

Physics 3410 Quiz 7

Please write the letter of the correct answer in the box provided.

Name: _____

- ☐ 1. An electrical current is used to separate water into hydrogen and oxygen. If the electricity does 40J of work, then which of the following is sure to increase by 40J?

A) U B) F C) G D) H

- ☐ 2. Which of the following is a Maxwell relation? (Don't worry about the sign.)

A) $\left(\frac{\partial S}{\partial V}\right)_{T,N} = \left(\frac{\partial P}{\partial T}\right)_{V,N}$ B) $\left(\frac{\partial T}{\partial V}\right)_{P,N} = \left(\frac{\partial P}{\partial S}\right)_{T,N}$ C) $\left(\frac{\partial T}{\partial V}\right)_{S,N} = \left(\frac{\partial \mu}{\partial S}\right)_{V,N}$

- ☐ 3. Mass is an ... variable.

A) **extensive** B) **intensive**

- ☐ 4. If ice at a certain temperature has a Gibbs free energy of $G=10\text{J}$, and the same amount of liquid water has a Gibbs free energy of 2J , which phase is more stable?

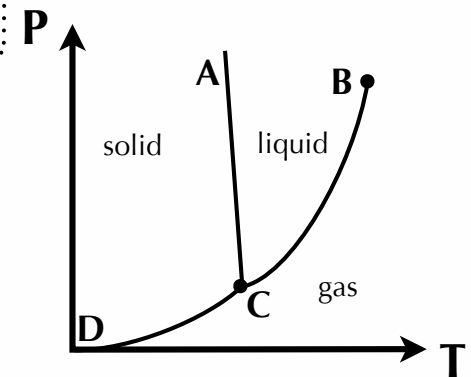
A) **solid ice** B) **liquid water**

For the following two questions, refer to the water phase diagram.

- ☐ 5. Which letter on the figure marks the critical point of water?

- ☐ 6. The normal boiling point of water...as the pressure decreases.

A) **increases** B) **decreases**



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A 3. Mass is an ... variable.
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