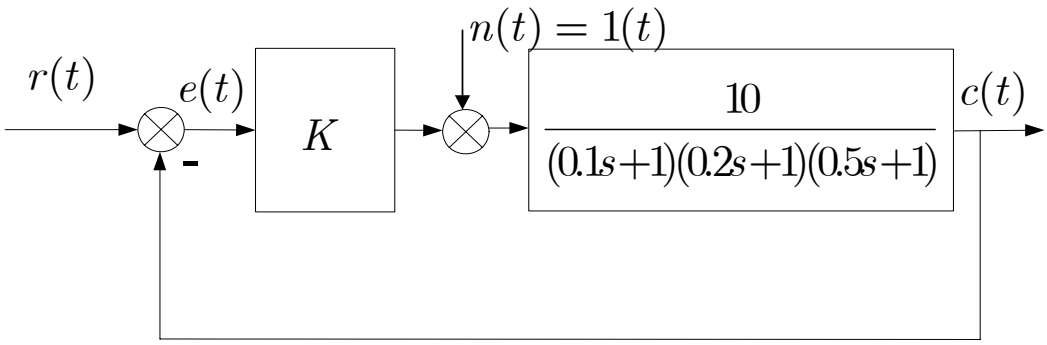
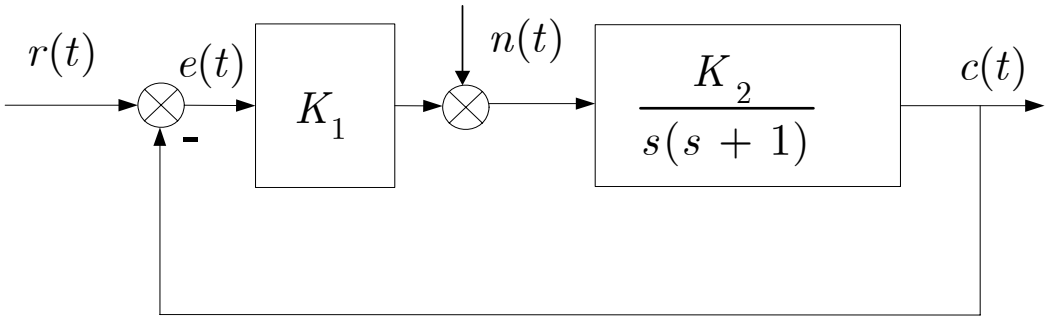
1. A system's block diagram is shown below:

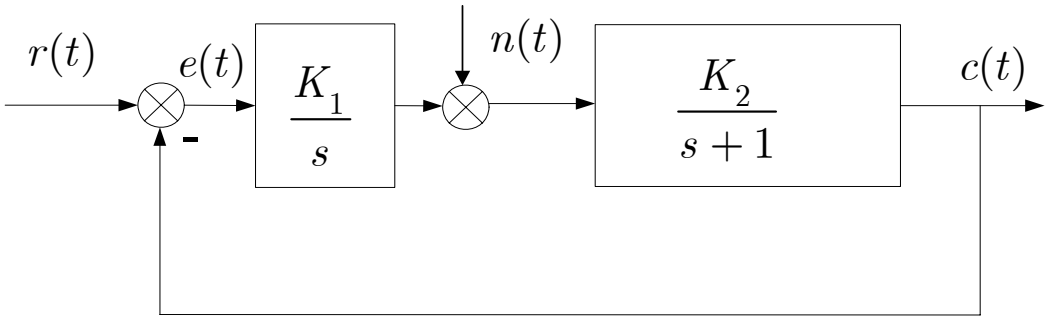


Is it possible to choose a appropriate value of K such that the steady state error $e_{ssn}=-0.099$ when the system is subjected to a disturbance $n(t)$?

2. The block diagram of a unity-feedback system is shown below:



If $r(t)=t\cdot 1(t)$ and n(t)=1(t), determine its steady state error. Further, if we change the block diagram as follows



determine the steady state error. Finally, compare the steady state errors for the two cases and show the effect of the integral action on the system steady state error.

3. B-5-27