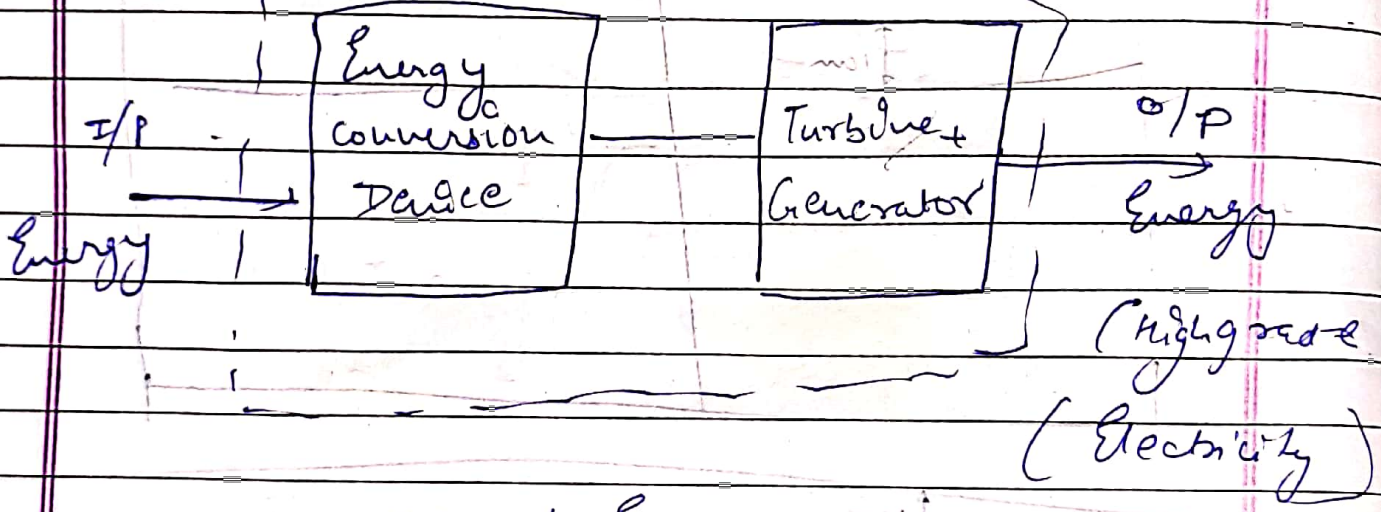
Energy Conversion Devices

→ Power Plants

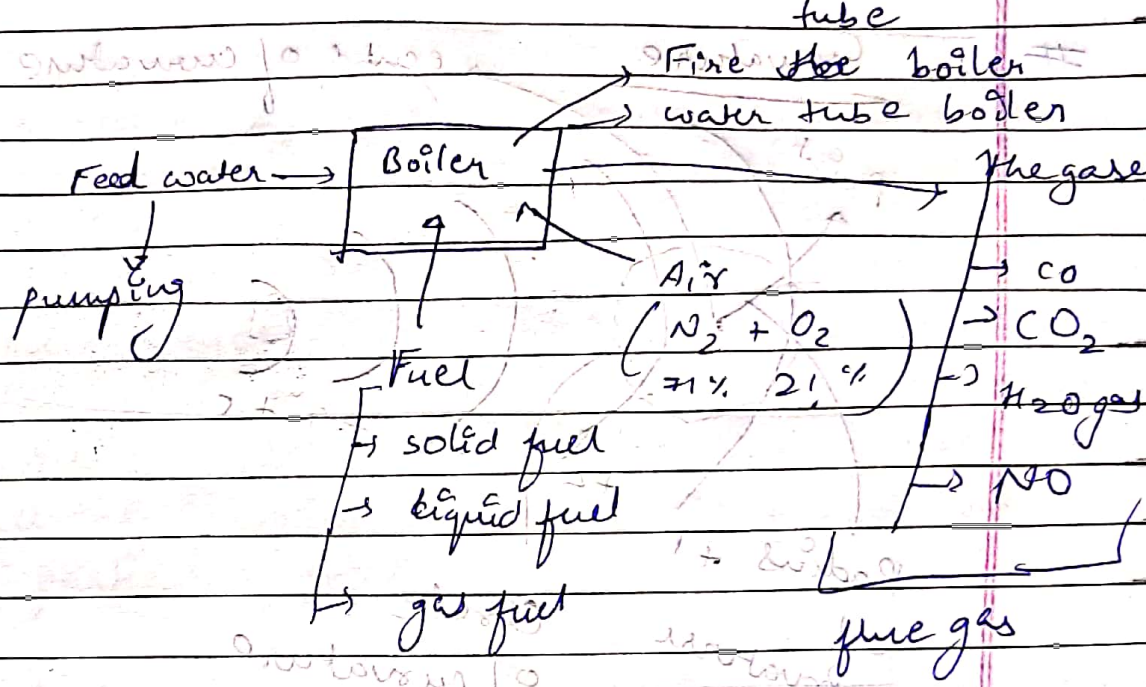


$$\eta = \frac{\text{O/P Energy}}{\text{I/P Energy}}$$

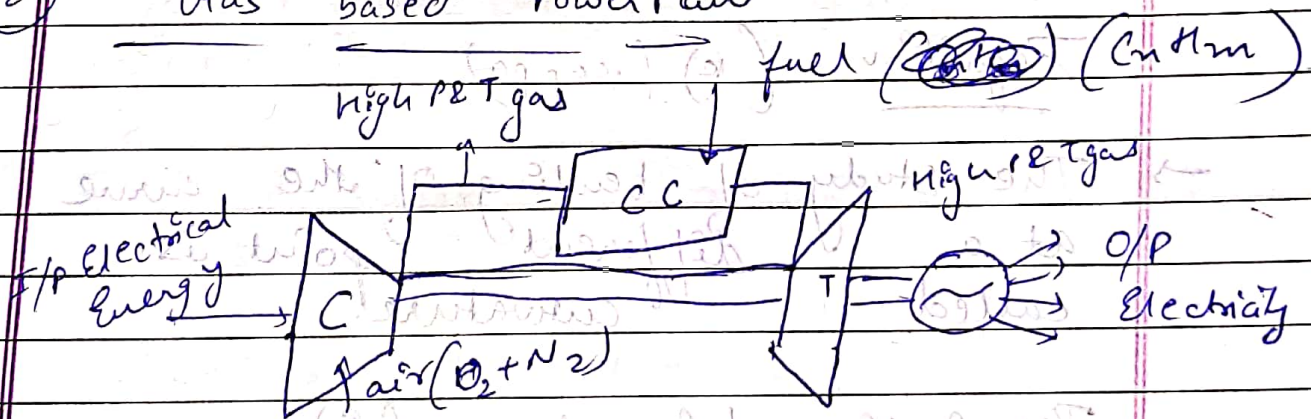
(1) Thermal Power Plant

→ Steam Power Plant
→ Gas based Power Plant

Boiler



(2) Gas based Power Plant.

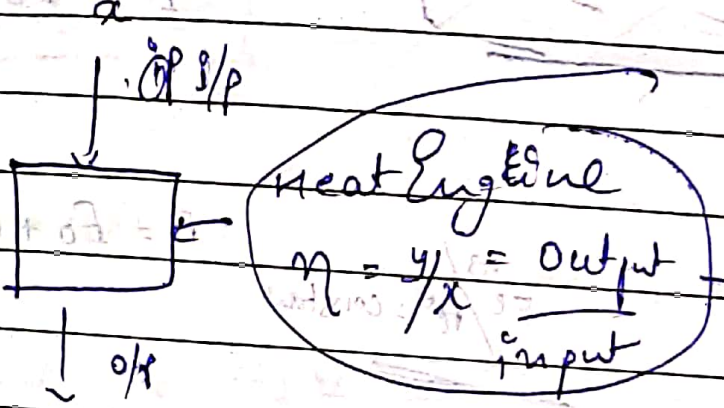


(1) Compressor (C) → work Producing device
(2) Combustion chamber (CC)
(3) Gas Turbine → work Consuming Device

Energy

Power Plant

Energy conversation device

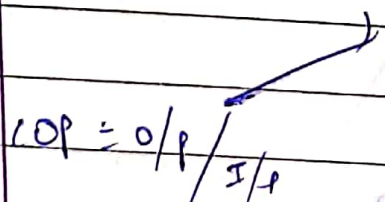


$\eta = y/x = \frac{\text{output}}{\text{input}}$ — 1st law of Thermodynamics

$y < x$

Performance Parameter

Refrigerator



$COP = O/P / I/P$

second law of Thermodynamics

coefficient of performance

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Source of Energy — ① Primary source / Secondary source
② commercial / non-commercial
③ Renewable / non-Renewable

① Thermal Power Plant
→ coal
→ oil
→ gas

④ Hydraulic Power Plant
→ water

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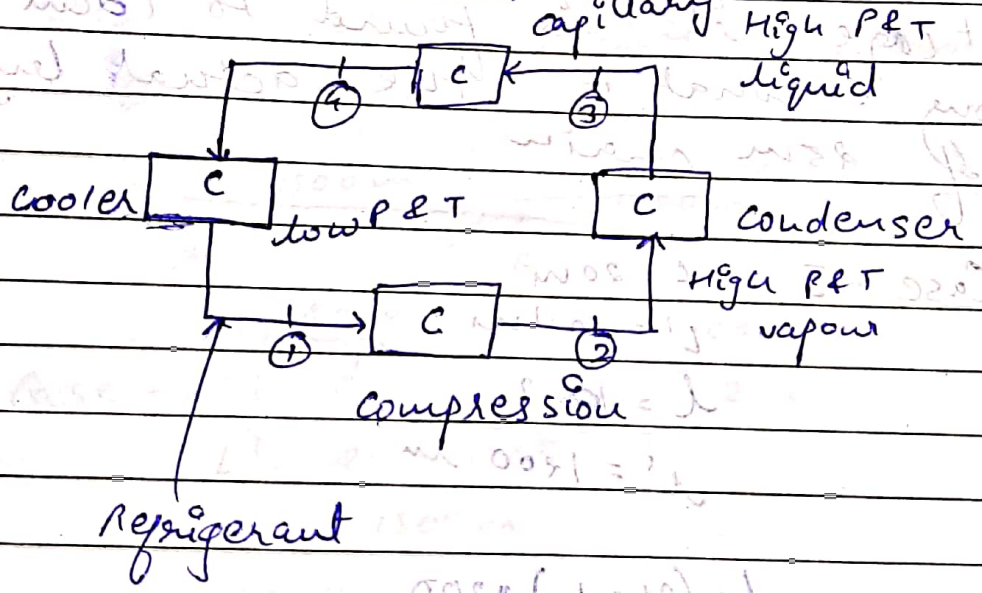
Energy

Refrigeratory Cool Air Conditioning

Vapour compression system



Internal Combustion Engine (IC Engine)

SI CI