

### Lab 07 Sample Calculations

Be sure to include proper SI units with your calculations

- (1) A solenoid has a total length of 0.1 m and 1000 turns on it. If a current  $I=1$  A is injected into the solenoid, find the magnetic field near the center of the solenoid.
- (2) if the solenoid has a cross sectional area  $A=0.01$  m<sup>2</sup>, find the total flux through the solenoid when  $I=1$  A.
- (3) Use the definition of inductance  $L \equiv \frac{\Phi_m}{I}$  to calculate the inductance of the solenoid.
- (4) A transformer has 100 turns on the primary side and 200 turns on the secondary side. If a voltage of 10V AC is input on the primary side of the transformer, what is the output voltage?