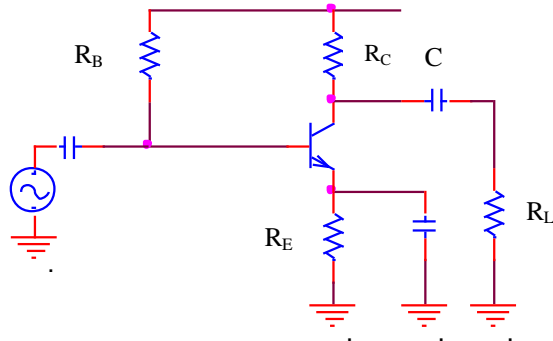


UNIT II**PART –A**

1. Define h-parameters
2. Write the voltage gain equation for CE configuration including source resistance.
3. What is AC load line? How is Q point plotted on the AC load line?
4. Why are common emitter amplifiers more popular?
5. How does the input impedance increase due to Darlington connection?
6. Two identical amplifiers having 10 dB gain each are cascaded. Calculate the output, if the input is of 1mV (p-p).
7. What is the coupling schemes used in multistage amplifiers?
8. What is a cascade amplifier?
9. Determine the output voltage of a differential amplifier for the input voltages of 300 μ V and 240 μ V. The differential gain of the amplifier is 5000 and the value of CMRR is 100.
10. If CMRR of an amplifier is 100 dB and differential gain is 1000, calculate the common mode gain.
11. What is the need of constant current circuit in differential amplifier?
12. State Bisection theorem.
13. Define CMRR
14. Define Miller's Theorem

PART – B

1. Derive the expression for
 - a) Current gain,
 - b) Voltage gain,
 - c) Input impedance and
 - d) Output admittance.
 of a small signal transistor amplifier in terms of h parameters.(12)
2. Explain the voltage swing limitations for a common emitter amplifier configuration.
3. A CC amplifier is fed with the voltage source V_s of internal resistance $R_s = 800\Omega$. The load resistance $R_L = 1600\Omega$. The CE hybrid parameters are $h_{ie} = 1000\Omega$; $h_{re} = 2.2 \times 10^{-4}$; $h_{fe} = 55$; $h_{oe} = 23 \mu A/V$. Compute voltage gain, current gain, input resistance, output resistance using approximate analysis. (8)
4. Draw the small signal hybrid model of CE amplifier and derive the expression for its A_i , A_v , R_i , R_o . (16)
5. Compare CB, CE and CC amplifiers and state their applications. (8)
6. Consider a single stage CE amplifier with $R_s = 1K\Omega$ and $R_L = 1.2K\Omega$. Calculate A_i , R_i , A_v , power gain and R_o if $h_{ie} = 1.1K\Omega$, $h_{re} = 2.5 \times 10^{-4}$, $h_{fe} = 50$ and $h_{oe} = 25 \mu A/V$. (8)
7. For the following circuit, find the voltage gain when the capacitance is connected across R_E and when capacitance is not connected across R_E . (16)



8. For the CC transistor amplifier circuit, find the expressions for input impedance and voltage gain. Assume suitable model for the transistor. (16)
- (i) Describe the method to increase the input resistance using Darlington connection. (8)
- (ii) Define CMRR (4)
- (iii) Write short notes on multistage amplifiers. (4)
9. Explain the operation of a Darlington emitter follower and also derive an expression for its performance measures. (16)
10. Explain the boot strapped Darlington emitter follower with circuit diagram. (8)
11. Explain the operation of emitter coupled differential amplifier. (12)
12. Explain the transfer characteristics of the differential amplifier. (4)