

CH24 (CONT)

14. 3 processes in heat engine:

Energy Absorption
Conversion of some energy to work
Expulsion (Exhaust of the rest)

15. Thermal pollution is unwanted exhausted energy.

16. No, ideal efficiency depends on input and output temperatures.

$$\text{Eff} = \frac{T_{\text{HOT}} - T_{\text{COLD}}}{T_{\text{HOT}}}$$

17. $T_{\text{HOT}} = 500 \text{ K}$
 $T_{\text{COLD}} = 300 \text{ K}$

$$\begin{aligned} \text{Eff} &= \frac{T_{\text{HOT}} - T_{\text{COLD}}}{T_{\text{HOT}}} \\ &= \frac{500 \text{ K} - 300 \text{ K}}{500 \text{ K}} \end{aligned}$$

$$\text{Eff} = 40\%$$

18. Heat engines run at high temp to increase efficiency.

19. Organized energy: Electricity to heat
Disorganized energy: Car braking to stop

20. 100% of electricity becomes heat energy from a light bulb (all Electro-magnetic waves)

21. a. systems become disordered.
b. Can become more ordered with work input.

22. Entropy