Class Test 2020
B.Sc.(H) Semester IV
Analog Systems and Applications

Time: 45 mins **Total Marks: 10**

First question is compulsory. Attempt any two from long questions.

1. Attempt any two. Each question is carrying 1.5 mark.

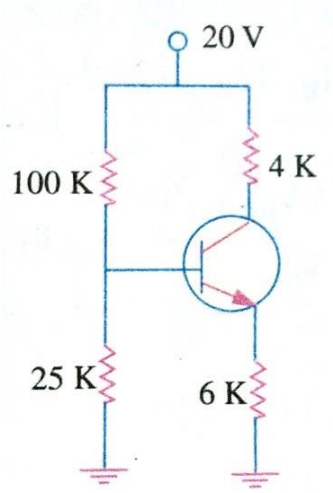
   a. Why collector is always reverse-biased w.r.t base?

   b. Why CE configuration is most popular in amplifier circuits?

   c. What do you understand by collector reverse saturation? In which configuration does it have a greater value?

2. For the circuit shown in fig, draw the dc load line and mark the Q-point of the circuit. Assume germanium material with $V_{BB} = 0.3$ V and $\beta = 50$.

(3.5 marks)

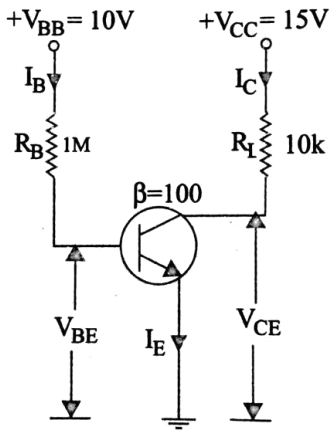


3. The hybrid parameters of a transistor used as an amplifier in the CE configuration are $h_{ie} = 800\ \Omega$, $h_{re} = 47$, $h_{oe} = 80\times10^{-6}\ \Omega^{-1}$ and $h_{re} = 5.4\times10^{-4}$. If the load resistance is 5K Ω and the effective source resistance is 500 Ω, determine the current gain, input impedance, output impedance, voltage gain and power gain.

(3.5 marks)

4. For the circuit of Fig, find (i) I_B (ii) I_C (iii) I_E and (iv) V_{CE}. Neglect V_{BE}.

(3.5 marks)


+V_BB= 10V
+V_CC= 15V
I_B
I_C
R_B 1M
R_L 10k
β=100
V_BE
I_E
V_CE