

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^2 , 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?