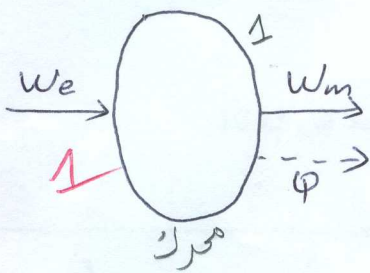


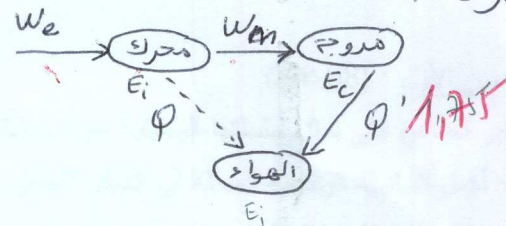
$$7 \times 0,25 = 1,75 \quad 7 \times 0,25$$

تمرين 1 (4 pts)

- 1 - 1 - يغذي ، 2 - يدور ، 3 - يدور ، 4 - تدور ، 5 - يبرد ، 6 - يُسخن ، 7 - يبرد



$$W_e - W_m - \phi = 0$$

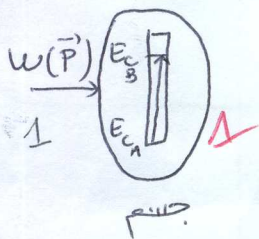


$$2 \times 0,5 \quad 0,5 \quad W_m = 10 \text{ kJ} \quad W_e = 16 \text{ kJ} \quad 0,5$$

$$0,5 \quad Q = 6 \text{ kJ} \quad 0,5 \quad Q = W_e - W_m$$

$$0,5 \quad W_{AB}(\vec{P}) = 20 \text{ J} \quad 0,5$$

$$0,5 \quad W_A(\vec{P}) = P \cdot AB \quad 0,5$$



$$(1) \quad E_B = W_{AB}(\vec{P}) \quad 0,5 \quad \text{و} \quad E_B - E_A = W(\vec{P}) \quad 0,5$$

$$0,5 \quad v_B = \sqrt{\frac{2 W_{AB}(\vec{P})}{m}} \quad 1 \quad \text{ومن} \quad \frac{1}{2} m v_B^2 = W_{AB}(\vec{P}) \quad 0,5 \quad (1) \quad 3$$

$$v_B = 6,32 \text{ m/s} \quad 1,1$$

$$W(\vec{P}) = P \cdot BC \sin \alpha \quad 1 \quad \in BO = BC \sin \alpha \quad 0,5 \quad \text{و} \quad W(\vec{P}) = P \cdot BO \quad 0,5 \quad 4$$

$$W_{BC}(\vec{P}) = 15 \text{ J} \quad 0,5$$

$$CD \perp \vec{P} \quad \text{و} \quad W(\vec{P}) = 0 \quad 0,5$$

$$0,5 \quad \frac{1}{2} m v_C^2 = W_{BC}(\vec{P}) + W_{AB}(\vec{P}) \quad \text{و} \quad E_C - E_B = W_{BC}(\vec{P}) \quad 0,5 \quad 5$$

$$v_C = 8,37 \text{ m/s} \quad 0,5 \quad v_C = \sqrt{\frac{2 [W_{BC}(\vec{P}) + W_{AB}(\vec{P})]}{m}} \quad 1$$

$$W_{AD}(\vec{P}) = W_{AB}(\vec{P}) + W_{BC}(\vec{P}) + W_{CD}(\vec{P}) \quad 1 \quad 6 \quad \text{طريقة 1}$$

$$W_{AD}(\vec{P}) = 35 \text{ J} \quad 0,5$$

$$AD = AB + BC \sin \alpha \quad \text{و} \quad W_{AD}(\vec{P}) = m \cdot g \cdot AD \quad 2 \quad \text{طريقة 2}$$

$$W_{AD}(\vec{P}) = 35 \text{ J} \quad 0,5$$

$$W_{AD}(\vec{P}) = m g (AB + BC \sin \alpha) \quad 0,5$$