Excercise5a: Frequency Analysis of DC motor with P control / 演習5a: DCモータP制御の周波数解析

Simulate and plot a rotation speed the motor in Ex1 by P-control with a gain of 1 for a reference of sin(wt),where w = 10, 100, 300 from 0 to 1 [sec] with 1 [msec] interval. Submit a Matlab source code. Also, make a Bode plot for this system.

Ex1のモータをゲイン1でP制御するとき，目標速度がsin(wt), w=10, 100, 300に対して，それぞれ目標と実際の出力をプロットせよ．またbode線図を作成せよ．

$$\frac{s\Theta(s)}{E_m(s)} = \frac{1}{K_e\left(T_m s+1\right)\left(T_e s+1\right)} = \frac{1}{K_e T_m T_e s^2 + K_e T_m s + K_e}$$

Excercise5b: Frequency Analysis of DC motor with I control / 演習5b: DCモータI制御の周波数解析

Simulate and plot a rotation speed the motor in Ex1 by I-control with a gain of 1 for a reference of sin(wt),where w = 10, 100, 300 from 0 to 1 [sec] with 1 [msec] interval. Submit a Matlab source code. Also, make a Bode plot for this system.

Ex1のモータをゲイン1でI制御するとき，目標速度がsin(wt), w=10, 100, 300に対して，それぞれ目標と実際の出力をプロットせよ．またbode線図を作成せよ．

$$\frac{s\Theta(s)}{E_m(s)} = \frac{1}{K_e\left(T_m s+1\right)\left(T_e s+1\right)} = \frac{1}{K_e T_m T_e s^2 + K_e T_m s + K_e}$$

Excercise5c: Frequency Analysis of DC motor with D control / 演習5c: DCモータI制御の周波数解析

Simulate and plot a rotation speed the motor in Ex1 by D-control with a gain of 1 for a reference of sin(wt),where w = 10, 100, 300 from 0 to 1 [sec] with 1 [msec] interval. Submit a Matlab source code. Also, make a Bode plot for this system.

Ex1のモータをゲイン1でD制御するとき，目標速度がsin(wt), w=10, 100, 300に対して，それぞれ目標と実際の出力をプロットせよ．またbode線図を作成せよ．

$$\frac{s\Theta(s)}{E_m(s)} = \frac{1}{K_e\left(T_m s+1\right)\left(T_e s+1\right)} = \frac{1}{K_e T_m T_e s^2 + K_e T_m s + K_e}$$