American International University- Bangladesh (AIUB)
Faculty of Engineering

Course Name:	Introduction to Electrical Circuits	Course Code:	COE 2101
Semester:	Fall 2021-22	Total Marks:	**5**
Faculty:	Prof. Dr. Mohammad Abdul Mannan	Term	Final

Assignment 02 [Final-TERM] [5 Marks]

Submission Date: November 18, 2021 [Thursday]

General Instruction:

1. Solve the problem to A4-size white paper by your handwritten.
2. Write your **Name**, **Student ID**, **Section, Page Number** and value of m_5 on the top of first page.
3. In top of other pages write the **Page Number**.
4. Take picture of your solution for each page individually.
5. **Insert the picture in a word file**.
6. Make word file into PDF format file.
7. Save PDF file using middle five digits of your ID number such as:

$m_1m_2m_3m_4m_5$_A02F_IECK_M.pdf

such as: 45328_A02F_IECK_M.pdf

8. Submit it in VUES.
9. **For each day delay 1 marks will be reduced**.
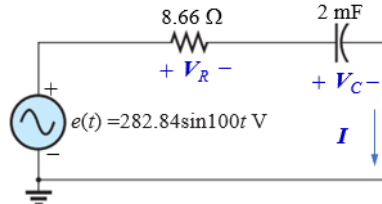10. **Picture format file submission will not be considered**

Problem 01: For the **Figure 1(a)**, **Figure 1(b)** and **Figure 1(c)**:

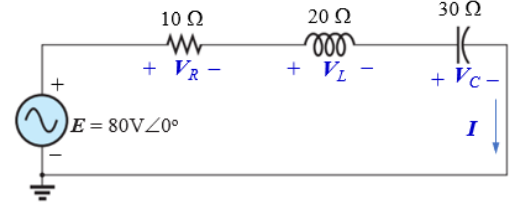(**i**) Calculate the impedance and write it in both Cartesian and Polar form.

(**ii**) Draw the impedance diagram.
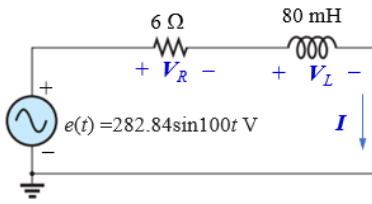
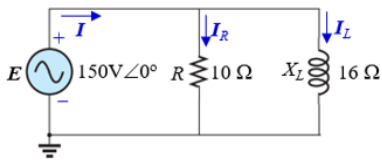(**a**) RL series circuit   (**b**) RC series circuit   (**c**) RLC series circuit
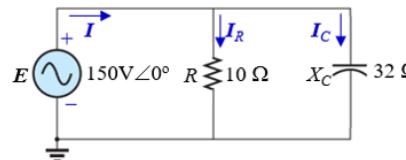
Figure 1: Configuration of series circuit

Problem 02: For the **Figure 2(a)**, **Figure 2(b)** and **Figure 2(c)**:

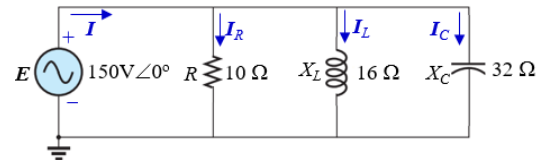(**i**) Calculate the admittance and write it in both Cartesian and Polar form.

(**ii**) Draw the admittance diagram.

(**a**) RL parallel circuit   (**b**) RC parallel circuit   (**c**) RLC parallel circuit

Figure 2: Configuration of parallel circuit

Problem 03: For the **Figure 1(a)**:

(**i**) Calculate the current I and the voltages V_R and V_L write in polar form.

(**ii**) Draw the phasor diagram.

Problem 04: For the **Figure 2(b)**:

(**i**) Calculate the currents I, I_R and I_L write in polar form.

(**ii**) Draw the phasor diagram.

Problem 05: For the **Figure 2(c)**:

(**i**) Calculate the power factor, the reactive factor, the power consumes by resistor, the reactive power consumes by inductor, the reactive power supplies by capacitor, the net reactive power, the apparent power.

(**ii**) Draw the power triangle.