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General Physics-II, Quiz 6  
PHYS1000AA, AB, AC: 106-2  
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St. ID: \_\_\_\_\_

Name: \_\_\_\_\_

Chapter 20-21, Serway; **ABSOLUTELY NO CHEATING!**

Please write down the answers on the blank space or on the back of this paper. Answer should be in english. [ ] indicates the question points.

1. (a) Write down the first law of thermodynamics (Equation). [10+20 = 30 ]

(b) Mark (  $\checkmark$  ) the right condition for the thermodynamical processes bellow:

Adiabatic process	$Q = 0/ W = 0/ \Delta E_{in} = 0$ ?
Constant Volume process	$Q = 0/ W = 0/ \Delta E_{in} = 0$ ?
Closed Cycle process	$Q = 0/ W = 0/ \Delta E_{in} = 0$ ?
Free Expansion process	$Q = W = 0/ \Delta E_{in} = 0$ ?

2. For an isobaric expansion of an ideal gas at 300 K and 5.50 kPa, if the volume is increased from  $1 \text{ m}^3$  to  $5 \text{ m}^3$  and 12.5 kJ energy is transferred to the gas by heat. Find out (a) the change in its internal energy and (b) its final temperature. [ 30 ]

3. (a) Write down the formula of total kinetic energy of an ideal gas interms of temperature ( T ). (b) If a 10-L of oxygen-cylinder contains  $\text{O}_2$  gas at  $22.0^\circ\text{C}$  and 5 atm. Find (a) the total translational kinetic energy of the gas molecules. (  $1 \text{ atm} = 1.013 \times 10^5 \text{ Pa}$  ) [10+30 = 40]