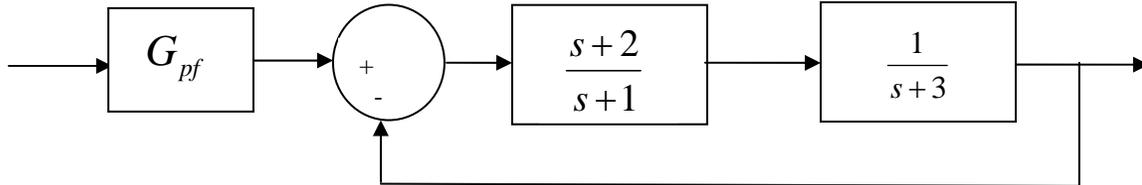


ECE-320, Practice Quiz #5

Problems 1-3 refer to the following system:



1) Assuming the prefilter G_{pf} is 1, the **position error constant** K_p is best approximated as

- a) $2/3$ b) $2/5$ c) 1 d) 0

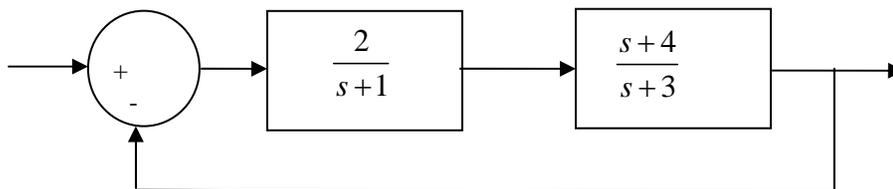
2) Assuming the prefilter G_{pf} is 1, the **steady state error** for a unit step is best approximated as

- a) $1/3$ b) $3/2$ c) $3/5$ d) $2/5$

3) The value of the prefilter G_{pf} that produces a **steady state error** of zero is:

- a) 1 b) $3/2$ c) $5/2$ d) $1/3$

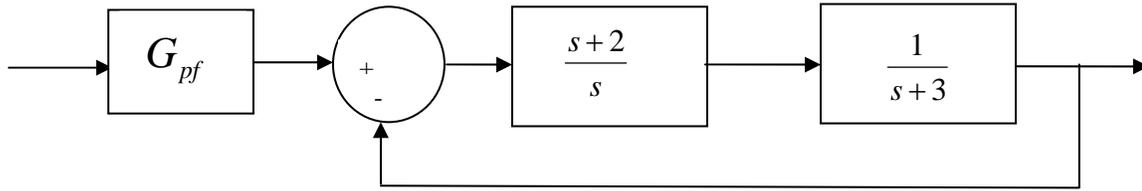
4) For the following system



The dynamic prefilter which cancels the closed loop zeros and produces a zero steady state error for a unit step input is

- a) $\frac{11}{s+4}$ b) $\frac{11}{2}$ c) $\frac{11}{s+4}$ d) $\frac{3}{s+4}$

Problems 5-7 refer to the following system



5) Assuming the prefilter G_{pf} is 1, the **velocity error constant** K_v is best approximated as

- a) $2/3$ b) $2/5$ c) 1 d) 0

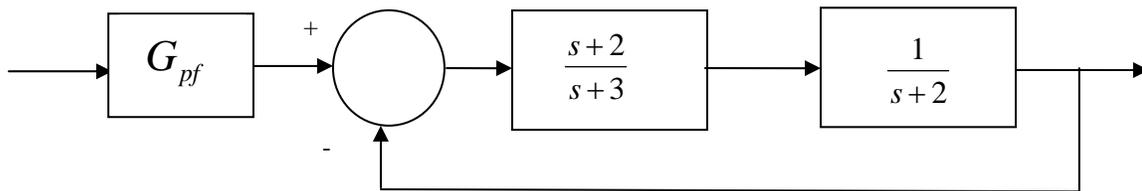
6) Assuming the prefilter G_{pf} is 1, the **steady state error** for a unit ramp input is best approximated as

- a) $1/3$ b) $3/2$ c) $3/5$ d) $2/5$

7) Assuming the prefilter G_{pf} is 1, the **steady state error** for a unit step input is best approximated as

- a) ∞ b) 0 c) $3/5$ d) $2/5$

Problems 8-10 refer to the following system:



8) Assuming the prefilter G_{pf} is 1, the **position error constant** K_p is best approximated as

- a) $2/3$ b) $1/3$ c) 1 d) 0

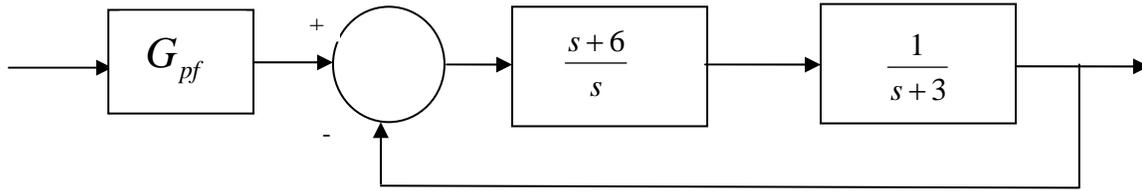
9) Assuming the prefilter G_{pf} is 1, the **steady state error** for a unit step is best approximated as

- a) $1/3$ b) $2/3$ c) $3/4$ d) $4/3$

10) The value of the prefilter G_{pf} that produces a **steady state error** of zero is:

- a) 1 b) $3/2$ c) 4 d) $1/3$

Problems 11-13 refer to the following system



11) Assuming the prefilter G_{pf} is 1, the **velocity error constant** K_v is best approximated as

- a) $2/3$ b) 2 c) 1 d) 0

12) Assuming the prefilter G_{pf} is 1, the **steady state error** for a unit ramp input is best approximated as

- a) $1/2$ b) $3/2$ c) 2 d) $2/5$

13) Assuming the prefilter G_{pf} is 1, the **steady state error** for a unit step input is best approximated as

- a) ∞ b) 0 c) $3/5$ d) 2

Answers: 1-a, 2-c, 3-c, 4-b, 5-a, 6-b, 7-b, 8-b, 9-c, 10-c, 11-b, 12-a, 13-b