

1807014

ME 291

①

Domestic and commercial refrigerators
~~such as suitable boiler~~ may be
rated in kJ/s or Btu/h of
cooling. Commercial refrigerators
in the US are mostly rated in
tons of refrigeration but elsewhere
in kW.

In Difference:

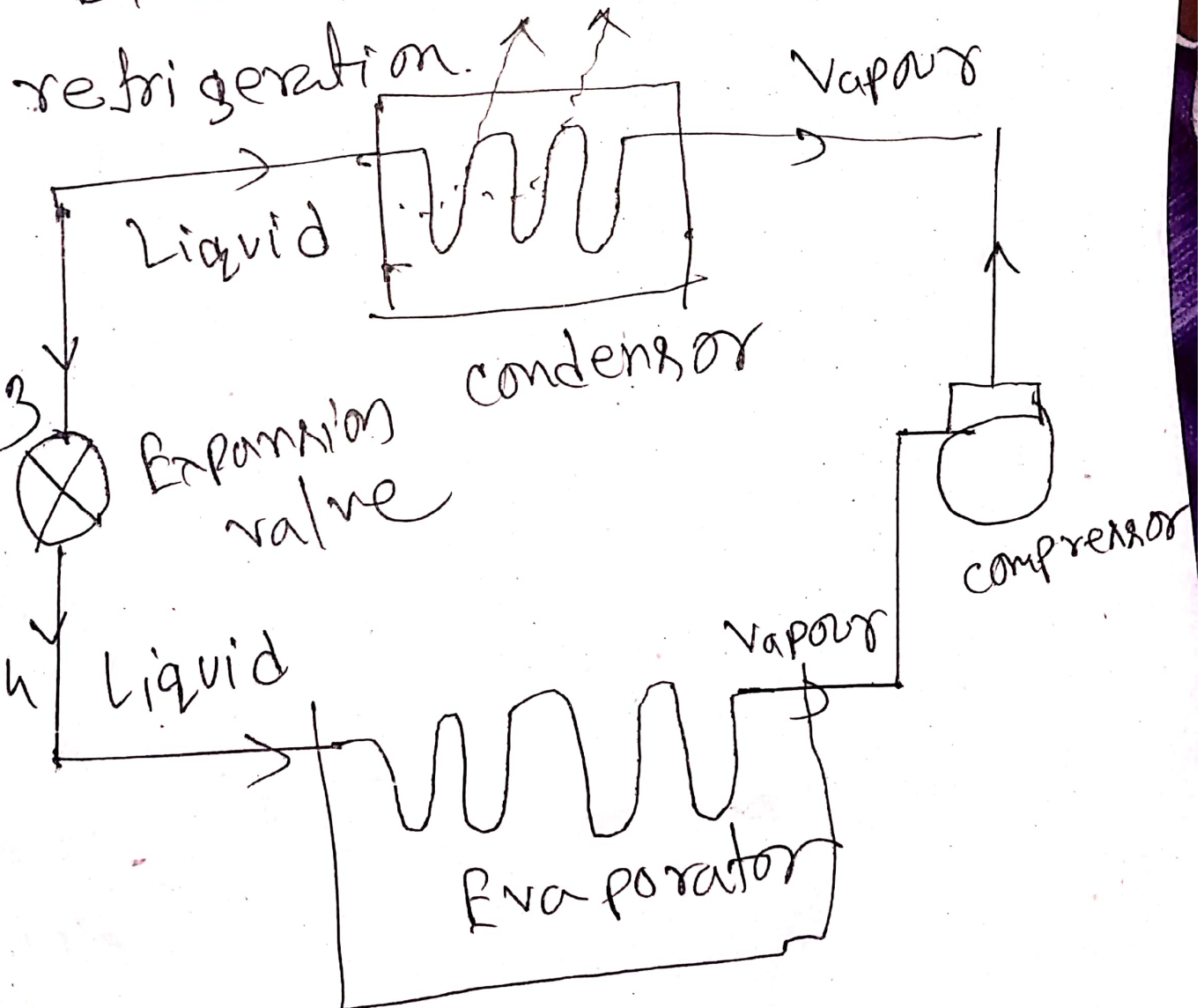
Refrigeration	Air conditioning
En There is a transfer of thermal Energy from cold to high temperature	Thermal Energy is taken away to keep the air to keep at cold temperature

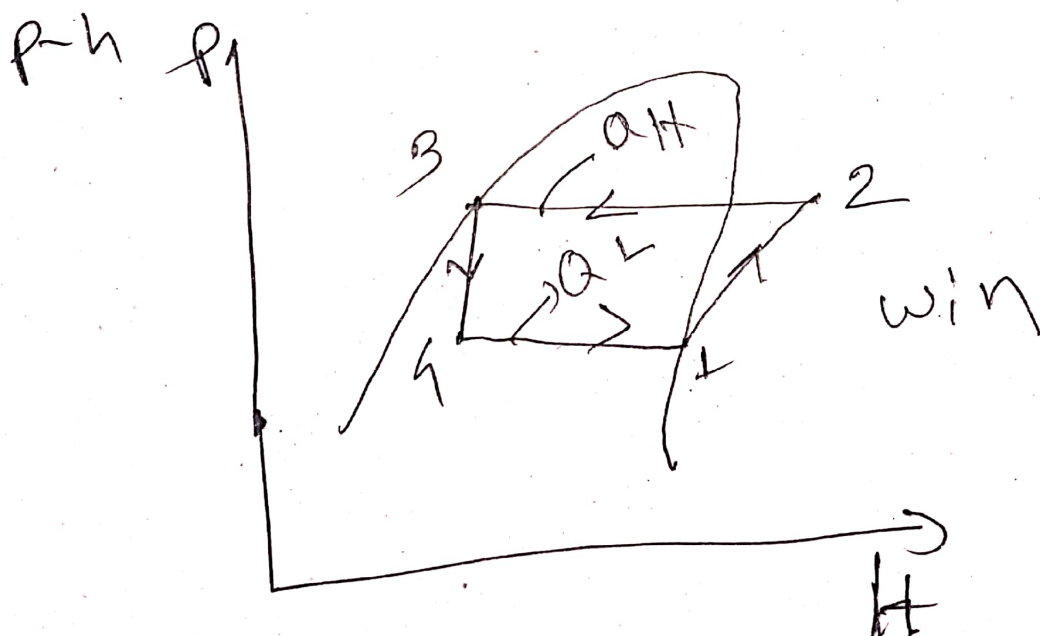
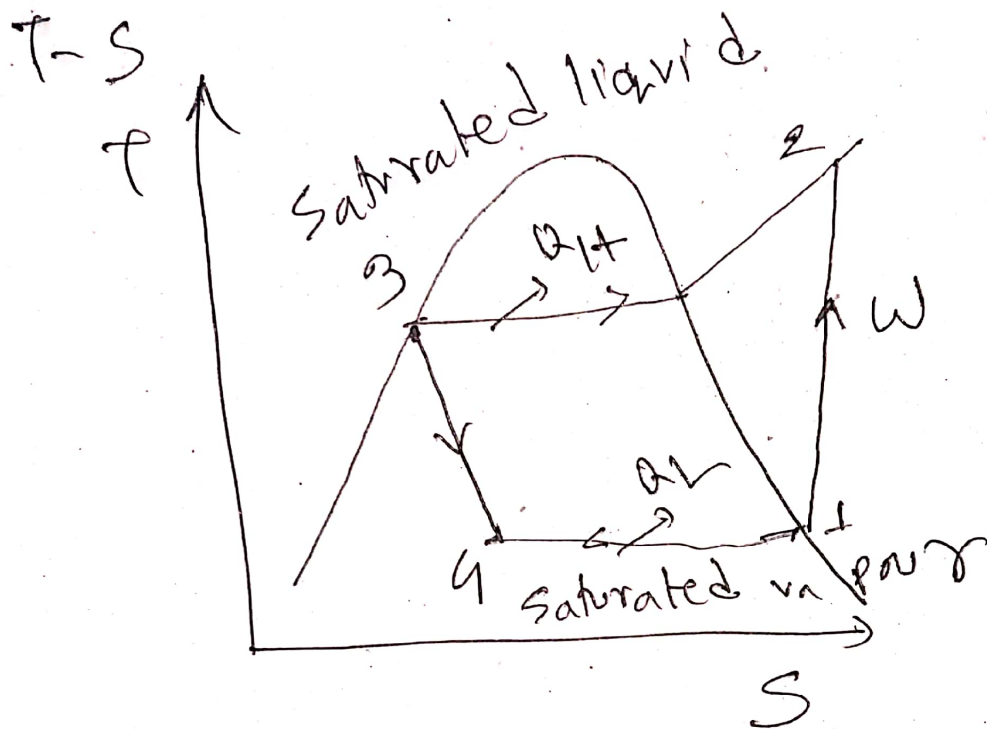
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refrigeration parts
compressor, condenser
and evaporator

evaporator, condenser
compressor have
a separate air
conditioning unit

② block diagram of vapor compression





18094

③

one ton of refrigeration capacity can freeze one short ton of water at 0°C in 24 hours.

Latent heat of ice = 333.55 kJ/kg

we know

$$1 \text{ ton} = 3.50 \text{ kW}$$

$$3.50 \text{ kW} = 1 \text{ ton}$$

$$2 \text{ kW} = \frac{1}{3.50} \text{ ton}$$

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(a) The main purpose is to remove heat from the aircraft cabin. While wing latent heat required hot air is replaced with cold air in the aircraft cabin. So air is used in aircraft for air cycle.