SUMMARY FOR TEST 3

- $\Omega \to S \to T \to U(T) \to C_v$

  - Ideal Gas : derive Sackur-Tetrode equation; entropy of mixing ; ...

  - Paramagnetism : $U(N, N_\uparrow)$, $M(N, N_\uparrow)$, $\Omega \to S$, interpret $S(U)$ etc.; full analytic solution $\Omega ... \to M(T)$ & $C_v(T)$ including math with $\sinh$, $\cosh$, $\tanh$

  - Einstein Solid $\Omega \to ... C_v$

- Derivation of each term of
  $$dU = TdS - pdV + \mu dN$$

- $C_v, C_p \to \Delta S = \int \frac{CdT}{T}$

all work from reading, class & HW 10 - 14

Not: HW 15 & 16 ; Heat Engines & Refridgerators