

DERPARTMENT OF ELECTRICAL-ELECTRONICS ENGINEERING EEE202 ELECTRO-TECHNICH LABORATORY

PART 5 EXPERIMENTS

Contents

EXPERIMENT 5.1	2
EXAMINATION OF COILS IN ALTERNATING CURRENT	.2

EXPERIMENT 5.1 EXAMINATION OF COILS IN ALTERNATING CURRENT

REQUIRED MATERIALS:

- 1- Function generator
- 2- Oscilloscope (two channels)
- 3- AC ammeter
- **4-** Y-0016/01AC module
- 5- Connection cable

EXPERIMENT:

In function generator, set a sin wave with 10 volts peak to peak and 1Khz frequency **Epp = 10V**, **f = 1Khz**. Replace the Y-0016/01AC module. Connect the circuit as in figure 5.1. Power the circuit.



Figure 5.1

1- Measure the internal resistance of the coil.

2- Short circuit the j2 nodes. Now coil is connected to the AC source draw the vector diagram of the circuit as seen in oscilloscope.

3-what is the phase angle of the circuit? Why?

4- Calculate the inductive reactance of the coil.

5-Calculate the circuit current.

6- Short circuit the CH2 nodes. Now R1 has no effect to the circuit. Compare the calculated and the measured current. Is there a difference, why?

7- Draw the phase diagram of the circuit?

8- Calculate the apparent power, real power and reactive power in the circuit?

NOTE: Do the experiment in different voltage and frequency values.