Assigned: 2/18/2021
Due: 2/25/2021 @ 11:59 pm

Name: _____ ID: _____

1.) Please consider the mechanical system in Problem #5 of HW #1.

a) (10 pts) Obtain the transfer function $Y_1(s)/F(s)$ for this system.

b) (10 pts) Obtain the transfer function $Y_2(s)/F(s)$ for this system.

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2.) (10 pts) Obtain the unit-impulse response and the unit-step response of a unity-feedback system whose open-loop transfer function is:

$$G(s) = \frac{2s + 1}{s^2}$$

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3.) (10 pts) Please solve Problem B-5-10 from Ogata (page 265).

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4.) (10 pts) Consider the unit-step response of a unity-feedback control system whose open-loop transfer function is:

$$G(s) = \frac{4}{s(s+2)}$$

Please obtain the rise time, peak time, maximum overshoot, and settling time.

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5.) (10 pts) Please solve Problem B-5-9 from Ogata (page 265).

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6.) (10 pts) Please solve only analytically Problem B-5-12 from Ogata (page 265). Ignore the computational solution and use 2% settling time definition.