Quiz #8

1. The statement "How many ways can I choose five cards from a deck, and have all of them be spades?" describes a

A) microstate **B) macrostate**

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2. The pictures show two boxes with entropies as shown, which can exchange energy with each other. In which situation is this entire system closer to equilibrium?

A)

S_1=1 J/K
S_2=15 J/K

B)

S_1=5 J/K
S_2=9 J/K

C) Both are equally close to equilibrium

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3. Temperature is defined as

A) $\partial S/\partial E$ **B) $\partial S/\partial V$** **C) $\partial E/\partial S$** **D) $\partial V/\partial S$**

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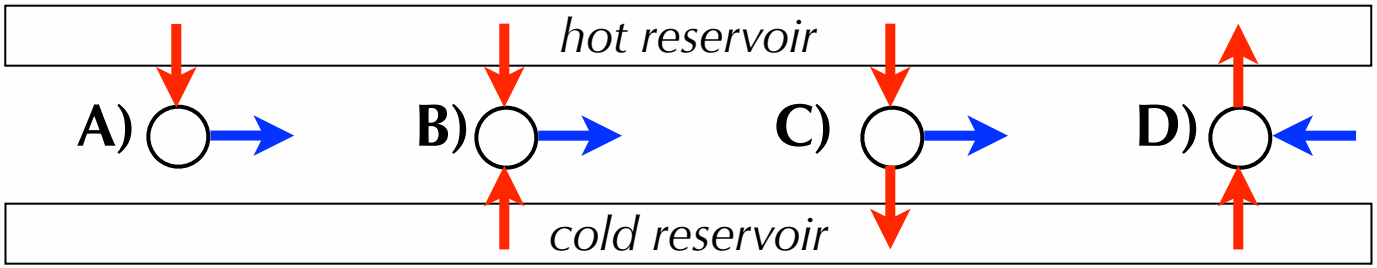
4. Which of the following might be a real device for converting **heat** into **work**?



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5. Given $dE = T\,dS - P\,dV + \mu\,dN$, the derivative shown on the right is equal to $\left(\frac{\partial V}{\partial N}\right)_{U,S}$

A) dE/dS **B) μ/P** **C) P/μ** **D) μ**

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6. A harmonic oscillator is most likely to be in its ground state if it is

A) isolated **B) in contact with a thermal reservoir** **C) quantized**

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BACCBB

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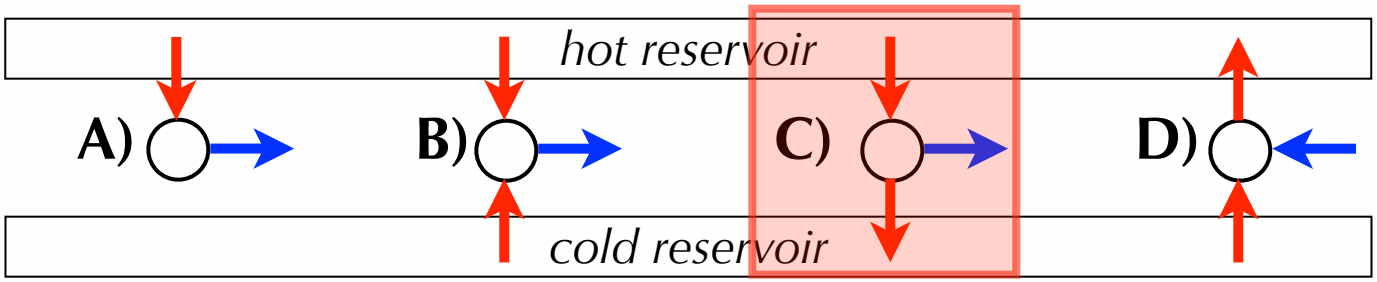

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