

國立臺北科技大學
九十九學年度研究所碩士在職專班入學考試

能源與冷凍空調工程系碩士班
乙組：自動控制試題

填准考證號碼

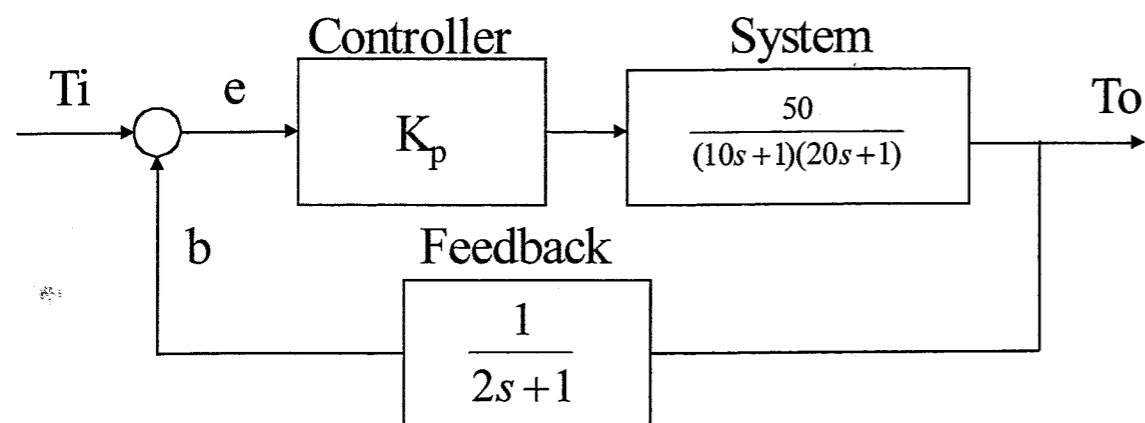
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第一頁 共一頁

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。

1. How to adjust the following proportional control system to achieve less than 3% steady state error under step function input. (20 pts)



2. Give the formal definition to the following proper nouns
 Relaxed system (4 pts)
 Linear system (4 pts)
 Time invariant system (4 pts)
 Causal system (4 pts)
 Second order system (4 pts)

3. Calculate the time response function of the following transfer function with respect to step function input. (20 pts)

$$T(s) = \frac{C(s)}{R(s)} = \frac{8(s+4)}{(s+8)(s^2+4s+8)}$$

4. Explain the working principals of PID control and describe the most suitable adjust algorithm for air conditioning control. (20 pts)
5. For a digital control system, the feedback temperature is $T(n)$, $n = 1, 2, \dots$ with respect to each sampling time. If the setting temperature is T_{set} , give a calculating formula to get the proportional, integral and differential control output for $n \rightarrow \infty$. (20 pts).