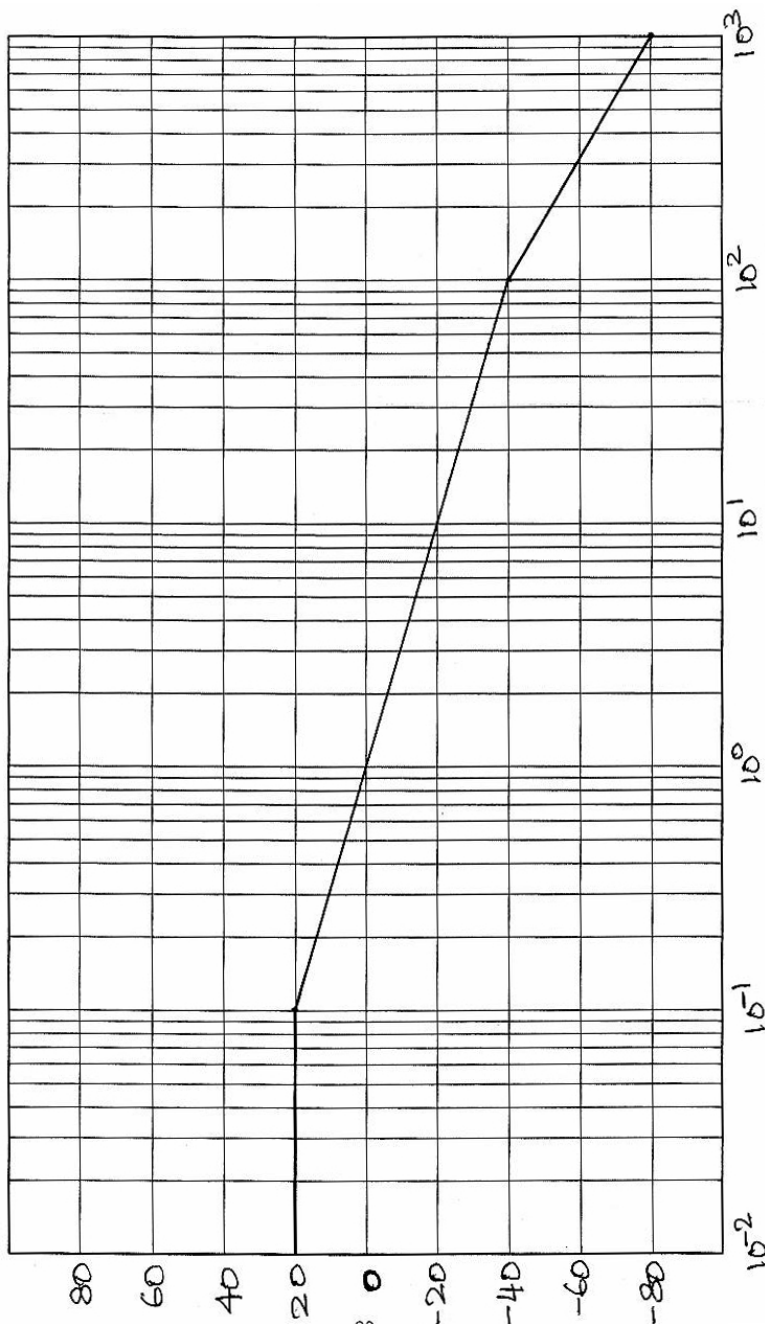# Quiz # 3, EE 250 (Control System Analysis), Spring 2013[*]

DEPARTMENT OF ELECTRICAL ENGINEERING, IIT KANPUR

Student's Name: **Roll No.:**

Shown on the semilog grid is the ABMP of a plant with a minimum-phase transfer function. On this grid, design using the loop-shaping techniques taught in the class a first order lag controller that helps the closed-loop system satisfy the following specifications: (1) $e_{ss} \leq 1\%$, (2) $M_p \approx 13\%$. Write down the resulting controller's transfer function. Use a ruler.

Δ

PM/100

DD (in decades) & PM (in degrees)

Peak overshoot M_p (in %)