



VIT

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF ELECTRONICS ENGINEERING
Continuous Assessment Test- I, Fall 2019-20
ECE2010 – CONTROL SYSTEMS

F1+

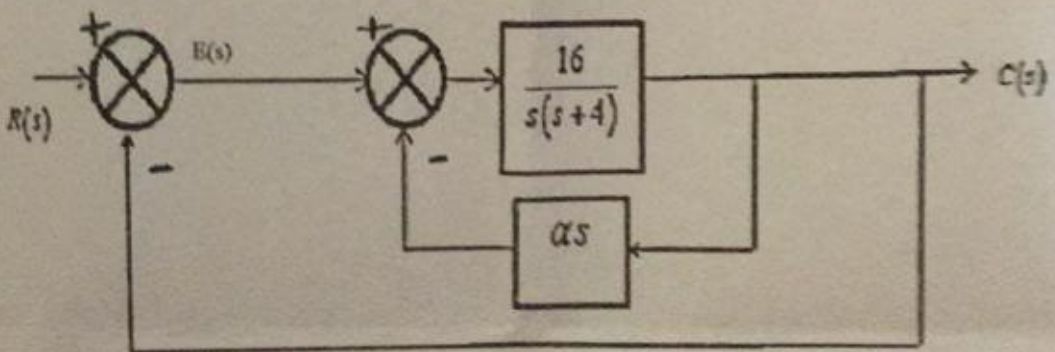
Duration : 90 min

Max. Marks: 50

Answer ALL questions

The system shown in the figure below is a unity feedback control system with a minor feedback loop

- In the absence of rate feedback ($\alpha = 0$), Determine the peak overshoot of the system to a step input, and the steady-state error resulting from a unit ramp input.
- Determine the rate feedback constant α which will decrease the peak overshoot of the system to 1.5%. What is the steady error to the unit ramp input with this setting of the feedback constant?



2. Derive the simplified transfer function of the following system.

