

★) Motor Sizing

No. of Motors = 3 DC Motors

Total weight = Weight of sweets + Weight of conveyer belt
 $15 \times 3 = 75g + 150g$

(each sweet is of 3g)

$$= 225g$$

$$= 0.225 \text{ kg}$$

$$T = F \times r$$

$$T = mgr$$

$$T = 225 \times 10^{-3} \text{ kg} \times 9.8 \text{ m/s}^2 \times 1.25 \times 10^{-2} \text{ m}$$

$$= 2756.25 \times 10^{-5} \text{ kgm}^2/\text{s}^2 \times 10^2$$

$$= 2.75625 \times 1.5$$

$$= 4.1343$$

Approximately 30 rpm motor is required

★) Battery Sizing

Total no. of motors = 3

Minimum no. of working hours = 3

Maximum power drawn by each DC motor = 300mA

$$\frac{x}{0.3 \times 3} = 3 \quad (x \text{ is required battery capacity})$$

$$x = 0.3 \times 3 \times 3$$

$$x = 2.7 \text{ Ah}$$