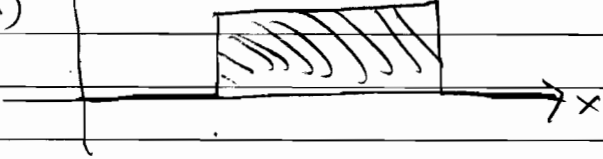
V diagram



M diagram



Torsion diagram

$$T = F_c \cos 20^\circ (0.012) = F_A \cos 20^\circ (0.025)$$


Note: Since both F_A and F_c are not known, the shear & moment diagrams shown might be different when F_A and F_c are known.

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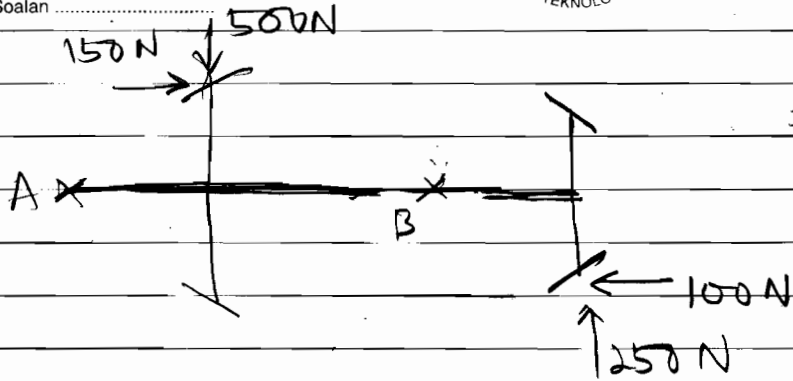
No. Kad Pengenalan

No. Soalan

Muka surat

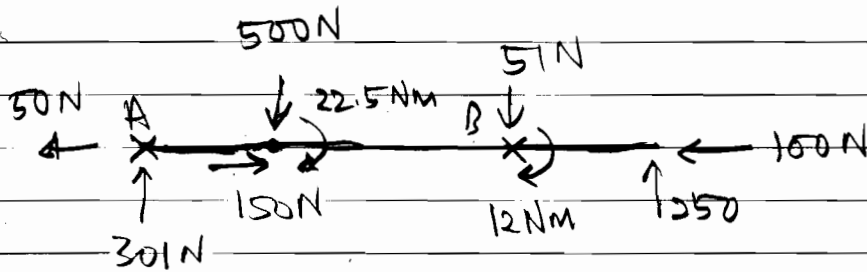
Jangan tulis apa-apa di kedua-dua belah garisan

6

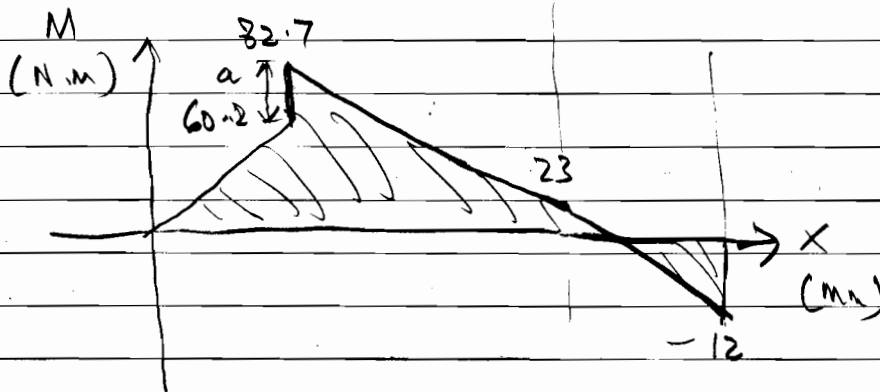
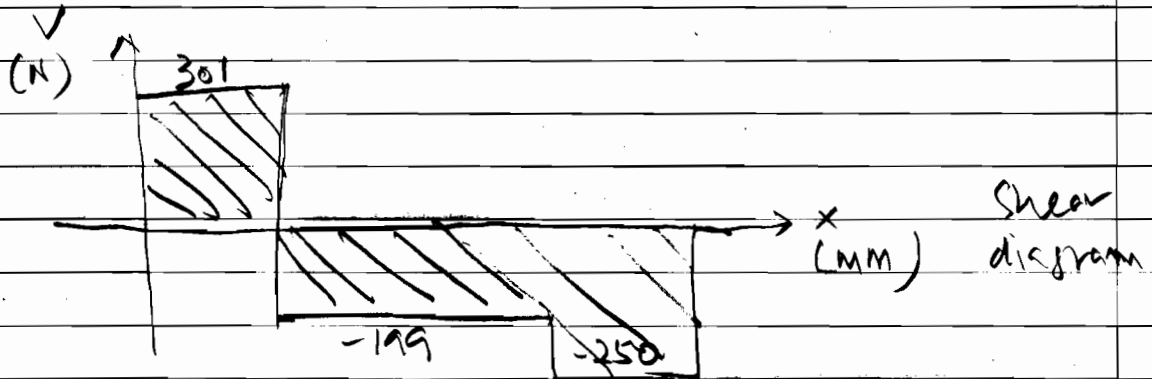


for complete dimension, please refer to question paper.

Solving for equilibrium:



F.B.D



Note:
 $a = 22.5 \text{ Nm}$