Thermodynamics Review

1. For an ideal gas, the fact that u1 = u2 implies that T1 = T2. (T or F) **True**
2. Heat transfer between the sun and earth occurs by convection. (T or F) **False**
3. An incompressible substance means that its pressure cannot be varied. (T or F) **False**
4. In an ideal gas, the specific heat is constant. (T or F) **True**
5. Using thermodynamics principles, an engineer can determine the thermodynamic properties of a closed system as a function of time. (T or F) **True**
6. The First Law of Thermodynamics states that the rate of work performed on a closed system plus the rate at which heat is expelled by the system is equal to the rate at which the total energy of the system increases. (T or F) **True**
7. Which will be cooler if left in the sun? (dull object or shiny object) **shiny object**
8. How does heat transfer between objects?
   1. Cold to hot
   2. **Hot to cold**
   3. Heat transfers by electromagnetic waves and the direction of transfer is independent of the temperature of the objects
9. Why does hot air rise?
   1. Hot air has more thermal energy allowing the molecules to rise
   2. **Hot air is less dense than cool air**
   3. Hot air molecules have more thermal force to resist gravity
10. When two bodies are at the same temperature, they are said to be in:
    1. A state of heat equality
    2. **Thermal equilibrium**
    3. Thermal nirvana
    4. An insulated state
11. A constant pressure process is isomeric. (T or F) **False**
12. A constant temperature process is isoinsulatory. (T or F) **False**
13. A constant volume process is isochoric. (T or F) **True**
14. A constant density process is isentropic. (T or F) **False**
15. An ideal gas is contained in a container of volume, V. If the volume is doubled at

Constant pressure, the temperature is:

* 1. halved **b. doubled** c. unchanged d. cannot be determined