|  |  |  |
| --- | --- | --- |
| **EXPERIMENT**  **NUMBER 4** | **GROUP 10** | Trần Minh Quân-19151078 |
| Determine R, L, C by using ossciloscope | **DATE** | 25/03/2022 |
| **LECTURER** | Tạ Đình Hiến |
| **REPORT DATE** |  |
| **GRADING** |  |

**Purpose:**

* About knowledge: Know how to use the oscilloscope, frequency generators, know how to measure R, L, C and the resonance frequency using the ossciloscope.
* About skills: Proficiently using measuring tools, conducting experiments in the correct order to obtain data exactly.
* About attitude: Careful, persistent, accurate, honest, objective

1. **Measurement’s tool.**

* Oscilloscope
* Generator
* Board
* Rheostat 0 ÷ 9999,9 Ω
* Capacitor Cx
* Resistor Rx
* Inductor Lx.

1. **Formula used:**  ,
2. **Measurement’s method**

If you put on two X1X2 poles a voltage: and put on two Y1Y2 poles a voltage: then the light trail on the M screen will simultaneously perform two perpendicular oscillations.

If then the light trail on M screen will be a Lissajou line

If then the light trail on M screen will be calculated using the following equation:

If then the trajectory will be a line with a phase shift about 45 degree and have .

If then the trajectory will be a circle and have .

**Measurement of Rx**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number | f | R0 | Rx |  |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| Average |  |  |  |  |

**Measurement of Zc and calculate Cx**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number | f | Zc= R0 | Cx |  |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| Average |  |  |  |  |

**Measurement of Zc and calculate Cx**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number | f | ZL= R0 | Lx |  |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| Average |  |  |  |  |

**Calculating the resonance frequency**

|  |  |  |
| --- | --- | --- |
| Number | RLC’s series circuit | |
|  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| Average |  |  |