C&S LE Sessional exam

Total points 27/30

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EEE

✓ A time invariant system is a system whose output * 3/3

- ○ increases with a delay in input
- ○ decreases with a delay in input
- ◉ remains same with a delay in input ✓
- ○ vanishes with a delay in input

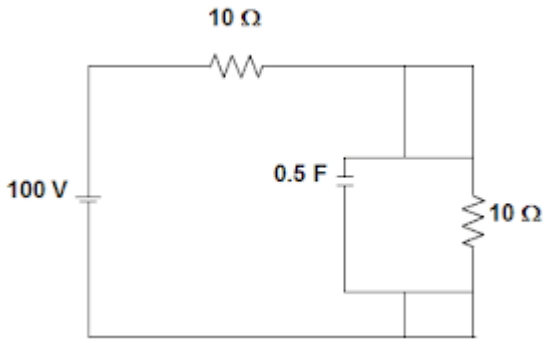
✓ A system is said to be defined as non causal, when * 3/3

- ○ the output at the present depends on the input at an earlier time
- ○ the output at the present does not depend on the factor of time at all
- ○ the output at the present depends on the input at the current time
- ◉ the output at the present depends on the input at a time instant in the future ✓

✓ Which among the following is a LTI system? * 3/3

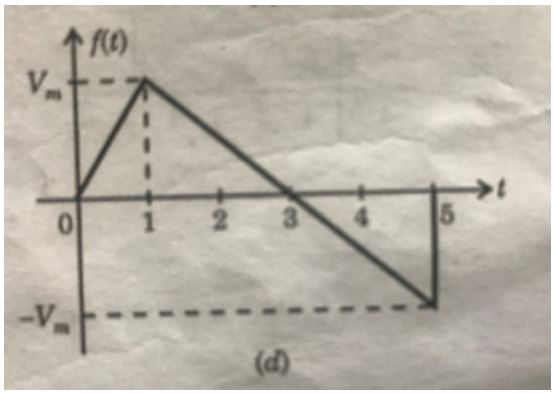
- ○ dy(t)/dt+ty(t)=x(t)
- ○ y(t)=x(t)cosπt
- ○ y(n)=x(n)+nx(n-1)
- ◉ y(n)=x3 (n+1) ✓

✓ For the circuit given below, the Time-constant is _____ * 3/3



- ○ 1.5
- ◉ 1.25 ✓
- ○ 2.5
- ○ 2.25

✗ Express the waveform shown by the standard signals * 0/3



- V_mr(t)- 3/2 V_mr(t-1) + V_m/2 r(t-5) + V_m U(t-5)
- V_mr(t)- 3/2 V_mr(t-1) + V_m/2 r(t-5)
- V_mr(t) + V_m U(t-5)
- (●) V_mr(t)- 3/2 V_mr(t-1) + V_m/2 r(t-5) + V_m U(t-5) + V_mr(t+5) ✗

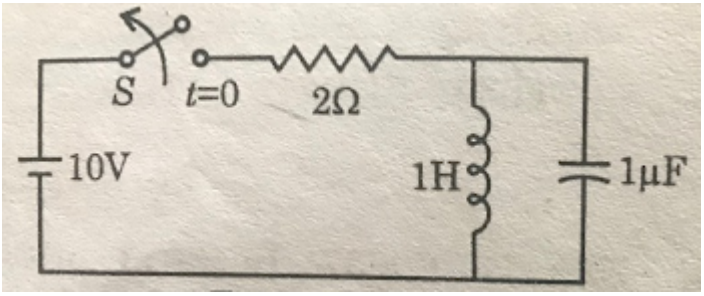
Correct answer

- (●) V_mr(t)- 3/2 V_mr(t-1) + V_m/2 r(t-5) + V_m U(t-5)

✓ Find the initial value of the signal given below F(t) = [e^(-2t) + e^(-t) cos3t] U (t) * 3/3

- 0
- 1
- (●) 2 ✓
- ∞

✓ In the circuit, switch S is closed and steady state conditions reached. Now at time t=0, switch S is opened. What is the expression for the current through the inductor? * 3/3



- I(t)= 5A
- I(t)= 6.5 A
- (●) i(t) =5 cos 1000tA ✓
- ∞

✓ The step voltage applied to a series R-L circuit is 36V with R= 15 Ohms. Determine the value of inductance L required to make the current of 1.0A at 250 μsecs. Assume the initial current is zero. * 3/3

- 4.56 H
- (●) 6.957 H ✓
- 7.2 H
- 2.1 H

✓ At t= 0+, with zero initial condition which of the following will act as short circuit * 3/3

- ○ Inductor
- ◉ Capacitor ✓
- ○ Resistor
- ○ None of these

✓ At very low frequencies a series R-C circuit behaves as almost purely * 3/3

- ○ Resistive
- ○ Inductive
- ◉ Capacitive ✓
- ○ None of these

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