**Birzeit University**

**Physics Department**

**Physics 112**

Experiment No.2

Source Internal Resistance, Loading Problems And

Circuit Impedance Matching

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**Abstract:**

we found the value of the load resistance RL that satisfies the condition of the maximum power transfer by reading different measurements of the current passing through the circuit in different values of the RL .

**Calculations:**

from (1/I) vs. (R l) graph-1

ε =1/slope

=1/0.103031

**=**9.70581

**y-intercept**=b

=0.095786

from the semi log graph we can see that (P) = is maximum when R l = 1.

R=1.007 K**Ω**

**Results & Conclusion:**

We can observe the little difference between the values of R (1007 ჲ) and ε (9.70581v) from the theoretical values, R (1000ჲ), ε (10v). This difference is due to the internal resistance of the power source which have increased R from 1000ჲ to approximately 1007ჲ, and decreased ε from approximately 10v to 9.70581v.

Also experimental values may have some systematic errors in measuring or in graphs