



INTERMEDIATE

Thermodynamics

Hand Notes For JEE Mains, Advance, NEET UG, Class 11 & 12 etc...

Hand Notes

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Note : We also providing IIT JEE, Advance, NEET, JEE UG, GATE, IES, PSUs & Competitive Exam Materials [Handnotes, Shortnotes & Books], All Reports [Seminar Reports & PPT]

Goto : www.martcost.com

'THERMODYNAMICS'

Study about macroscopic variable (PVT)

System → Definite matter include in a finite boundary.

	Energy	Mass
System → open	✓	✓
closed	✓	X
Isolated	X	X

|I| → Thermodynamics law

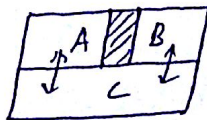
[A] → zeroth Law of thermodynamics (Z.L.O.T) → If two independent system are in thermal eqm condn with another common system then temp. of these system is same.

AMU 2016

$$T_A = T_C$$

$$T_B = T_C$$

$$T_A = T_B = T_C$$



Draw back of Z.L.O.T

It explain only temp. & thermal eqm condn & can't explain direction of Heat flow & How much part of supplied heat convert in Work in internal Energy.

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Sign conversion

- * Work done by the gas/by the system →
- * Work done on the gas/by the system →

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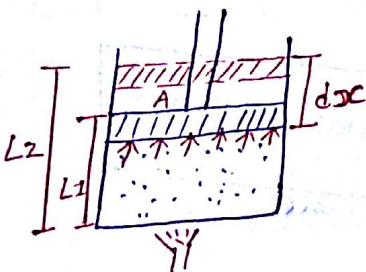
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Thermodynamics Work



$$V_1 = AL_1$$

$$V_2 = AL_2$$

$$W = \vec{F} \cdot d\vec{x} = F dx \cos \theta$$

$$W = \int_{V_1}^{V_2} P dv$$

$$P = F/A$$

$$F = PA$$

$$A dx = dv$$

**

- * $V_i > V_f \Rightarrow dv = \oplus ve \Rightarrow W = \oplus ve$
- * $V_f < V_i \Rightarrow dv = \ominus ve \Rightarrow W = \ominus ve$

Case-I → $P = \text{const.}$

$$W = P \int_{V_1}^{V_2} dv = P(V_2 - V_1)$$

$$W = P(V_2 - V_1)$$

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- * $V_2 > V_1 \Rightarrow W = \oplus ve \Rightarrow$ by the system [Expansion]
- * $V_2 < V_1 \Rightarrow W = \ominus ve \Rightarrow$ on the system [compression]
- * $V_2 = V_1 \Rightarrow W = 0 \rightarrow$ Isometric process.