جامعة بيرزيت

BIRZEIT UNIVERSITY

Physics Department

Physics 112

Experiment2

Source internal resistance, loading problems and circuit impedance matching

Student's name:
Student's No.:

Partner's name:
Partners No.:

Section:

Instructor:

Date:

Abstract:

Theory:

Data:

$R_L(k\Omega)$	I(mA)	$I^2(mA)^2$	P (mW)	$I^{-1}(mA)^{-1}$

1) On a linear graph paper, using your data plot I^{-1} and R_L. Find the value R_{in} and ε.
2) On a semi-log graph paper, plot $P(R_L)$. from the graph find the value of R_L that satisfies the condition of maximum power transfer.

Results and conclusion:

Preliminary Laboratory Questions

1. Show that the power P developed across a resistance R is $P=I^2R$, where I is the current flowing across the resistance.

2. Define the emf of a voltage source.

3. Define the internal resistance of a voltage source.

4. What is meant by;"loaded source"?

5. For the circuit you use in the experiment find an expression for the power developed across the load resistance.

6. If you vary the load resistance, when the power developed across the load resistance is maximum?