

國立臺北科技大學

104 學年第二學期電機系博士班資格考試

控制系統(大學部) 試題

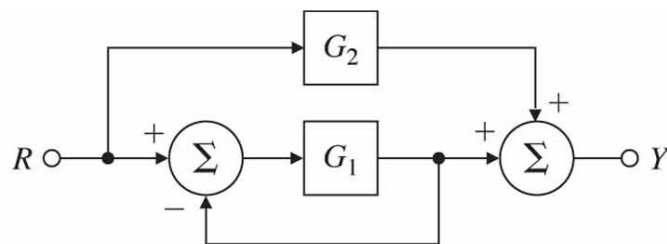
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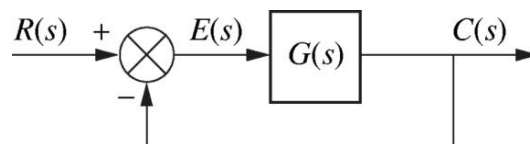
注意事項：

1. 本試題共 5 題，配分共 100 分。
2. 請按順序標明題號作答，不必抄題。
3. 全部答案均須答在試卷答案欄內，否則不予計分。
4. 考試時間：二小時。
5. 可用計算機。

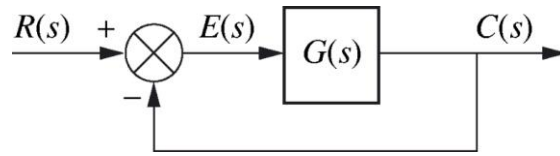
1. (20%) Find the transfer function $T(s) = Y(s)/R(s)$ for the following system.



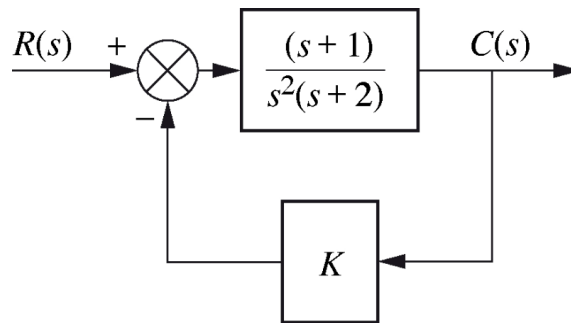
2. (20%) Find the range of K for which the system is stable if $G(s) = \frac{K}{(s+1)^3(s+4)}$.



3. (20%) Sketch the root locus for the system with $G(s) = \frac{K(s+3)}{s(s+1)(s+2)(s+4)}$.



4. (20%) Design the K value to yield 0.1% error in the steady state for the following system.



5. (20%) Sketch the asymptotes of the Bode plot magnitude and phase for a unity feedback system with $G(s) = \frac{(s+5)}{(s+2)(s+4)}$.

