Salahaddin University – Erbil
College of Education
Department of Physics

Subject: Inst.Physics Lab.
Stage: Fourth
Time: 1 hour
Date: 29/04/2024

Final (Theoretical/Practical) Exam – 2nd Semester (2023-2024)

(ناوت بە زمانی کوردی)

Q1/Choose the right answer: **(4 marks)**

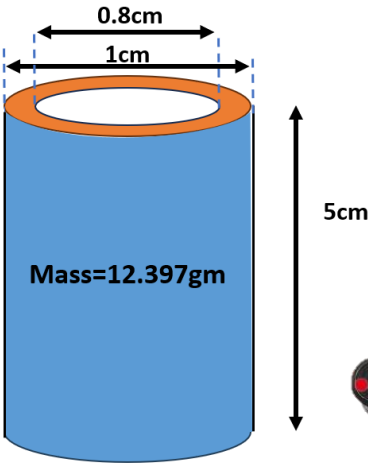
A) The density of this cylinder is:

a) 7.78g/cm^3

b) 8.77 g/cm^3

c) 43.84 g/cm^3

d) 34.84g/cm^3



B) This physics instrument is called:

a) Fixed Microscope
b) Travelling Microscope
c) Spectrometer
d) Spectroscope

C) A wire is 1.0 m long and its cross-sectional area is 0.0314 mm^2 with a resistance of 10 Ω. The resistivity of this material is:

a) 3.0 × 10^{-8} Ω.m b) 3.14 × 10^{-7} Ω.m c) 30 × 10^{-8} Ω. m d) 314 × 10^{-7} Ω.m

D) A sample of oxygen gas has a volume of 225 mL when its pressure is 1.12 atm. What will the volume of the gas be at a pressure of 0.98 atm if the temperature remains constant?

a)25.71 mL b) 257.1 mL c) 19.68 mL d)196.8 mL

Q2/ Write the Ohms law statement, and find the equivalent resistance of circuit consists of R_1=100Ω, R_2=100Ω and R_3=50Ω connected in parallel. **(5 marks)**

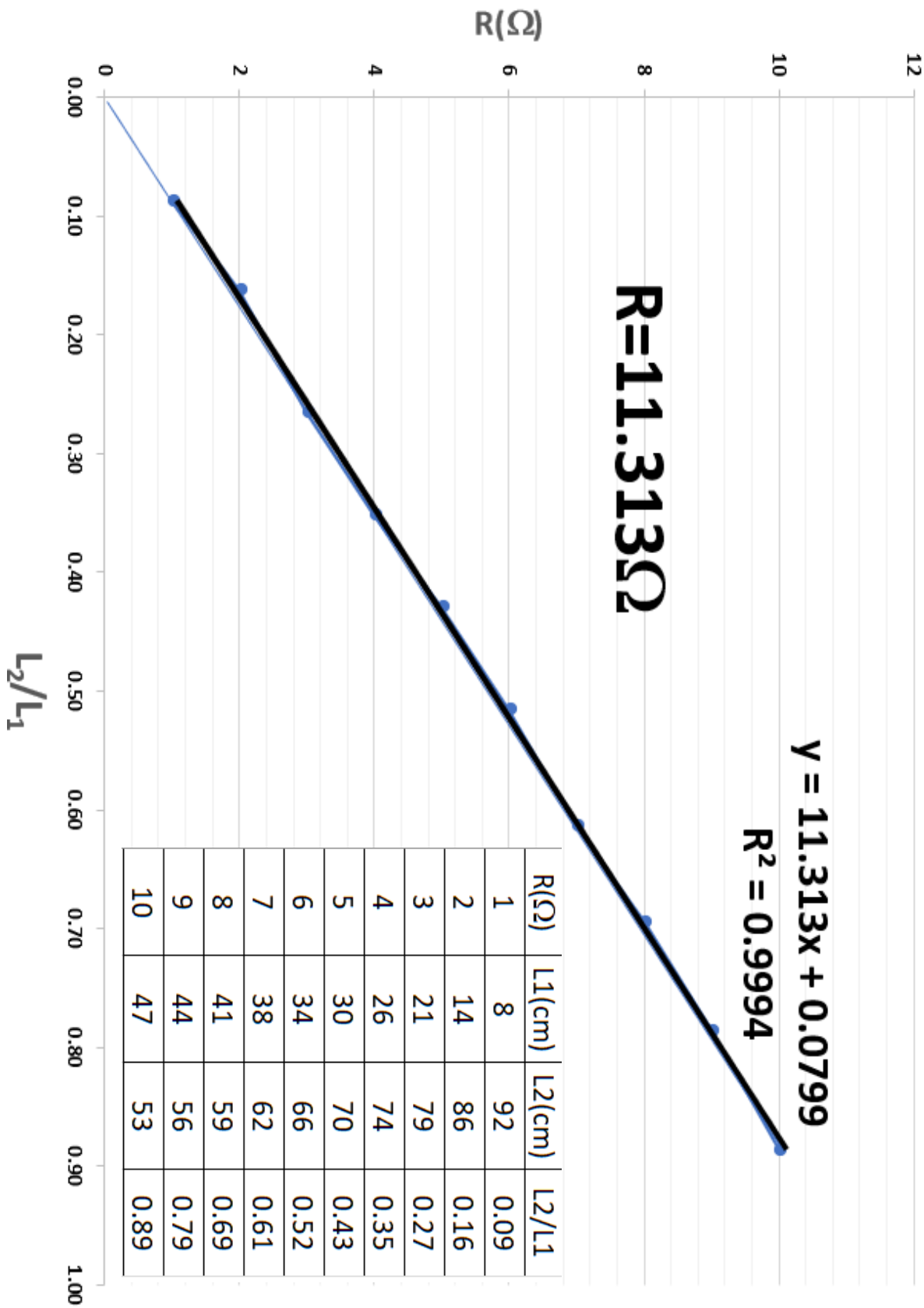
Ohms law: At constant temperature, the electric current flowing in a conducting material is directly proportional to the applied voltage.

R_{eq} (write the solution): $\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} =$

$\therefore R_{eq} =$ Ω

$R_1(\Omega)$	$R_2(\Omega)$	$R_3(\Omega)$	$R_{eq}(\Omega)$
100	100	50	25
200	200	100	50
100	50	50	20

Q3/ From **Wheatstone bridge**, use the following data to determine the value of the unknown resistance: **(6 marks)**



R(Ω)	L1(cm)	L2(cm)	L2/L1
1	8	92	0.09
2	14	86	0.16
3	21	79	0.27
4	26	74	0.35
5	30	70	0.43
6	34	66	0.52
7	38	62	0.61
8	41	59	0.69
9	44	56	0.79
10	47	53	0.89

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