

Assignment 02

1)

- What are the ideal characteristics of an Op-amp?
- Explain how you define the golden rules of an ideal Op-amp?
- Draw the non-inverting amplifier circuit. Hence, derive the voltage gain of the non-inverting amplifier.
- Modify the above non-inverting amplifier circuit for the “buffer circuit”.
- Derive an Expression for the Output voltage of the following circuit. (Figure 1)

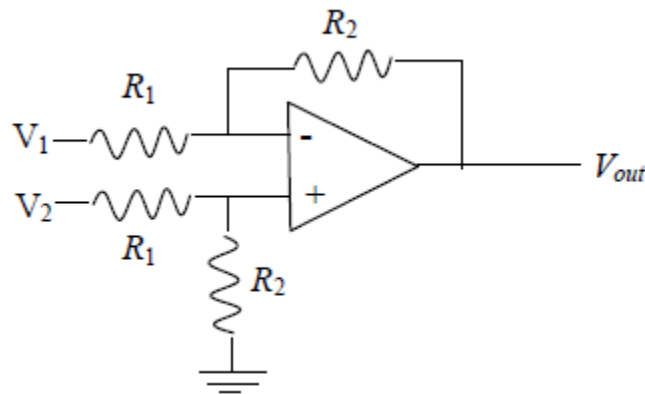


Figure 1

2)

- With the help of suitable diagrams, describe the special features of
 - Star connected and
 - Delta connected

Three-phase electrical power supply.

- A three-phase 400 V, 50 Hz, balanced portable power supply feeds a balanced load consisting of three-phase equal single-phase loads of $(20+20j) \Omega$ connected in star.

Determine,

- The supply current,
- Supply power factor,
- Supply active and reactive power,
- The value of the capacitances that must be connected to improve the overall power factor to 0.90 lag.
