**Physics 112 Data Sheet 2**

**Exp.#2: Source internal resistance, loading problems and circuit impedance matching**

R = kΩ ε= volts

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| RL(kΩ) | I (mA) | I2 (mA2) | P=RLI2 (mW) | I-1 (mA-1) |
| 0.1 |  |  |  |  |
| 0.3 |  |  |  |  |
| 0.6 |  |  |  |  |
| 0.8 |  |  |  |  |
| 1.0 |  |  |  |  |
| 1.5 |  |  |  |  |
| 2.0 |  |  |  |  |
| 2.5 |  |  |  |  |
| 3.0 |  |  |  |
| 4.0 |  |  |  |
| 6.0 |  |  |  |
| 8.0 |  |  |  |
| 10 |  |  |  |
| 20 |  |  |  |
| 30 |  |  |  |
| 40 |  |  |  |

1) On a linear graph paper, using your data plot I-1 and RL. Find the value Rin and ε.

2) On a semi-log graph paper, plot P(RL). From the graph find the value of RL that satisfies the condition of maximum power transfer.