

**King Fahd University of Petroleum & Minerals**

Electrical Engineering Department

EE205: Electric Circuits II

**Dr. Ali Muqaibel**

HW 7: Filters and Bode Plots

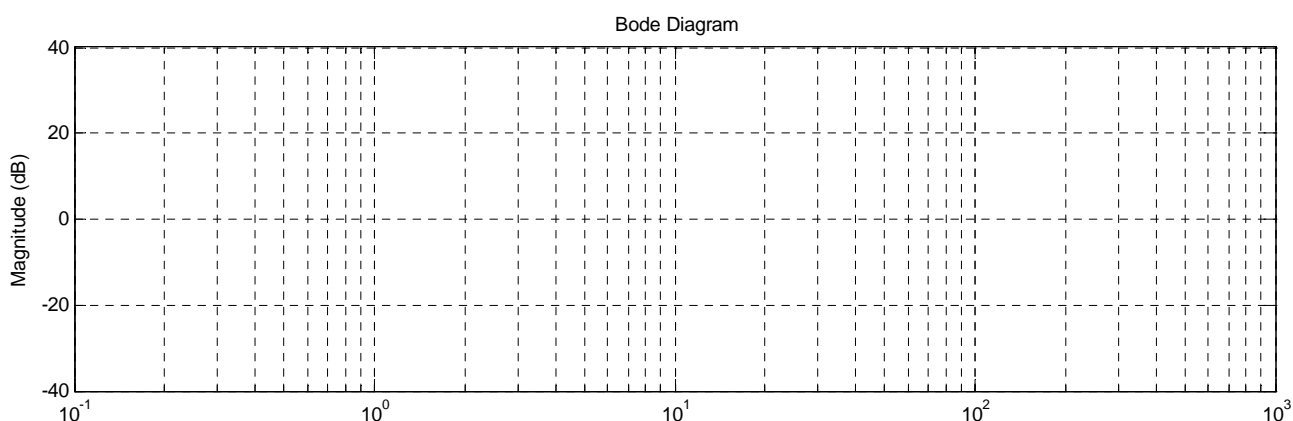
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**Problem 1:**

For the given transfer function:  $H(s) = \frac{s^2 + 13s + 30}{3s(s + 100)}$

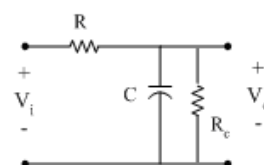
Make Straight-Line amplitude plot for the given transfer function. **Show your steps** (9 points)

What is the type of the filter? (1 point)



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**Problem 2:**



**For the circuit shown:**

- Does this circuit function as a (low-pass, high-pass, band-pass, or band-reject) filter. Justify your answer (1 point)
- Derive an expression for the transfer function  $H(s)$  where  $H(s) = V_o/V_i$  (3 points)
- What is the corner (cutoff) frequency? (4 points)
- Summarize the impact of the loading resistor  $R_c$  on the filter. (2 point)

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Good Luck, **Dr. Ali Muqaibel**