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EXPERIMENT: 3.1 EXAMINATION OF SERIAL CONNECTED COILS

EXPERIMENTAL PROCEDURE: Plug the Y-0016/003 module. Make the circuit connection as in Figure 1.

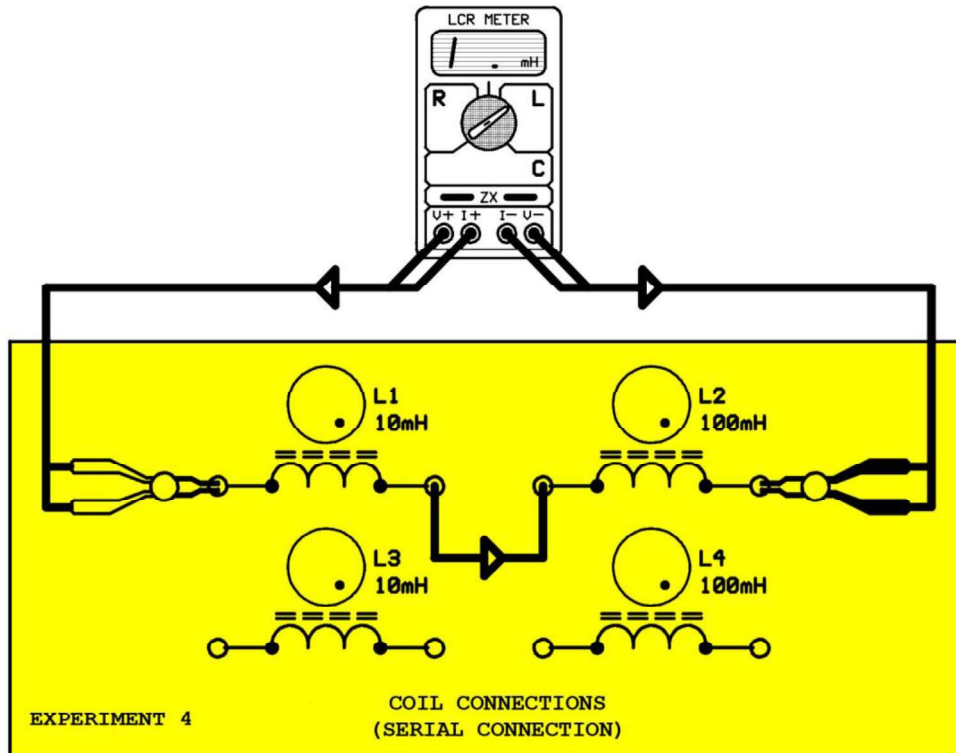


Figure 1

1- Write the inductance value displayed by LCR meter.

2- $L_1=10\text{mH}$, $L_2=100\text{mH}$, calculate the total inductance of the circuit.

3- Compare the value you calculated and the value displayed by LCR meter. Why is there a difference?

Note: You can do new experiments by making different serial connections with the four coils in the module.

EXPERIMENT: 3.2

EXAMINATION OF PARALLEL CONNECTED COILS

EXPERIMENTAL PROCEDURE: Plug the Y-0016/003 Module. Make the circuit connections as in Figure 2.

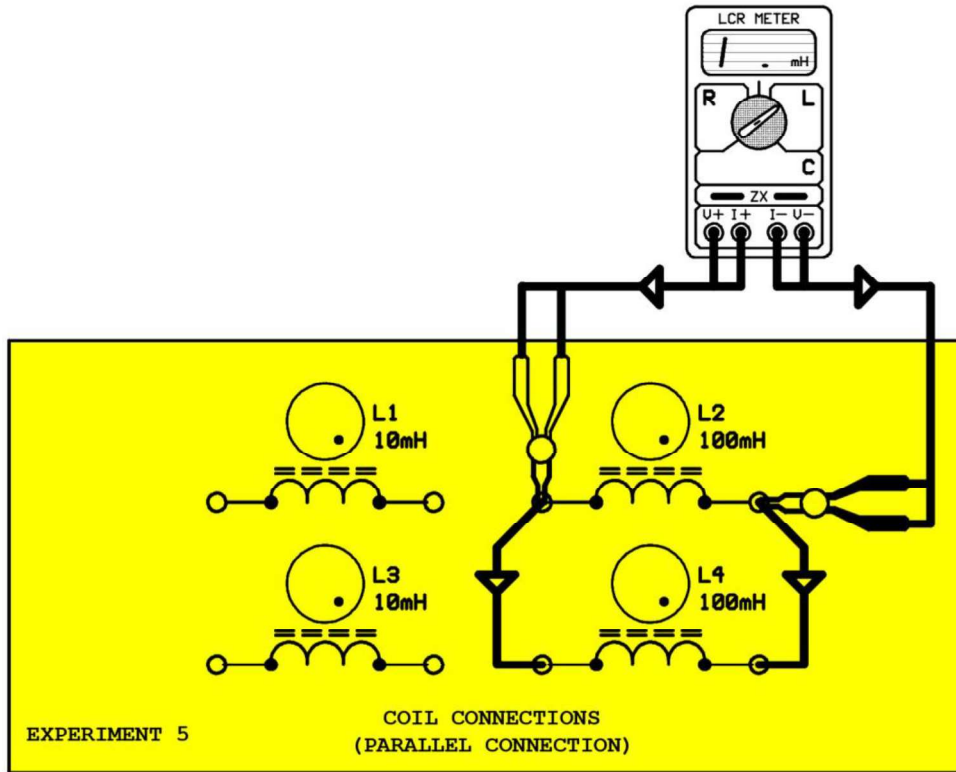


Figure 2

1- Write the inductance value displayed by LCR meter.

2- $L_2=100\text{mH}$, $L_4=100\text{mH}$, calculate the total inductance of the circuit.

3- Compare the value you calculated and the value displayed by LCR meter. Why is there a difference?

Note: You can do new experiments by making different parallel connections with the four coils in the module.

EXPERIMENT: 3.3 EXAMINATION OF MIXED CONNECTED COILS

EXPERIMENTAL PROCEDURE: Plug the Y-0016/003 Module. Make the circuit connections as in Figure 3.

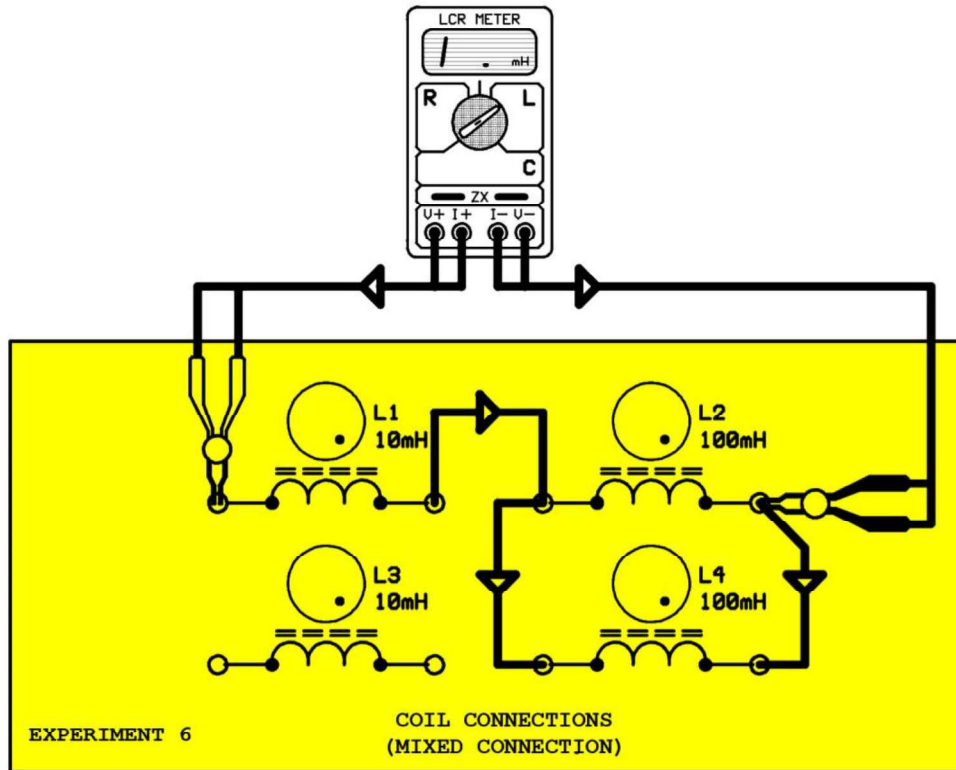


Figure 3

1- Write the inductance value displayed by LCR meter.

2- $L_1=10\text{mH}$, $L_2=100\text{mH}$ and $L_3=100\text{mH}$, calculate the total inductance of the circuit.

3- Compare the value you calculated and the value displayed by LCR meter. Why is there a difference?

Note: You can do new experiments by making different mixed connections with the four coils in the module.

EXPERIMENT: 3.4
EXAMINATION OF SERIAL CONNECTED CAPACITORS

EXPERIMENTAL PROCEDURE: Connect the Y-0016/003 module to the board. Make the circuit connections as in Figure 4.

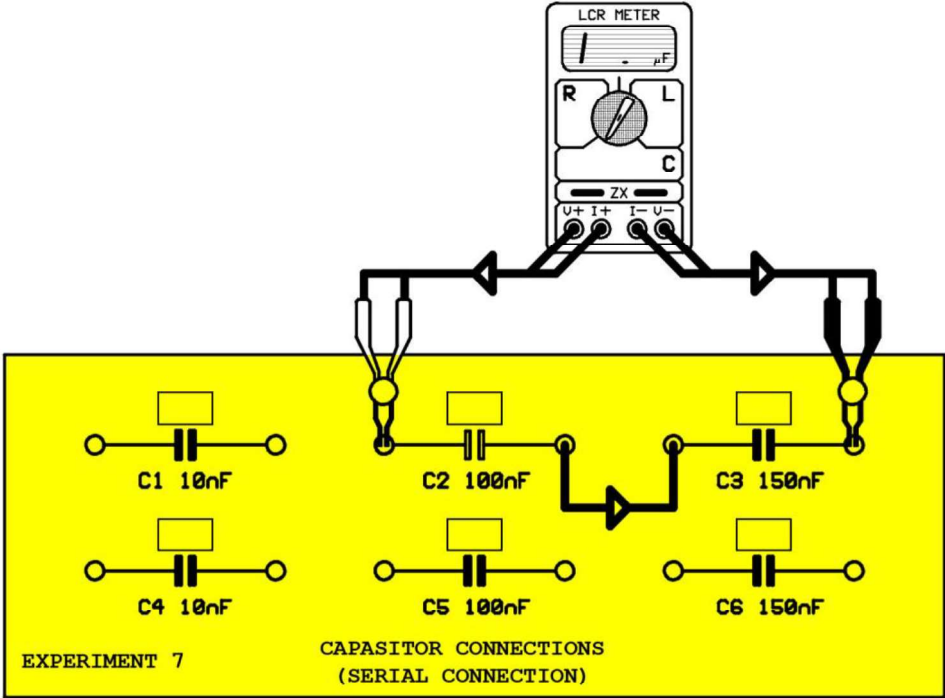


Figure 4

1- Write the value that you read on the LCR meter.

2- $C_2=100\text{nF}$, $C_3=150\text{nF}$, calculate the total capacitance of the circuit.

3- Compare the capacitance value that you read on the LCR meter and the calculated. What is the reason of the difference?

Note: Make new experiments by serial connecting different capacitors using the ones in the module.

EXPERIMENT: 3.5

EXAMINATION OF PARALLEL CONNECTED CAPACITORS

EXPERIMENTAL PROCEDURE: Connect the Y-0016/003 module to the board. Make the circuit connections as in Figure 5.

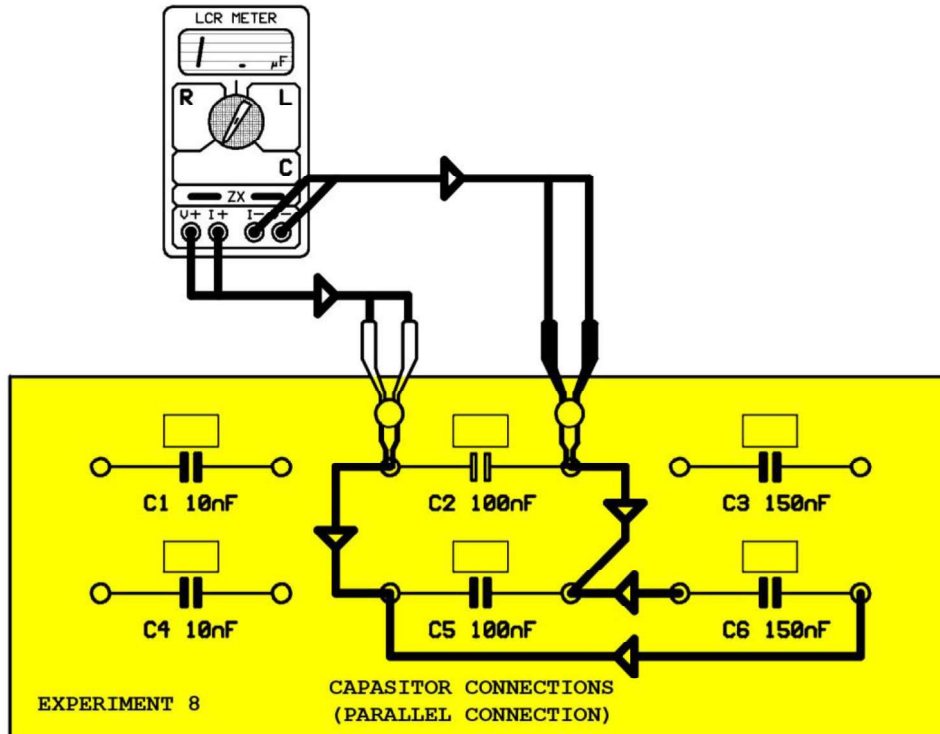


Figure 5

1- Write the value that you read on the LCR meter.

2- Calculate the total capacitance of the circuit

3- Compare the capacitance value that you read on the LCR meter and the calculated. What is the reason of the difference?

Note: Make new experiments by parallel connecting different capacitors using the ones in the module.

EXPERIMENT: 3.6
EXAMINATION OF MIXED CONNECTED CAPACITORS

EXPERIMENTAL PROCEDURE: Connect the Y-0016/003 module to the board. Make the circuit connections as shown in Figure 6.

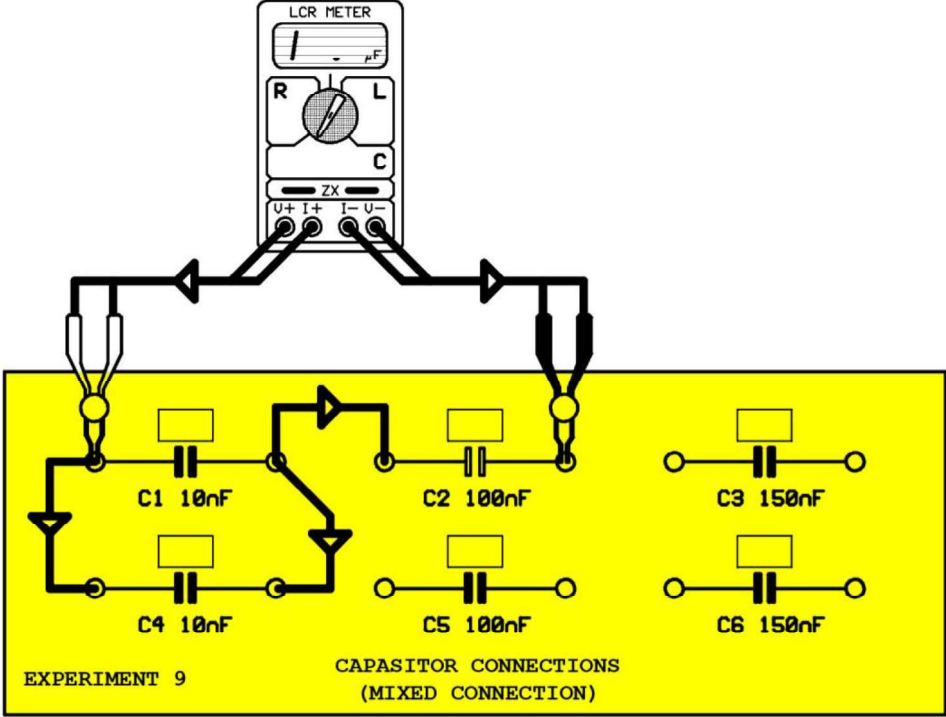


Figure 6

1- Write the value that you read on the LCR meter.

2- C1=10nF, C2=100nF and C4=10nF, calculate the total capacitance of the circuit.

3- Compare the capacitance value that you read on the LCR meter and the calculated. What is the reason of the difference?

Note: Make new experiments by mix connecting different capacitors using the ones in the module.