ELEC227 Circuit Theory II
Project

1. Answer the following questions by assigning the first two digits and the last two digits of your school number (XX..........YY) to the resistance (XX) and reactance (YY) of load, respectively in the balanced three-phase circuit shown in Figure 1.

   a) Determine the power delivered to the load (apparent power, complex power, active and reactive power).

   b) Determine the each line current (Ia, Ib, Ic).

   c) Determine the each line to neutral voltage (VAN, VBN, VCN).

   d) Determine the compensating impedance to the load to adjust the power factor to 1.

   e) Determine items a, b and c after compensation.

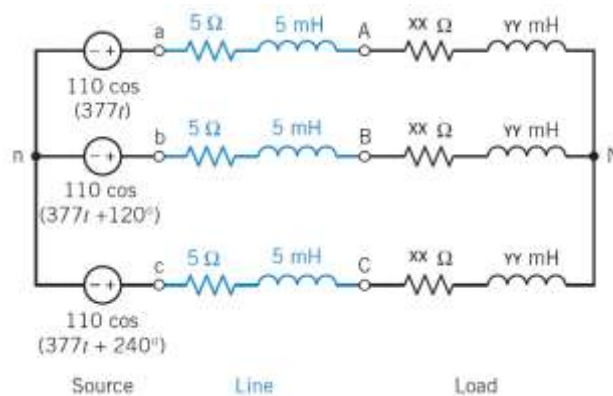   f) Make comparisons and comments on items a, b, c, and e. Verify with any application (i.e. PSpice, Multisim, etc.)

Figure 1

2. Answer the following questions by assigning the first two digits and the last two digits of your school number (XX..........YY) to the resistance (XX) and reactance (YY) of each phase load, respectively in the unbalanced three-phase circuit shown in Figure 2.

   a) Determine the power delivered to the unbalanced load (apparent power, complex power, active and reactive power).

   b) Determine the each line current (Ia, Ib, Ic).

   c) Determine the each line to neutral voltage (VAN, VBN, VCN).

   d) Determine the compensating impedance to the each phase load to adjust the power factor to 1.

   e) Determine items a, b and c after compensation.

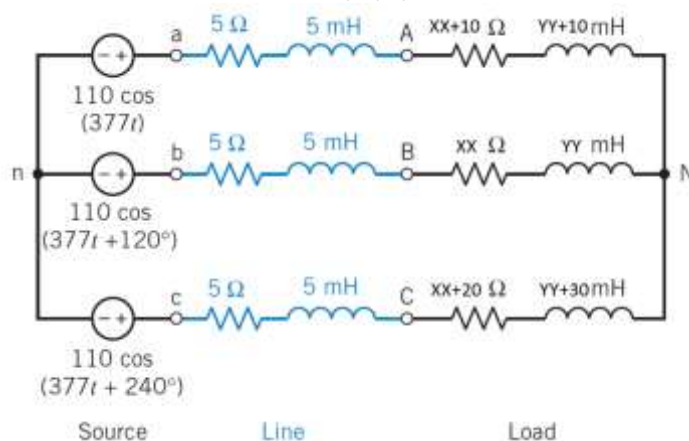   f) Make comparisons and comments on items a, b, c, and e.

Figure 2