

1. (100 points) An open-loop transfer function is given as,

$$G(s) = \frac{1}{s^3 + 2.0s^2 + 3.02019s + 4.04039}$$

which of the following PI-controllers stabilizes the system in a closed-loop unit feedback structure?

- A.  $F(s) = -0.98991 + \frac{2.02019}{s}$
- B.  $F(s) = -2.51009 + \frac{0.25252}{s}$
- C.  $F(s) = 1.01009 + \frac{1.02019}{s}$
- D.  $F(s) = -0.98991 + \frac{1.01009}{s}$
- E.  $F(s) = -5.98991 + \frac{1.01009}{s}$