Post lab 7:

Task 7:

Discuss the application of emitter-follower circuit as voltage buffer:

The emitter follower circuit is widely utilized as a voltage buffer owing to its capability to offer high input impedance and low output impedance. When used in this capacity, the emitter follower circuit takes an input voltage signal and produces an output voltage signal that closely tracks the input, but with increased current drive capacity. It provides nearly unity voltage gain, meaning the output voltage closely replicates the input voltage. Additionally, it presents a high input impedance to the preceding stage, preventing loading effects and ensuring minimal impact on the preceding circuit. At the same time, it offers a low output impedance to the following stage, enabling it to drive loads with minimal signal degradation. Overall, the emitter follower serves as an effective voltage buffer, effectively isolating the input and output stages of a circuit, providing impedance matching, and ensuring signal fidelity without significant distortion. It is employed in audio amplifiers, impedance matching networks, and various signal processing circuits where voltage buffering is essential.

Compare characteristics parameters of ce amplifier and cc amplifier:

- Voltage Gain (Av):
  - CE Amplifier: Moderate to high voltage gain
  - CC Amplifier: Voltage gain is close to 1
- Input Impedance (Zin):
  - CE Amplifier: Moderate input impedance
  - CC Amplifier: High input impedance
- Output Impedance (Zout):
  - CE Amplifier: Moderate output impedance
  - CC Amplifier: Low output impedance
- Current Gain (Ai):
  - CE Amplifier: Moderate current gain
  - CC Amplifier: Current gain is close to 1
- Phase Shift:
  - CE Amplifier: Provides a 180-degree phase shift
  - CC Amplifier: provides no phase shift