Started on	Saturday, 25 February 2017, 9:56 AM
State	Finished
Completed on	Saturday, 25 February 2017, 9:56 AM
Time taken	7 secs
Grade	**94.00** out of 100.00

Question 1

Correct

Mark 10.00 out of 10.00

P12.26d_6ed

Find f(t) for the following F(s) transform.

Given $F(s)=\frac{56s^2+112s+5{,}000}{s(s^2+14s+625)}$

Select one:

a. $f(t)=\left[8+50e^{-7t}\cos(24t+16.26^\circ)\right]u(t)$ ✓

b. $f(t)=\left[8+50e^{-7t}\cos(24t+0.284^\circ)\right]u(t)$

c. $f(t)=8\left[1+5e^{-7t}\cos(48t+16.26^\circ)\right]u(t)$

d. $f(t)=\left[18+50e^{-7t}\cos(24t+76.26^\circ)\right]u(t)$

Correct

Marks for this submission: 10.00/10.00.

Question 2

Correct

Mark 10.00 out of 10.00

P12.27a_6ed

Find f(t) for the following F(s) transform.

Given $F(s)=\frac{8(s^2-5s+50)}{s^2(s+10)}$

Select one:

a. $f(t)=\left[-8+40t+16e^{-10t}\right]u(t)$ ✓

b. $f(t)=8\left[-1+5t+3e^{-10t}\right]u(t)$

c. $f(t)=8\left[-2+5t+4e^{-10t}\right]u(t)$

d. $f(t)=\left[-8+40t+16e^{-20t}\right]u(t)$

Correct

Marks for this submission: 10.00/10.00.

Question 3

Correct

Mark 10.00 out of 10.00

P12.26b_6ed

Find f(t) for the following F(s) transform.

Given $F(s)=\frac{25s^2+86s+40}{s(s+2)(s+4)}$

Select one:

- a. $f(t)=\left[5+8e^{-2t}+12e^{-4t}\right]u(t)$ ✓
- b. $f(t)=\left[5+8e^{-2t}\right]u(t)$
- c. $f(t)=\left[5+8e^{-3t}+12e^{-7t}\right]u(t)$
- d. $f(t)=5\left[1+2e^{-2t}+3e^{-4t}\right]u(t)$

Correct

Marks for this submission: 10.00/10.00.

Question 4

Correct

Mark 10.00 out of 10.00

P12.29b_6ed

Find f(t) for the following F(s) transform.

Given $F(s)=\frac{5(s+2)^2}{s^4(s+1)}$

Select one:

- a. $f(t)=\left[\frac{10}{3}t^3+5t-5+5e^{-t}\right]e^{-t}u(t)$ ✓
- b. $f(t)=\frac{10}{3}\left[t^3+5t-5+5e^{-t}\right]e^{-t}u(t)$
- c. $f(t)=5\left[\frac{1}{3}t^3+t-1+e^{-t}\right]e^{-t}u(t)$
- d. $f(t)=\left[\frac{10}{3}t^3+5t-5\right]e^{-t}u(t)$

Correct

Marks for this submission: 10.00/10.00.

Question 5

Correct

Mark 10.00 out of 10.00

P12.27c_6ed

Find f(t) for the following F(s) transform.

Given $F(s)=\frac{s^3-6s^2+15s+50}{s^2(s^2+4s+5)}$

Select one:

a. $f(t)=\left[-5+10t+10e^{-2t}\cos(t+53.13^\circ)\right]u(t)$ ✓

b. $f(t)=\left[-5+10e^{-2t}\cos(t+53.13^\circ)\right]u(t)$

c. $f(t)=\left[10t+10e^{-2t}\cos(t+53.13^\circ)\right]u(t)$

d. $f(t)=5\left[-1+2t+2e^{-2t}\cos(t+0.927^\circ)\right]u(t)$

Correct

Marks for this submission: 10.00/10.00.

Question 6

Correct

Mark 10.00 out of 10.00

P12.29a_6ed

Find f(t) for the following F(s) transform.

Given $F(s)=\frac{20s^2}{(s+1)^3}$

Select one:

a. $f(t)=\left[10t^2-40t+20\right]e^{-t}u(t)$ ✓

b. $f(t)=20\left[3te^{-t}\cos(2t-16.26^\circ)\right]u(t)$

c. $f(t)=\left[30t+20\right]e^{-t}u(t)$

d. $f(t)=\left[10t^2-40t^3+20\right]e^{-t}u(t)$

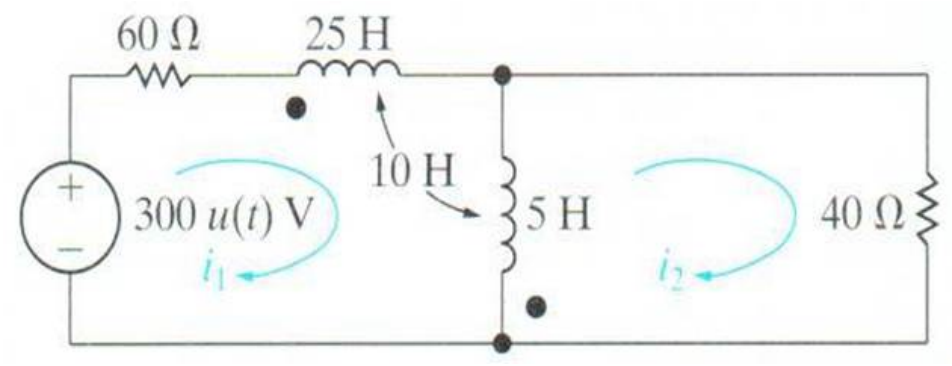
Correct

Marks for this submission: 10.00/10.00.

Question 7

Partially correct

Mark 4.00 out of 10.00



P12.35_7ed

Find $i_1(t)$ for this circuit.

$i_1(t)$ = 5 ✓ + 0 ✗ exp(0 ✗ t) + -2 ✓ exp(1.96 ✗ t) u(t) A

"exp" = e

For example $i_1(t) = \left[A + Be^{ct} + De^{ft}\right]u(t)A$

Partially correct

Marks for this submission: 4.00/10.00.

Question 8

Correct

Mark 10.00 out of 10.00

P12.27d_6ed

Find f(t) for the following F(s) transform.

Given $F(s) = \frac{s^2+6s+5}{(s+2)^3}$

Select one:

- a. $f(t) = \left(1+2t-1.5t^2\right)e^{-2t}u(t)$ ✓
- b. $f(t) = \left(3t-1.5t^2\right)e^{-2t}u(t)$
- c. $f(t) = \left(1+2t-1.5t^2\right)e^{-4t}u(t)$
- d. $f(t) = \left(1+3t-1.5t^2\right)e^{-2t}u(t)$

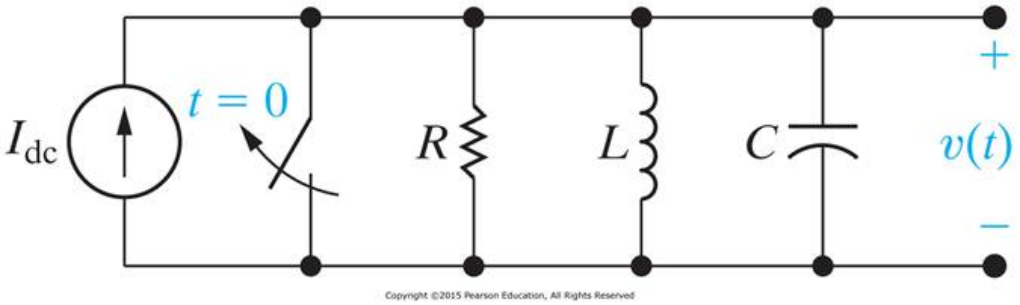
Correct

Marks for this submission: 10.00/10.00.

Question 9

Correct

Mark 10.00 out of 10.00



P12.46_10ed

The DC current source is replaced with a sinusoidal current source i(t) = 5 cos (20t) A.

Given: R = 1.25 Ω (Ohm) C = 50 mF (milli F) L = 200 mH (milli H)

With these given values the Laplace Transform of v(t) is

$$V(s) = \frac{100s^2}{(s^2+16s+100)(s^2+400)} = \frac{100s^2}{(s+8-j6)(s+8+j6)(s+0-j20)(s+0+j20)}$$

a) Use the initial-value theorem to find the initial value of v(t=0).

v(t) = 0 ✓V

b) Can we use the final-value theorem on this Laplace function?

No ✓

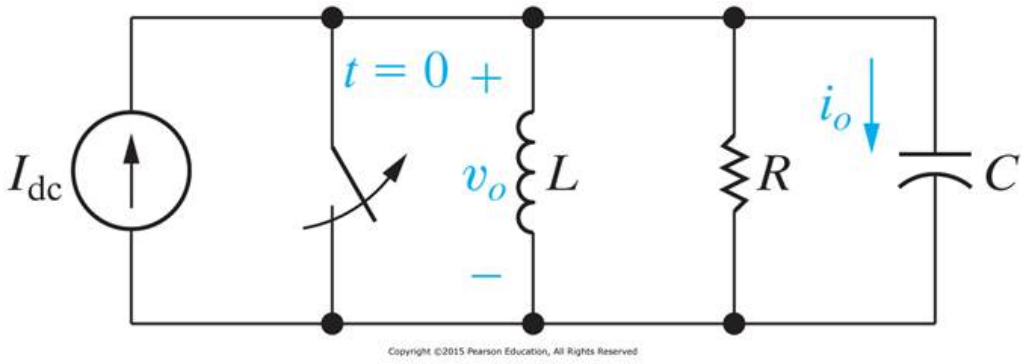
Correct

Marks for this submission: 10.00/10.00.

Question 10

Correct

Mark 10.00 out of 10.00



P12.47_10ed

Given: I_{DC} = 3 Amps

The Laplace Transform of $v_0(t)$ and $i_0(t)$ are

$$V_0(s) = \frac{\frac{I_{DC}}{C}}{s^2 + s\frac{1}{RC} + \frac{1}{LC}} \qquad I_0(s) = \frac{sI_{DC}}{s^2 + s\frac{1}{RC} + \frac{1}{LC}}$$

a) Use the initial-value theorem to find the initial value of $v_0(t = 0^+)$.

$v_0(t = 0^+)$ = 0 ✓ V

b) Use the final-value theorem to find the final value of $v_0(t = \infty)$. (∞ is infinity)

$v_0(t = \infty)$ = 0 ✓ V

c) Use the initial-value theorem to find the initial value of $i_0(t = 0^+)$.

$i_0(t = 0^+)$ = 3 ✓ A

d) Use the final-value theorem to find the final value of $i_0(t = \infty)$. (∞ is infinity)

$i_0(t = \infty)$ = 0 ✓ A

Correct

Marks for this submission: 10.00/10.00.