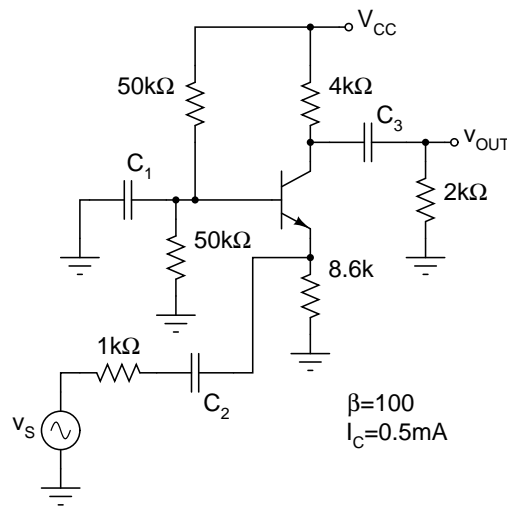


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University of Puerto Rico
Electrical and Computer Engineering Department
INEL 4202 - Electronics II - Summer 2001 - Exam 1 - Prof. M. Toledo
THERE ARE FOUR PROBLEMS - BE CLEAR OR LOOSE POINTS

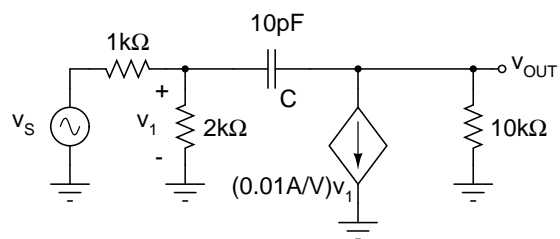
1. Use the short-circuit time-constant method to find the three low-frequency poles associated with C_1 , C_2 and C_3 for the circuit shown in the following diagram. (25 points)



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2. Use the open-circuit time-constant method to determine the pole associated with capacitor C in the following circuit. Do not use Miller's theorem. (25 points)



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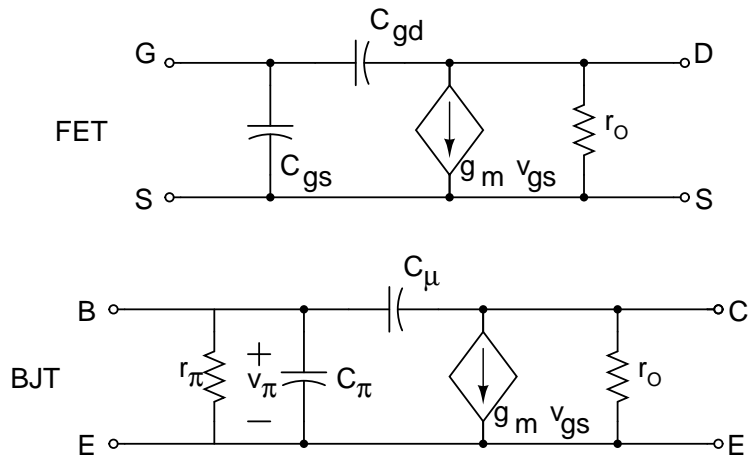
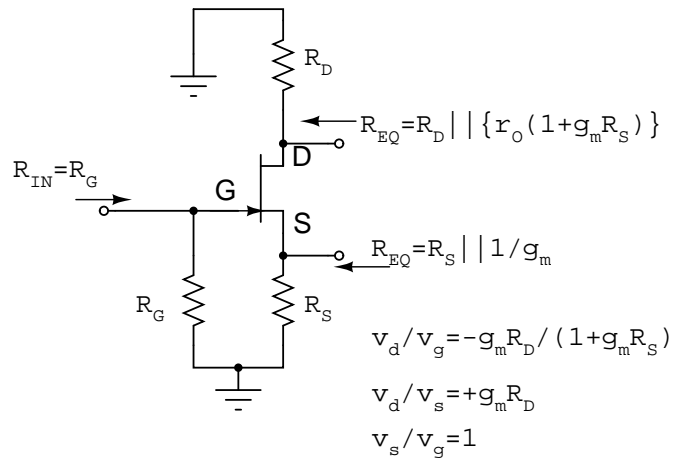
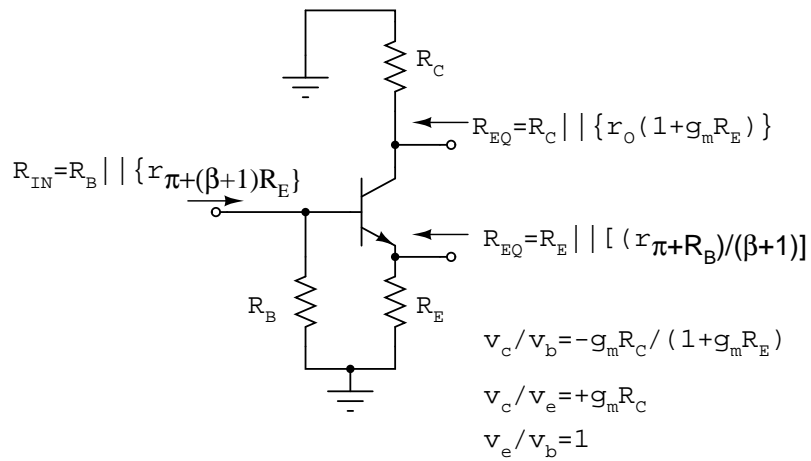
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3. Repeat problem 2, but this time use Miller's theorem to obtain your answer. (25 points)

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4. For the transistor shown in problem 1, $C_\mu = 5pF$ and $C_\pi = 100pF$. Find the amplifier's high frequency poles by writing down the high frequency equivalent circuit and then applying the open-circuit time-constant method. Do not use pre-calculated formulas. (30 points)



small-signal incremental model