Home Work # 7

1. A balanced **Y – Y** three phase circuit has V_{an} = 130 ∠20⁰. The per phase **impedance** of the load is Z_p = **10 Ω.** Given that the line impedance is **zero**, find the following.

     a. All **phase voltages** of the source.   b. All **line voltages** of the source.

     c. All **phase voltages** of the load.   d. All **line voltages** of the load.

     e. All **line currents**.   f. All **phase currents** of the load.

     g. The **total power** absorbed by the load.

2. A Δ-**load** has a **20-Ω** resistance in each of its phases. If this load is connected to a three-phase Δ **– connected** generator having a line voltage V_{ab} = **208 ∠0⁰** V and given that the line impedance is **zero**, find the following.

     a. All **phase voltages** of the source.   b. All **line voltages** of the source.

     c. All **phase voltages** of the load.   d. All **line voltages** of the load.

     e. All **line currents**.   f. All **phase currents** of the load.

3. A balanced Δ – **Y** three phase system has V_{ab} = 380 ∠45⁰. Each phase of the load is a **132.5 μF capacitor**. Neglecting the **line impedance**, find the following. The frequency of the source is 60 Hz.

     a. All **phase voltages** of the source.   b. All **line voltages** of the source.

     c. All **phase voltages** of the load.   d. All **line voltages** of the load.

     e. All **line currents**.   f. All **phase currents** of the load.

     g. The **total reactive power** of the load.

4. A balanced **Y** – Δ three phase system has V_{an} = 100 ∠30⁰. The per phase impedance of the load is Z_p = **3 Ω.** Given that the **line impedance** is 1Ω, find the following.

     a. All **phase voltages** of the source.   b. All **line voltages** of the source.

     c. All **phase voltages** of the load.   d. All **line voltages** of the load.

     e. All **line currents**.   f. All **phase currents** of the load.

     g. The **total power** absorbed by the load.