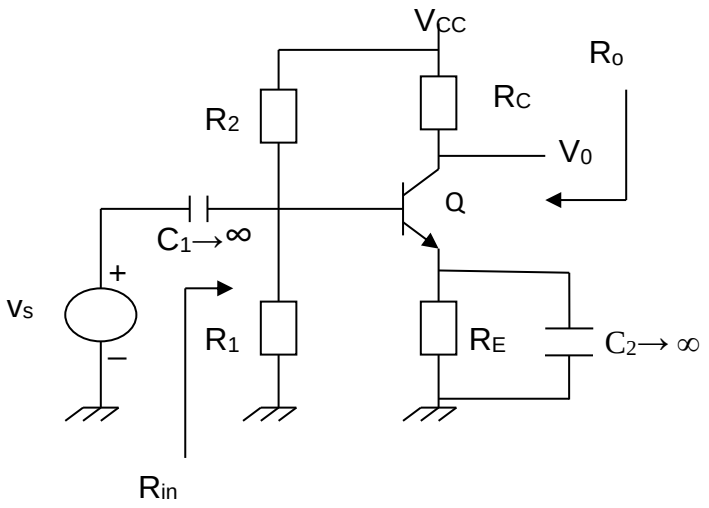
Electronic Devices
Student's name:
Student's ID:
Lecture attending: ☐ Online ☐ Offline (Please tick the appropriate box)

Quiz 6.1
Deadline: June 1, 2020

Question 1

V_{CC} = 12 V, R_1 = 3.3 KΩ, R_2 = 22 KΩ, R_E = 820 Ω, R_C = 4.7KΩ and β = 100. (Neglect r_o)

a. Calculate the quiescent point of transistor Q (I_{CQ} and V_{CEQ}).
b. Sketch the AC small-signal equivalent circuit.
c. Find input impedance R_{in} and output impedance R_o.
d. Find the voltage gain $A_v = v_0/v_s$.
e. If the input signal (v_s) has the internal resistance R_s = 1 KΩ. Repeat question (d).



Question 2

V_{CC} = 12 V, R_b = 10KΩ, R_S = 1KΩ, R_L = 1KΩ, early voltage V_A = 50V, and β = 100.

a. Calculate the quiescent point of transistor Q (I_{CQ} and V_{CEQ}).
b. Sketch the AC small-signal equivalent circuit.
c. Calculate input impedance R_{in}.
d. Calculate output impedance R_o
e. Find the voltage gain $A_v = v_0/v_s$.
f. Explain the role of this kind of circuit.

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