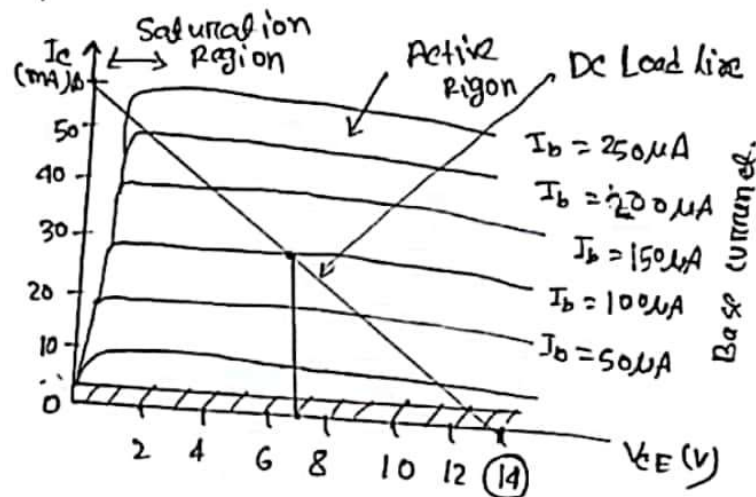


5.1

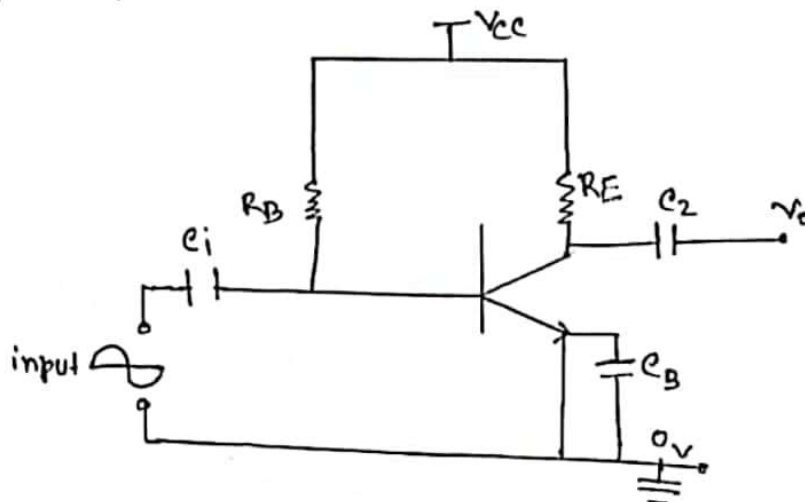
Ans to the q. no. - 5

Given that,

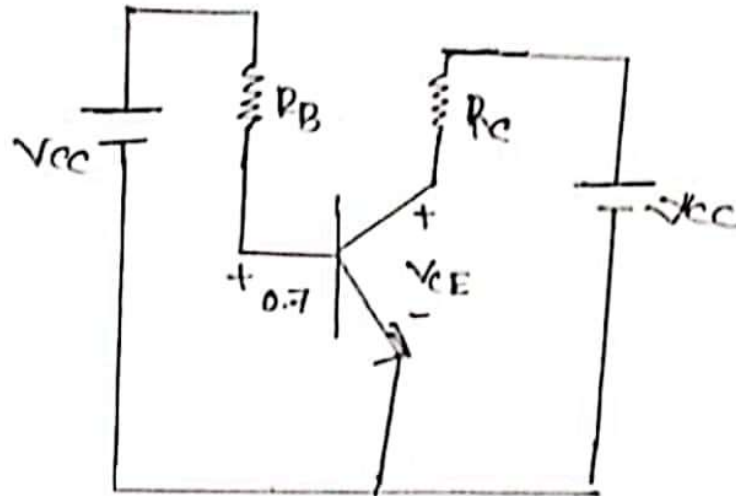
The output response in the datasheet of the required amplifier:



Design Amplifier:



Amplifier equivalent circuit:



$$V_{CC} = ?$$

$$R_B = ?$$

$$R_E = ?$$

$$\therefore -V_{CC} + I_E R_E + V_{CE} = 0$$

$$\Rightarrow V_{CC} = V_{CE} + I_E R_E \quad [I_E = I_C, I_E \approx 0]$$

$$\therefore V_{CC} = V_{CE} = 14V$$

$$\therefore -V_{CC} + I_B R_B + 0.7 = 0$$

$$\Rightarrow R_B = \frac{V_{CC} - 0.7}{I_B}$$

$$= \frac{14 - 0.7}{100 \times 10^{-6}}$$

$$= 133 \text{ K}\Omega$$

$$\therefore -V_{CC} + I_C R_C + V_{CE} = 0$$

$$\Rightarrow R_C = \frac{V_{CC} - V_{CE}}{I_C}$$

$$= \frac{14 - 7}{30 \times 10^{-3}}$$

$$= 233 \Omega$$

