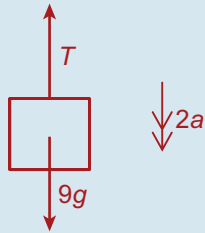


Particle B:



$$9g - T = 9(2a)$$

$$\Rightarrow 18g - 2T = 36a \quad \text{Equation 2}$$

Adding equations 1 and 2 gives

$$5g = 49a$$

$$\Rightarrow a = \frac{5g}{49}$$

$$= \frac{49}{49}$$

$$= 1 \text{ m/s}^2$$

(ii) Acceleration of B = 2a

$$= 2(1)$$

$$= 2 \text{ m/s}^2$$

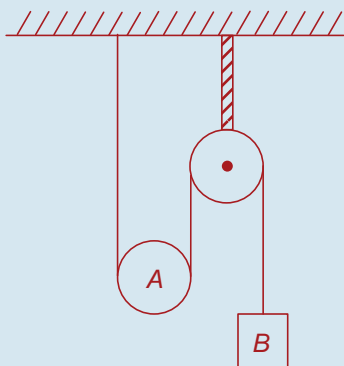
(iii) $2T - 13g = 13a$

$$\Rightarrow 2T = 13(1) + 13g$$

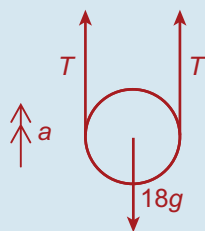
$$\Rightarrow 2T = 140.4$$

$$\Rightarrow T = 70.2 \text{ N}$$

Q. 3.



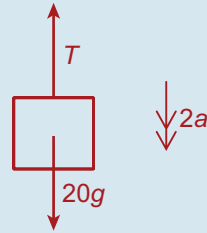
Pulley A:



$$2T - 18g = 18a$$

$$\Rightarrow T - 9g = 9a \quad \text{Equation 1}$$

Particle B:



$$20g - T = 20(2a)$$

$$\Rightarrow 20g - T = 40a \quad \text{Equation 2}$$

Adding equations 1 and 2 gives

$$11g = 49a$$

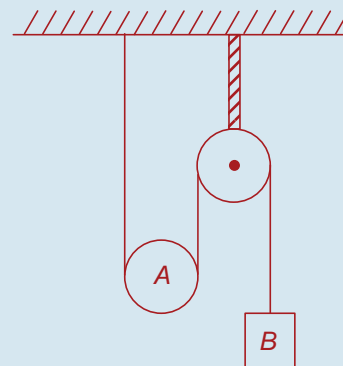
$$\Rightarrow a = \frac{11g}{49} \Rightarrow a = 2.2 \text{ m/s}^2$$

$$T - 9g = 9a$$

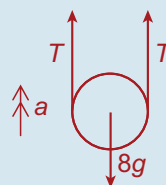
$$\Rightarrow T = 9(2.2) + 9g$$

$$\Rightarrow T = 108 \text{ N}$$

Q. 4.



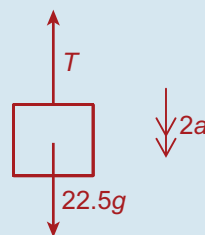
(i) Pulley A:



$$2T - 8g = 8a$$

$$\Rightarrow T - 4g = 4a \quad \text{Equation 1}$$

Particle B:



$$22.5g - T = 22.5(2a)$$

$$\Rightarrow 22.5g - T = 45a \quad \text{Equation 2}$$