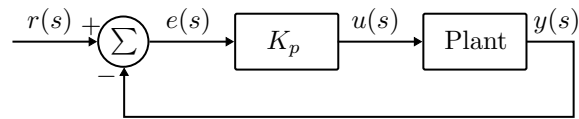# Test: Introduction to Control

1. Write an expression for the closed-loop transfer function of the system shown below.

2. Draw a block diagram of the state space model

$$\dot{x} = Ax + Bu$$
$$y = Cx + Du$$

3. What is the steady state error (if any) of the following system subject to a ramp input

$$T(s) = \frac{y(s)}{r(s)} = \frac{s}{s+2}$$

4. Draw a block diagram of a plant $G(s)$ with feedback controller $K(s)$ and feedforward given by $F(s)$.