

(ii)  $h_5 = h_4 = 84.9 \text{ kJ/kg}$  Dryness Fraction

$$h_5 = h_{f5} + x_5 (h_g - h_{f5})$$

$$84.9 = 45.4 + x_5 (191.7 - 45.4)$$

$$x_5 = \frac{84.9 - 45.4}{191.7 - 45.4} = \frac{39.5}{146.3} = 0.27$$

$$\text{dry Fraction } (x) = \underline{\underline{0.27}}$$

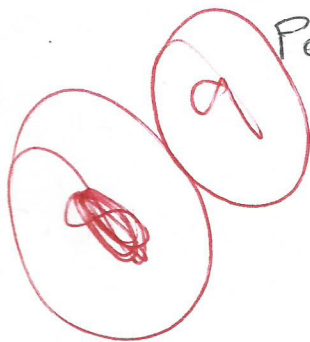
(iii) The Power

$$\begin{aligned} \text{Energy Out Put} &= h_2 - h_1 \\ &= 210.544 - 191.7 \\ &= 18.854 \text{ kJ/kg} \end{aligned}$$

$$\text{Power} = \frac{955.034 \text{ kg/hr} \times 18.854 \text{ kJ/kg}}{0.74}$$

$$\text{Power} = \frac{955.034 \text{ kg}/(3600 \text{ s}) \times 18.854 \text{ kJ/kg}}{0.74}$$

$$\text{Power} = 6.759 \text{ kW} \quad \text{Power} = \underline{\underline{6.76 \text{ kW}}}$$



(iv) Ratio

$$\text{Heat transferred from condenser} : \text{Power} \Rightarrow 120 \text{ MJ/hr} : 6.76 \text{ kW}$$

$$\Rightarrow \frac{120 \times 10^6 \text{ J}}{3600 \text{ s}} : 6.76 \times 10^3 \Rightarrow 33333.33 : 6760$$

$$4.93 : 1 \Rightarrow 5 : 1$$