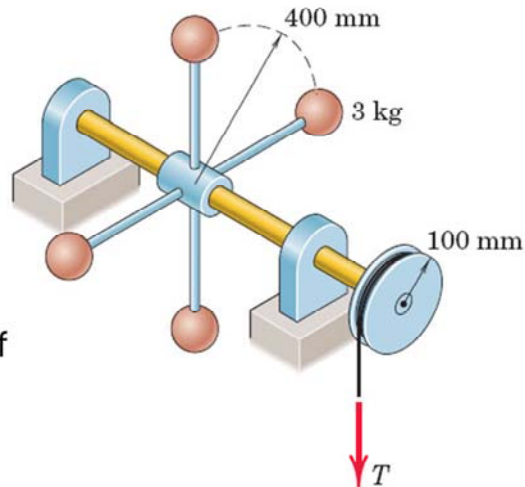## Angular Impulse-Momentum: Another Exercise

The assembly starts from rest and reaches an **angular speed** of **150 rev/min** under the action of a **20-N force** T applied to the string for t **seconds**. Neglect friction and all masses except those of the four **3-kg** spheres.

Determine t.

400 mm

3 kg

100 mm

T

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$$H_1 + \int_{t_1}^{t_2} M\,dt = H_2$$

$$0 + 20(0.1)\,t \bigg|^{t_1} = 4(3)(0.4)^2 \left[150\left(\tfrac{1}{60}\right)(2\pi)\right]$$

$$\underline{t = 15.08 \text{ s}}$$