

**Faculty of Electrical & Electronics Engineering**

**BEE1223 Computer Programming**

**ASSIGNMENT**

**(Date of Submission: 24 August 2018)**

Figure 1 shows a general structure which outline for a series RL circuit program. The schematic diagram gives in Figure 2. The inputs for the series RL circuit are resistance (R), inductance (L) and frequency (f). In group, develop a program using **USER** **DEFINEED** **FUCNTION** to represent the logical of the general structure in Figure 1. Your report (softcopy and hardcopy) should include the source file (with explanations), program flowchart and the sample output display for the evaluation.

z\_mag, z\_angle

main

intro

Get input values

Impedance

XL

Calculate

magnitude

Calculate

angle

Display

results

Rad to deg

z\_angle

R, XL

z\_mag

R, XL

 XL

L, freq

R,L,freq

rad

ang

Figure 1 General Structure diagram for a series RL circuit program.

The magnitude of the impedance of an RL circuit is given by equation:

$$\left|Z\right|=\sqrt{R^{2}+X\_{L}^{2}}$$

and the phase angle of this impedance is given by:

$$\left〈Z\right〉=tan^{-1}\frac{X\_{L}}{R}$$

while the reactance of the inductor can be obtained using the following equation:

$$X\_{L}=2πfL$$

Figure 2 RL Series Circuit.

**[CO1, CO2]**

**[30 marks]**

**END OF QUESTION**