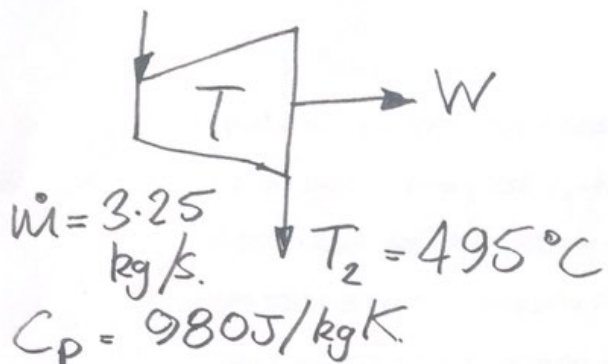


LG PLANT & ASSET ENG. ~ Gas Turbine Plant

$T_1 = 725^\circ\text{C}$

PROBLEM

Turbine power, $W = \dot{m} \cdot C_p \cdot (T_1 - T_2)$

∴ $W = 3.25 \times 980 \cdot (725 - 495)$

$W = 732,550 \text{ W} (732.55 \text{ kW})$

To find T_1 if $W = 800 \text{ kW}$ then;

$$\frac{W}{\dot{m} C_p} = T_1 - T_2$$

∴ $T_1 = \frac{W}{\dot{m} \cdot C_p} + T_2$

$$= \frac{800 \times 10^3}{3.25 \times 980} + 495$$

So, $T_1 = 746.18^\circ\text{C} (1019.33\text{K})$