DEPARTMENT OF SCIENCES

MAHE, Manipal

Department of Physics, MIT, Manipal - 576 104

FIRST SEMESTER M. Sc (Physics)
END SEMESTER EXAMINATION-OCT/ NOV 2019
PHY 4109: PHYSICS LAB- I

Time: 3 hrs.   **Max. Marks: 40**

Note: Perform one experiment assigned to you. Write the formula with the explanation of symbols, their units, circuit /ray diagrams if any, tabular columns, qualitative plot of graphs of the experiment allotted to you in the first 20 minutes. Perform the experiment showing at least one reading of each measurement and report the result.

1. Determine the Young's modulus of the given material using Cornu's fringes.

    Given : Wavelength of the light, $\lambda = 589.3$ nm.

2. Verify the Fresnel's law of reflection of light. Given : Refractive index of the

    material of the prism, $\mu = 1.65$.

3. Determine the reverse saturation current, energy band gap of the given p-n junction

    and study the variation of its junction capacitance.

4. Evaluate the characteristics of given GM tube and determine its dead time.

5. Determine the half-life of K40 in the given sample of KCl.

6. Determine Planck's constant, work function of the emitter material of the given photo

    tube and verify inverse square law.

7. Determine the wavelength of the given laser light using Michelson's interferometer.

8. Determine the thermal conductivity of the given mild steel material. Specific heat of

    the material, $S = 420$ J/kg/K.

9. Determine the birefringence of mica sheet using Babinet compensator.

10. Perform Frank-Hertz experiment and hence determine the excitation potential of

    Argon atom.

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Lab In charge Teacher   HOD Physics, MIT