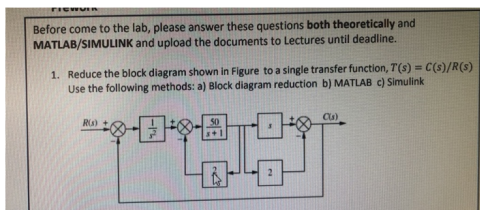


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Question: Before come to the lab, please answer these questions both the...

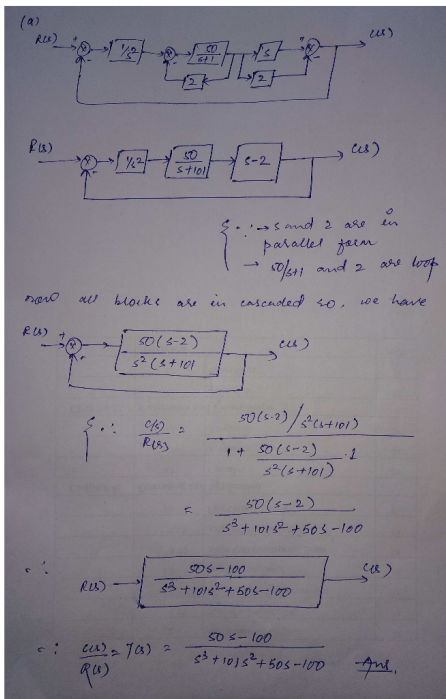
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Expert Answer

Anonymous answered this 56 answers Was this answer helpful? 0 0



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<p>1. (P5.4) Reduce the system shown below to a single transfer function, <math>T(s) = C(s)/R(s)</math></p> <p>See answer</p>	<p>1. Reduce the block diagram shown in Figure 1 to a single transfer function, <math>T(s) = C(s)/R(s)</math>. Use the block dia...</p> <p>See answer</p>	<p>See more questions for subjects you study</p>
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Q: acebook Prewori Before come to the lab, please answer these questions both theoretically and MATLAB/SIMULINK and upload the documents to Lectures until deadline. 1. Reduce the block diagram shown in Figure to a single transfer function,  $T(s) = C(s)/R(s)$ . Use the following methods: a) Block diagram reduction b) MATLAB c) Simulink R(s) + 1/2. Consider the mechanical system shown in...

A: See answer

Q: Could you show me how to solve this block diagram, thank you for helping...

A: See answer 100% (2 ratings)

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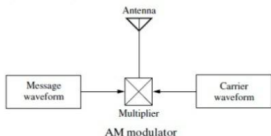
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Question: 4. An AM radio modulator generates the product of a carrier wa...

4. An AM radio modulator generates the product of a carrier waveform and a message waveform, as shown in Figure (Kirkland, 1977). Represent the system in state space if the carrier is a sinusoid of frequency  $\omega = a$ , and the message is a sinusoid of frequency  $\omega = b$ . Note that this system is nonlinear because of the multiplier.



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Expert Answer

Rajiv Kumar Anand answered this 2,228 answers Was this answer helpful? 1 0

Ans-4- Establishing a Sinusoidal model for the carrier:

$$T(s) = \frac{K_1}{s^2 + a^2}$$

Establishing a Sinusoidal model for the message:

$$T(s) = \frac{K_2}{s^2 + b^2}$$

Writing the state equations,

$$\begin{aligned} \dot{x}_1 &= x_2 \\ \dot{x}_2 &= -a^2 x_1 + K_1 \theta_1 \\ \dot{x}_3 &= x_4 \\ \dot{x}_4 &= -b^2 x_3 + K_2 \theta_2 \\ y &= x_1 x_3 \end{aligned}$$

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Q: Question 8 (1 point)  $f_c = 15$  MHz Maximum = 7.5Vp Amplitude AM MODULATED WAVE Amplitude Minimum = 3Vp Amplitude Time 400us What is the modulation index of the AM waveform? What is the peak to peak Voltage of the Carrier Frequency? What is the Bandwidth of the AM waveform? If this waveform was Q S A & 3.4 5 6 7 8 9 0 Amplitude Minimum = 3Vp Amplitude Time 400us What is the...

A: See answer

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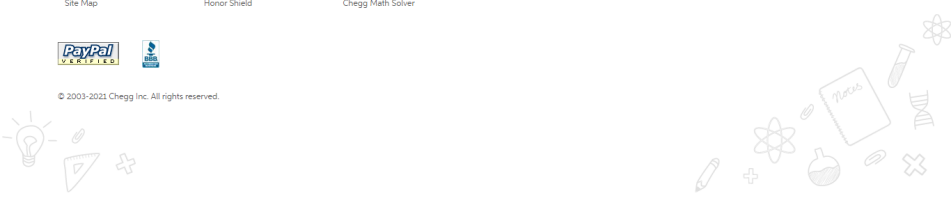
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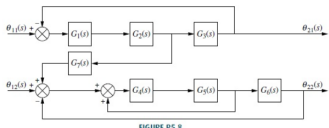
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8. Given the block diagram of a system shown in Figure P5.8, find the transfer function  $G(s) = \theta_{22}(s)/\theta_{11}(s)$ . [Section: 5.2]



Find the transfer function using the block diagram reduction method

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Expert Answer

Chandan Kumar answered this 61 answers

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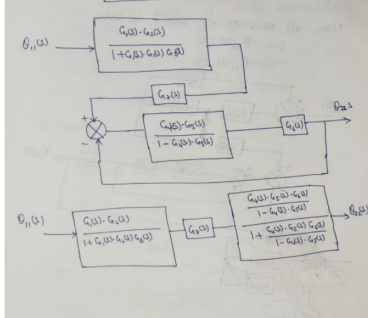
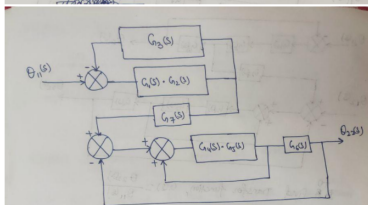
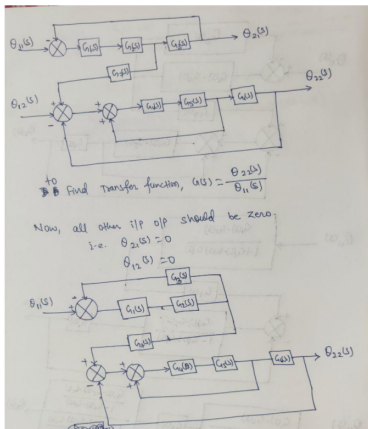
When two systems  $G_1$  and  $G_2$  are connected in cascade then the resultant will be  $(G_1 \times G_2)$ .

When a closed loop system of  $G(s)$  with unity negative feedback path then the resultant transfer function will be

$$G(s)/(1+G(s))$$

And for positive feedback path the transfer function will be

$$G(s)/(1-G(s))$$



$$G(s) = \frac{\theta_{22}(s)}{\theta_{11}(s)} = \frac{G_1(s) \cdot G_2(s)}{1 + G_1(s) \cdot G_2(s) \cdot G_3(s)} \cdot G_4(s) \cdot G_5(s) \cdot G_6(s) \cdot \frac{G_4(s) \cdot G_5(s) \cdot G_6(s)}{1 - G_4(s) \cdot G_5(s) \cdot G_6(s)}$$

$$\Rightarrow G(s) = \frac{G_1(s) \cdot G_2(s) \cdot G_3(s) \cdot G_4(s) \cdot G_5(s) \cdot G_6(s)}{(1 + G_1(s) \cdot G_2(s) \cdot G_3(s)) \cdot (1 - G_4(s) \cdot G_5(s) \cdot G_6(s))}$$

thank!

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1. Reduce the block diagram shown in Figure 1 to a single transfer function,  $T(s) = C(s)/R(s)$ . Use the block dia...

See answer

1. (P5.4) Reduce the system shown below to a single transfer function,  $T(s) = C(s)/R(s)$ .

See answer

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- Q: Given the block diagram of a system shown in Figure P5.8, find the transfer function  $G(s) = \theta_{22}(s)/\theta_{11}(s)$ .
- A: See answer 100% (3 ratings)
- Q: 8. Given the block diagram of a system shown in Figure P5.8, find the transfer function  $G(s) = \theta_{22}(s)/\theta_{11}(s)$ . [Section: 5.2]
- A: See answer
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**Question: Use block diagram reduction to find the transfer function C(s)/R(s)**

Use block diagram reduction to find the transfer function C(s)/R(s)

**2** Find the closed-loop transfer function,  $T(s) = C(s)/R(s)$  for the system shown in Figure P5.2, using block diagram reduction. [Section: 5.2]

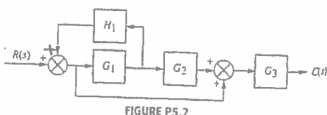


FIGURE P5.2

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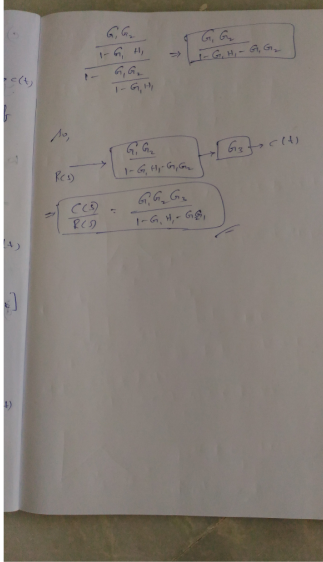
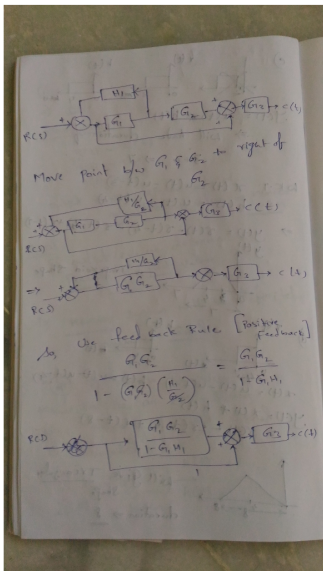
**Expert Answer**



Anonymous answered this 311 answers

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1. (P5.4) Reduce the system shown below to a single transfer function,  $T(s) = C(s)/R(s)$

See answer

1. Reduce the block diagram shown in Figure 1 to a single transfer function,  $T(s) = C(s)/R(s)$ . Use the block diagram reduction rules.

See answer

See more questions for subjects you study

**Questions viewed by other students**

Q: Find the closed-loop transfer function,  $T(s) = C(s)/R(s)$  for the system shown in Figure P5.2, using block diagram reduction. [Section: 5.2]

A: See answer 100% (8 ratings)

Q: B-5-9. Consider the system shown in Figure 5-76. Determine the value of  $k$  such that the damping ratio  $\zeta$  is 0.5. Then obtain the rise time  $t_r$ , peak time  $t_p$ , maximum overshoot  $M_p$ , and settling time  $t_s$  in the unit-step response.  $R(s) C(s) 16 s + 0.8$  Figure 5-76 Block diagram of a system.

A: See answer

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