X

Unit 12 - Week 10

Course outline

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Pre-requisite Assignment

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- Bode Plot 4 - Part 1 (unit?unit=89&lesson=90)
- Bode Plot 4- Part 2 (unit?unit=89&lesson=91)
- Nyquist Plot 1 - Part 1 (unit?unit=89&lesson=92)
- Nyquist Plot 1- Part 2 (unit?unit=89&lesson=93)
- Nyquist Plot 2 - Part 1 (unit?unit=89&lesson=94)
- Nyquist Plot 2- Part 2 (unit?unit=89&lesson=95)
- **Quiz : Assignment 10 (assessment?name=132)**
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Assignment 10

The due date for submitting this assignment has passed. **Due on 2019-10-09, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Consider a negative feedback closed loop system whose open loop transfer function is $\frac{s+1}{s^2+12s+20}$. The slope (in dB/octave) of the high frequency asymptote in the magnitude plot of the corresponding sinusoidal transfer function is ***1 point***

- -40
- -20
- -12
- -6

No, the answer is incorrect.
Score: 0
Accepted Answers:
-6

2) In problem 1, the corner frequencies (in rad/s) of the sinusoidal transfer function are ***1 point***

- 1, 2, 10
- 0.1, 0.5, 1
- 0.1, 1, 2
- 0.5, 1, 10

No, the answer is incorrect.
Score: 0
Accepted Answers:
1, 2, 10

3) In problem 1, the magnitude (in dB) of the sinusoidal transfer function as frequency tends to zero is ***1 point***

- -26
- 0
- -10
- -14

No, the answer is incorrect.
Score: 0
Accepted Answers:
-26

4) In problem 1, the phase (in °) of the sinusoidal transfer function as frequency tends to infinity is ***1 point***

- 90
- 0
- -90
- -180

No, the answer is incorrect.
Score: 0
Accepted Answers:
-90

5) In problem 1, the slope (in dB/octave) of the low frequency asymptote in the magnitude plot of the sinusoidal transfer function is ***1 point***

- 0
- 6
- 12
- 20

No, the answer is incorrect.
Score: 0

Accepted Answers:
0

6) In problem 1, the static position error constant is **1 point**

- 10
- 0.05
- 2
- 0.2

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.05

7) In problem 1, the steady state error of the closed loop system's output to a unit step reference input is **1 point**

- 0.95
- 0.83
- 0.5
- 0.1

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.95

8) The plot of the real part of the sinusoidal transfer function and its imaginary part as frequency is varied is called as **1 point**

- Nichols plot
- Hurwitz plot
- Nyquist plot
- Bode plot

No, the answer is incorrect.
Score: 0
Accepted Answers:
Nyquist plot

9) Which ONE of the following statements is TRUE about the Nyquist plot of the factor $s + 2$, as the frequency is varied from 0 to ∞? **1 point**

- It would always lie in the first quadrant of the complex plane
- It would always lie in the second quadrant of the complex plane
- It would always lie in the third quadrant of the complex plane
- It would always lie in the fourth quadrant of the complex plane

No, the answer is incorrect.
Score: 0
Accepted Answers:
It would always lie in the first quadrant of the complex plane

10) As frequency is varied from 0 to ∞, the Nyquist plot of $\frac{1}{s+4}$ is a semi-circle whose radius is **1 point**

- 0.125
- 1
- 0.5
- 0.25

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.125

11) The Nyquist plot of e^{-2s} is a circle of radius **1 point**

- 0.25
- 1
- 2
- 4

No, the answer is incorrect.
Score: 0
Accepted Answers:
1

12) Which ONE of the following statements is TRUE about the Nyquist plot of the factor $s^2 + 4s + 2$, as the frequency is varied from 0 to ∞? **1 point**

- It would always lie in the fourth and first quadrants of the complex plane
- It would always lie in the first and second quadrants of the complex plane
- It would always lie in the second and third quadrants of the complex plane
- It would always lie in the third and fourth quadrants of the complex plane

No, the answer is incorrect.
Score: 0
Accepted Answers:
It would always lie in the first and second quadrants of the complex plane

13) As frequency is varied from 0 to ∞, the Nyquist plot of $\frac{s+2}{s+10}$ is a semi-circle whose radius is **1 point**

- 2
- 0.2
- 0.4
- 1

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.4

14) In problem 13), the maximum phase (in °) of the sinusoidal transfer function is **1 point**

- 41.8
- 45
- 25.4
- 22.5

No, the answer is incorrect.
Score: 0

Accepted Answers:
41.8

15) As frequency is varied from 0 to ∞, the Nyquist plot of $\frac{s+2}{s+10}$ would always lie in the **1 point**

- first quadrant of the complex plane
- second quadrant of the complex plane
- third quadrant of the complex plane
- fourth quadrant of the complex plane

No, the answer is incorrect.
Score: 0

Accepted Answers:
first quadrant of the complex plane