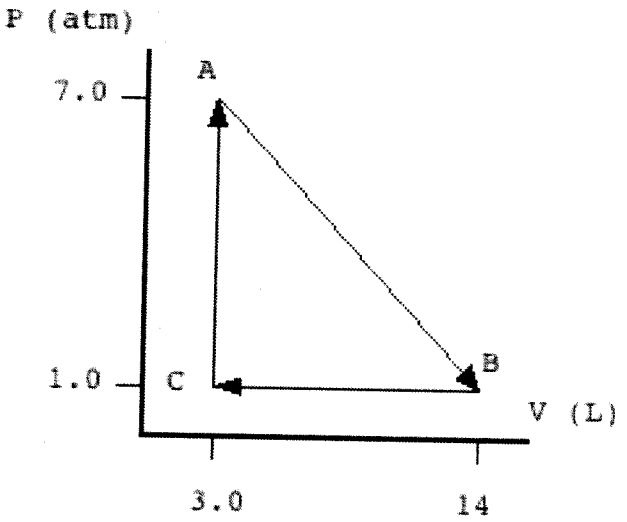
Physics 10154 - Exam #11A

Answer the following two questions. Be sure to clearly indicate your answer with a circle or box. Show all work. If I cannot see how you arrived at an answer, I will deduct points!

1. The PV diagram below represents three different states for a gas. The internal energy of the gas in state A is 1200 J. The internal energy of the gas in state B is 2400 J.

a) How much heat is added to the gas as it changes from A --> B?
b) How much heat is added to the gas from B --> C --> A?



2. A 12 gram bullet is moving with an initial speed of 320 m/s. It is fired into a 1.20 kg block attached to a spring with a spring constant of 1400 N/m. The bullet is embedded in the block after the collision.

a) The bullet/block system compresses the spring by a maximum amount of ... how much?

b) How much mechanical energy is lost in the collision?