

**Started on** Friday, 3 March 2017, 3:04 PM

**State** Finished

**Completed on** Friday, 3 March 2017, 3:05 PM

**Time taken** 5 secs

**Grade** 100.00 out of 100.00

**Question 1**

Correct

Mark 10.00 out of  
10.00

P12.08b\_6ed

Given  $f(t) = \sin(\omega t)$  ( $\omega$  is omega)

Find the Laplace Transform.

Select one:

- ☒ a.  $\frac{\omega}{s^2 + \omega^2}$  ✓
- ☐ b.  $\frac{s}{s^2 + \omega^2}$
- ☐ c.  $\frac{\omega}{(s + \omega)^2}$
- ☐ d.  $\frac{1}{(s + \omega)^2}$

**Correct**

Marks for this submission: 10.00/10.00.

**Question 2**

Correct

Mark 10.00 out of  
10.00

P12.08a\_6ed

Given  $f(t) = t e^{-at}$ 

Find the Laplace Transform.

Select one:

- ☒ a.  $\frac{1}{(s+a)^2}$  ✓
- ☐ b.  $\frac{1}{s}$
- ☐ c.  $\frac{1}{s+a}$
- ☐ d.  $\frac{s}{s^2 + \omega^2}$

**Correct**

Marks for this submission: 10.00/10.00.

**Question 3**

Correct

Mark 10.00 out of  
10.00

P12.08e\_6ed

Given  $f(t) = \cosh(t + \Theta)$  (cosh is the hyperbolic cosine and  $\Theta$  is Theta)

Find the Laplace Transform.

Select one:

- ☒ a.  $\frac{s[\cosh(\theta)] + \sinh(\theta)}{s^2 - 1}$  ✓
- ☐ b.  $\frac{\cosh(\theta) + s[\sinh(\theta)]}{s^2 - 1}$
- ☐ c.  $\frac{s[\cosh(\theta)] + \sinh(\theta)}{(s-1)^2}$
- ☐ d.  $\frac{s[\cosh(\theta)] + \sinh(\theta)}{s^2 + 1}$

**Correct**

Marks for this submission: 10.00/10.00.

**Question 4**

Correct

Mark 10.00 out of  
10.00

P12.08c\_6ed

Given  $f(t) = \sin(\omega t + \Theta)$  ( $\omega$  is omega and  $\Theta$  is Theta)

Find the Laplace Transform.

Select one:

- ☒ a.  $\frac{s[\sin(\theta)] + \omega[\cos(\theta)]}{s^2 + \omega^2}$  ✓
- ☐ b.  $\frac{\omega[\sin(\theta)] + s[\cos(\theta)]}{s^2 + \omega^2}$
- ☐ c.  $\frac{\omega[\sin(\theta)] + s[\cos(\theta)]}{(s + \omega)^2}$
- ☐ d.  $\frac{s[\sin(\theta)] + \omega[\cos(\theta)]}{(s + \omega)^2}$

**Correct**

Marks for this submission: 10.00/10.00.

**Question 5**

Correct

Mark 10.00 out of  
10.00

P12.08d\_6ed

Given  $f(t) = \cosh(t)$  (cosh is the hyperbolic cosine)

Find the Laplace Transform.

Select one:

- ☒ a.  $\frac{s}{s^2 - 1}$  ✓
- ☐ b.  $\frac{1}{s^2 - 1}$
- ☐ c.  $\frac{s}{(s+1)^2}$
- ☐ d.  $\frac{1}{(s-1)^2}$

**Correct**

Marks for this submission: 10.00/10.00.

**Question 6**

Correct

Mark 10.00 out of  
10.00

P12.12b\_6ed

Find the Laplace Transform of  $\left\{ \frac{d}{dt} \cos \omega t \right\}$ 

Select one:

- ☒ a.  $\frac{-\omega^2}{s^2 + \omega^2}$  ✓
- ☐ b.  $\frac{-s}{s^2 + \omega^2}$
- ☐ c.  $\frac{-\omega}{s^2 + \omega^2}$
- ☐ d.  $\frac{\omega}{s^2 + \omega^2}$

**Correct**

Marks for this submission: 10.00/10.00.

**Question 7**

Correct

Mark 10.00 out of 10.00

P12.12a\_6ed

Find the Laplace Transform of  $\left\{ \frac{d}{dt} \sin \omega t \right\}$ 

Select one:

- ☒ a.  $\frac{s\omega}{s^2 + \omega^2}$  ✓
- ☐ b.  $\frac{s}{s^2 + \omega^2}$
- ☐ c.  $\frac{\omega}{s^2 + \omega^2}$
- ☐ d.  $\frac{s\omega}{(s + \omega)^2}$

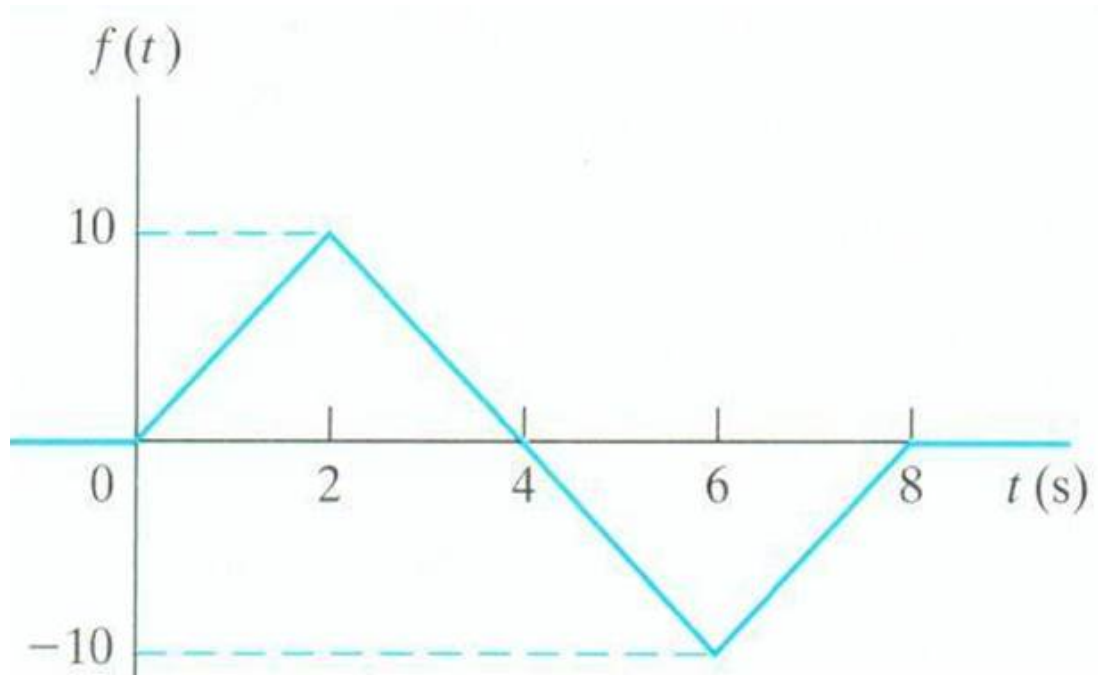
**Correct**

Marks for this submission: 10.00/10.00.

**Question 8**

Correct

Mark 10.00 out of 10.00



P12.19\_7ed

This waveform has the following regions in time:

 $t \leq 0 \quad f(t) = 0$

$$0 \leq t \leq 2 \quad f(t) = 5t$$

$$2 \leq t \leq 6 \quad f(t) = -5t + 20$$

$$6 \leq t \leq 8 \quad f(t) = 5t - 40$$

$$t \geq 8 \quad f(t) = 0$$

Find the Laplace transform of this waveform.

Select one:

☒ a.  $F(s) = \frac{5}{s^2} [1 - 2e^{-2s} + 2e^{-6s} - e^{-8s}]$



☐ b.  $F(s) = \frac{5}{s} [1 - 2e^{-2s} + 2e^{-6s} - e^{-8s}]$

☐ c.  $F(s) = \frac{1}{s^2} [1 - 2e^{-2s} + 2e^{-6s} - e^{-8s}]$

☐ d.  $F(s) = \frac{1}{s^2} [5 - 10e^{-2s} + 10e^{-6s} - 3e^{-8s}]$

**Correct**

Marks for this submission: 10.00/10.00.



**Question 9**

Correct

Mark 10.00 out of  
10.00

P12.12c\_6ed

Find the Laplace Transform of  $\left\{ \frac{d^3}{dt^3} t^2 \right\}$ 

Select one:

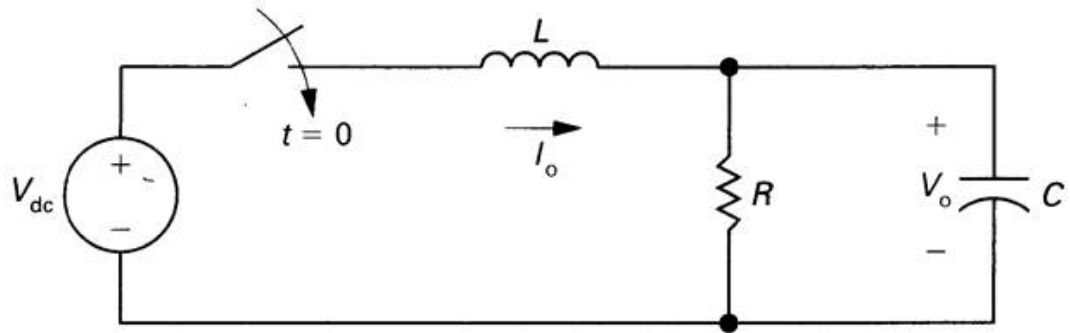
- ☒ a. 2 ✓
- ☐ b.  $\frac{t^4}{4}$
- ☐ c.  $\frac{6}{t}$
- ☐ d. Zero

**Correct**

Marks for this submission: 10.00/10.00.

**Question 10**

Correct

Mark 10.00 out of  
10.00

P12.24\_6ed

Find the Laplace transform of the voltage output  $V_o(s)$ .There is no energy stored in this circuit for  $t < 0$ .

Select one:

- ☒ a.  $V_o(s) = \frac{\frac{V_{DC}}{LC}}{s \left[ s^2 + s \frac{1}{RC} + \frac{1}{LC} \right]}$  ✓
- ☐ b.  $V_o(s) = \frac{\frac{V_{DC}}{LC}}{s^2 + s \frac{1}{RC} + \frac{1}{LC}}$
- ☐ c.  $V_o(s) = \frac{\frac{V_{DC}}{LC}}{s^2 \left[ s^2 + s \frac{1}{RC} + \frac{1}{LC} \right]}$
- ☐ d.  $V_o(s) = \frac{V_{DC}}{s \left[ s^2 + s \frac{1}{RC} + \frac{1}{LC} \right]}$

**Correct**

Marks for this submission: 10.00/10.00.