Department of Electrical Engineering
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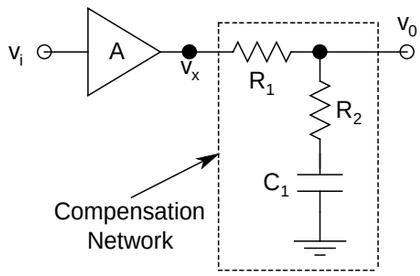
EE 210 **END-SEM P5** **6.5.21**

The amplifier block A has low-frequency gain $|v_x/v_i|$ = 90 dB, and three negative real poles at frequencies 5 MHz, 25 MHz, and 500 MHz.



a) Derive the transfer function v_0/v_x, and show that the compensation network (within the dotted line) actually performs pole-zero compensation (PZC). What are the expressions for the pole and zero frequencies (in terms of R_1, R_2, and C_1)? **4**

b) Now, for unconditional stability, evaluate the required values of R_2 and C_1, if R_1 = 10 kΩ. **4**

c) What is the phase margin of the compensated system? **2**

d) What modification would you do to this compensation network, for it to perform dominant pole compensation (DPC) instead of PZC? Elaborate your answer. **2**