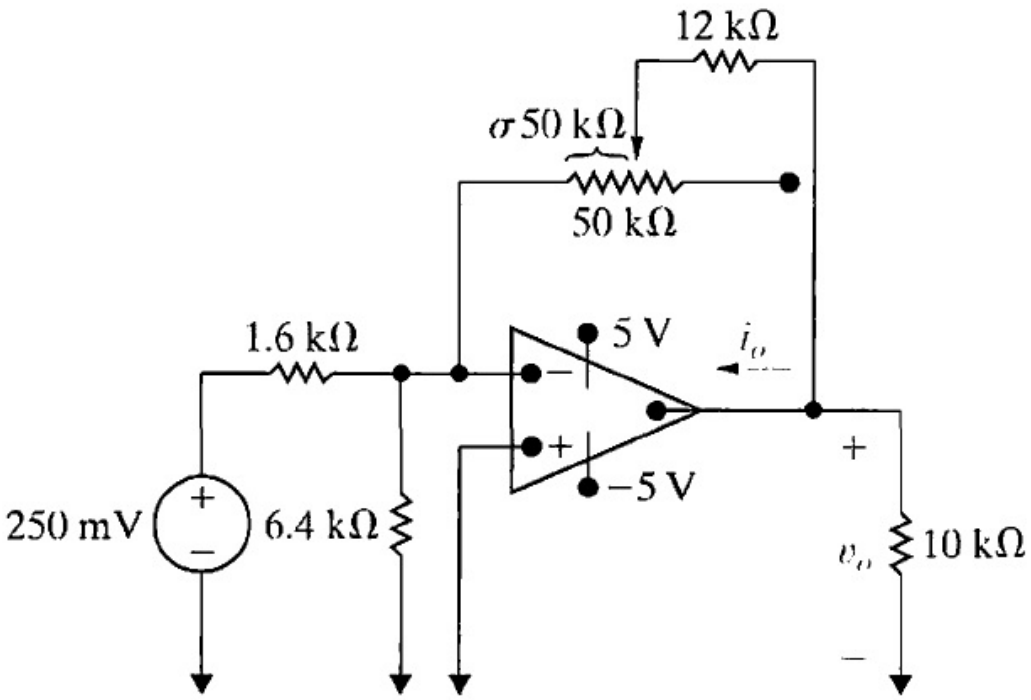
Started on	Wednesday, 26 October 2016, 11:42 AM
State	Finished
Completed on	Sunday, 30 October 2016, 4:14 PM
Time taken	4 days 4 hours
Grade	**93.3** out of 100.0

Question 1

Correct

Mark 5.0 out of 5.0



P5.09_9ed

Find the range of values for σ in which the op amp does not saturate. Assume the op amp is ideal

0 ✓ ≤ σ ≤ .4 ✓

Numeric Answer

$0 \leq \sigma \leq 0.40$

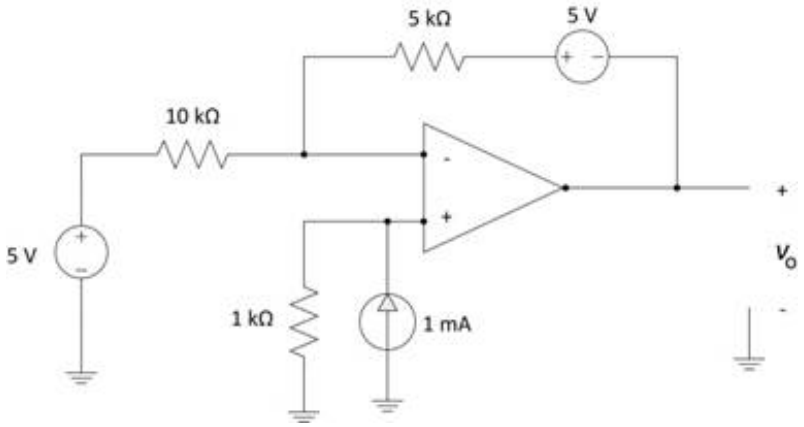
Correct

Marks for this submission: 5.0/5.0.

Question 2

Not answered

Mark 0.0 out of 5.0



AS5.2

Find v_0. v_0 = ✗ V

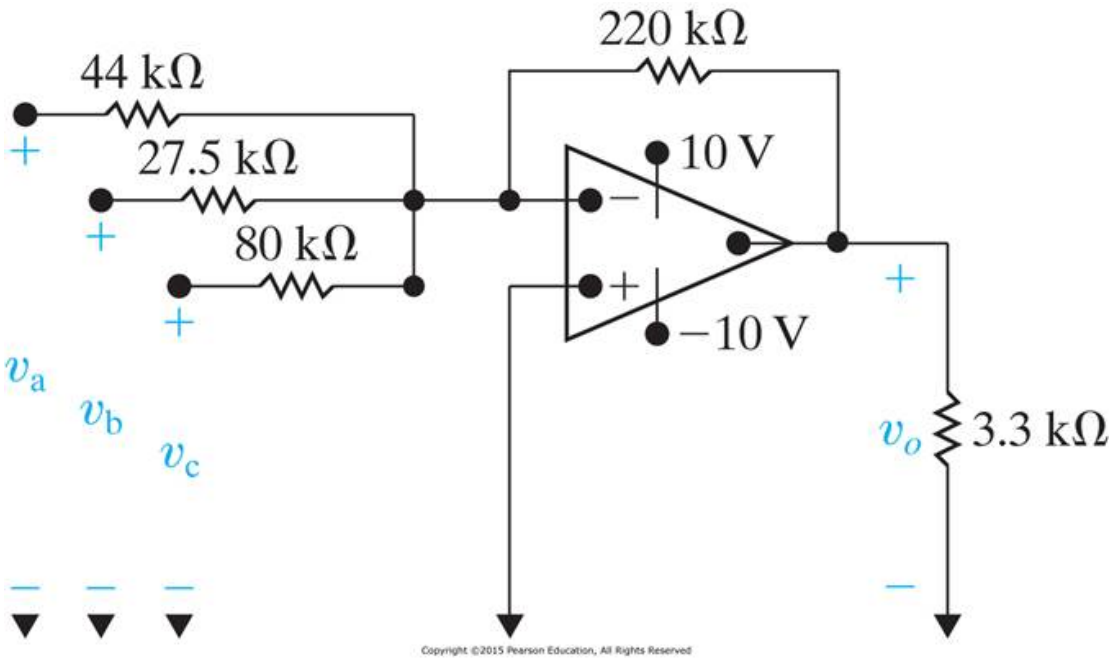
Numeric Answer

v_0 = -6 V

Question 3

Correct

Mark 5.0 out of 5.0



P5.12_10ed

Assume the op amp is ideal.

Find v_o if v_a = 1 V, v_b = 1.5 V, v_c = -4 V.

v_o = -6 ✓ V

Numeric Answer

v_o = -6 V

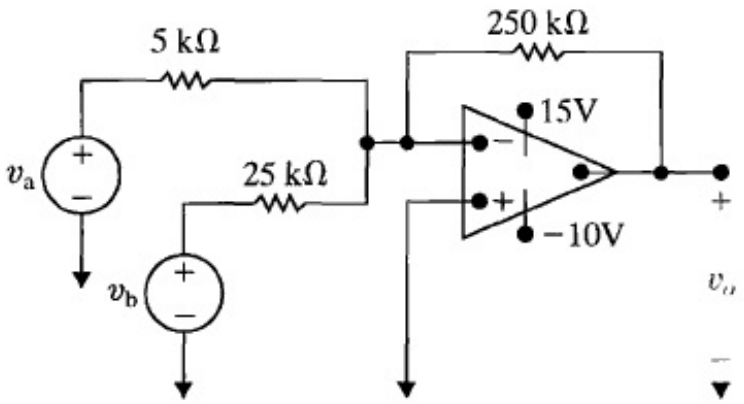
Correct

Marks for this submission: 5.0/5.0.

Question 4

Correct

Mark 5.0 out of 5.0



AP5.03_9ed

Assume the op amp is ideal.

a) Find v_O in the circuit shown if v_a = 0.1 V and v_b = 0.25 V.

v_O = -7.5 V

b) If v_b = 0.25 V, how large can v_a be before the op amp saturates?

v_a = .15 V

Numeric Answer

a) v_0 = -7.5 V

b) v_a = 0.15 V

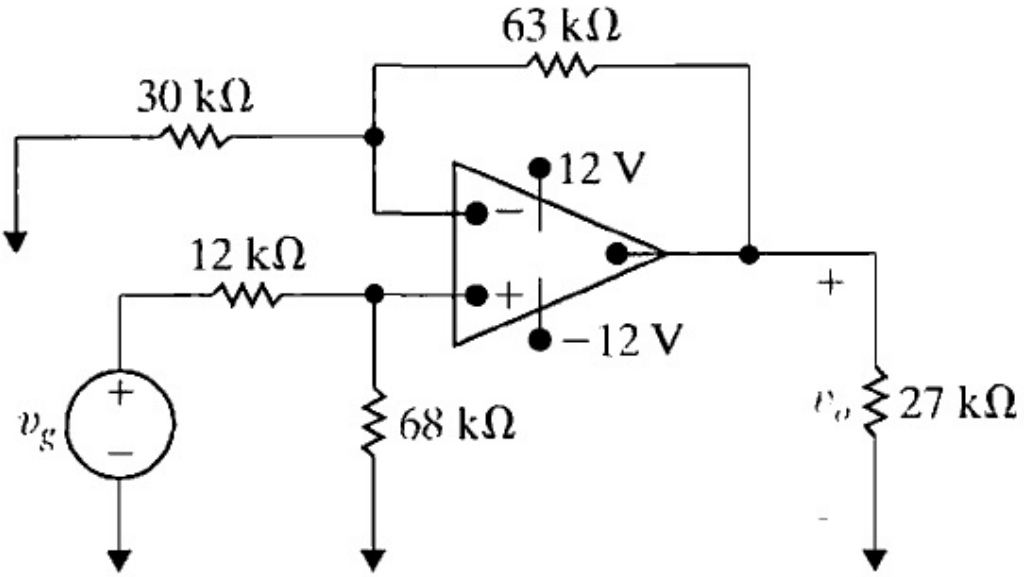
Correct

Marks for this submission: 5.0/5.0.

Question 5

Correct

Mark 5.0 out of 5.0



P5.18_9ed

Specify the range of values of v_g so that the op amp operates in a linear mode

-4.55 ✓ $\leq v_g \leq$ 4.55 ✓ V

Numeric Answer

$-4.554 \leq v_g \leq 4.554$ V

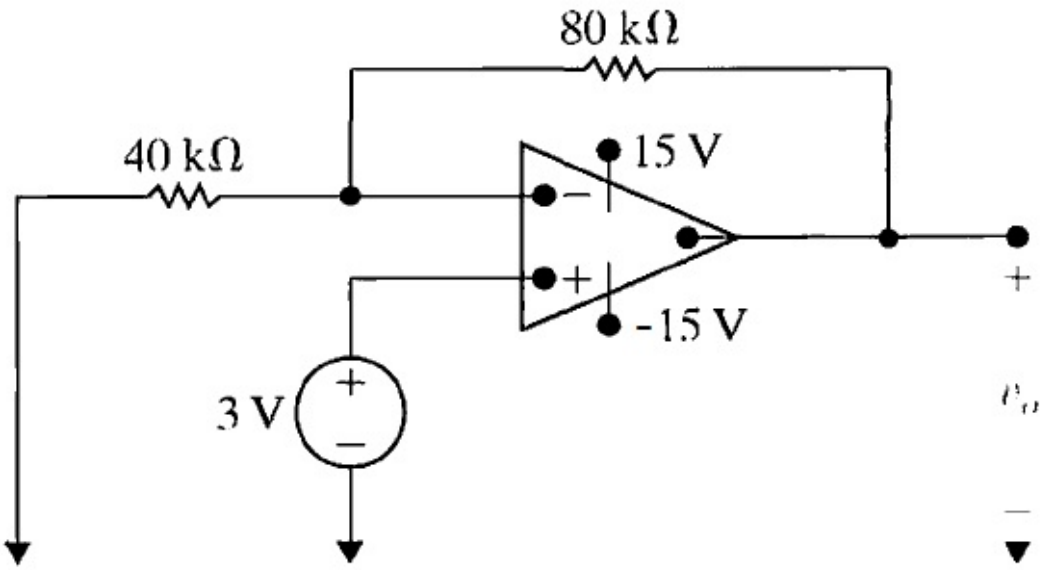
Correct

Marks for this submission: 5.0/5.0.

Question 6

Correct

Mark 5.0 out of 5.0



P5.16_9ed

Calculate v_0 for this circuit.

v_0 = 9 ✓ V

Numeric Answer

v_0= 9 V

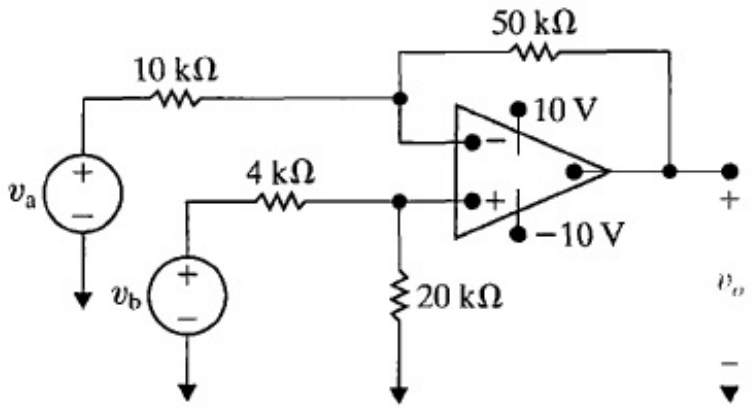
Correct

Marks for this submission: 5.0/5.0.

Question 7

Correct

Mark 5.0 out of 5.0



AP5.05_9ed

In the difference amplifier shown, $v_b = 4.0$ V.

What range of values for v_a will result in linear operation?

2 ✓ ≤ v_a ≤ 6 ✓ V

Numeric Answer

2 V ≤ v_a ≤ 6 V

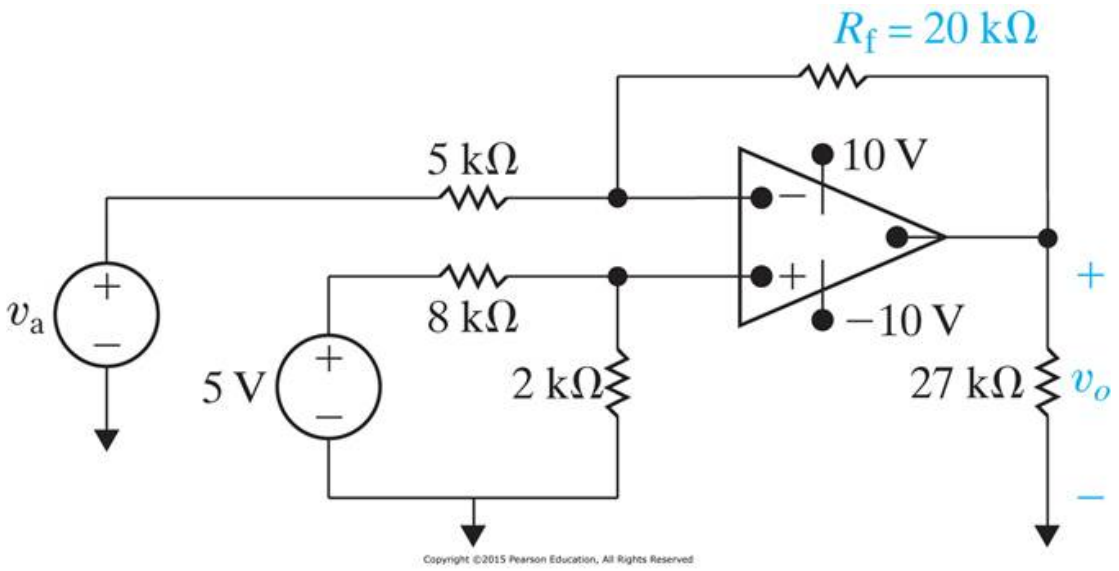
Correct

Marks for this submission: 5.0/5.0.

Question 8

Correct

Mark 5.0 out of 5.0



P5.26_10ed

Given: $v_a = 2V$

Find v_0.

v_o = -3 ✓ V

Numeric Answer

v_o = -3V

Correct

Marks for this submission: 5.0/5.0.

Question 9

Correct

Mark 5.0 out of 5.0

P6.02_9ed

The current in a 50 μH (micro Henry) inductor is $i_L = 18\ t\ e^{-10t}$ A for $t \geq 0$.

a) Find the voltage across the inductor for $t > 0$.

b) Find the power (in microwatts) at the terminals of the inductor when t = 200 ms (milli sec).

Select one:

- a. $v_L = 900\ e^{-10\ t}$ (1-10 t) μV (micro Volts)
  p_L = -59.34 μW (micro Watts) delivering ✓
- b. $v_L = -900\ e^{-10\ t}$ (1-10 t) μV (micro Volts)
  p_L = +59.34 μW (micro Watts) absorbing
- c. $v_L = 90\ e^{-10\ t}$ (1-10 t) μV (micro Volts)
  p_L = -5.934 μW (micro Watts) delivering
- d. $v_L = 59.34\ e^{-10\ t}$ (1-10 t) μV (micro Volts)
  p_L = -900 μW (micro Watts) delivering

Your answer is correct.

Multiple choice

$v_L = 900e^{-10t}$ (1-10t) μV (micro Volts)
p_L = -59.34 μW (micro Watts) delivering

The correct answer is: $v_L = 900\ e^{-10\ t}$ (1-10 t) μV (micro Volts)
p_L = -59.34 μW (micro Watts) delivering

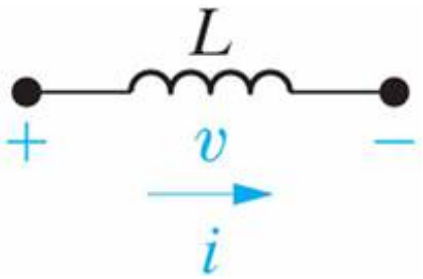
Correct

Marks for this submission: 5.0/5.0.

Question 10

Correct

Mark 5.0 out of 5.0



CQ6.09

Given:

L = 15 mH (milli Henry)

At an instant of time the inductor has a current of 9.2 Amps which is increasing by 6.8 Amps/ms.

What is the power absorbed/delivered by the inductor at that instant of time?

P_L = ?? Watts

Answer: 938.4

Calculated Question

The correct answer is: 938.400

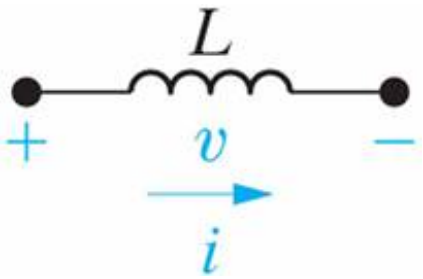
Correct

Marks for this submission: 5.0/5.0.

Question 11

Correct

Mark 5.0 out of 5.0



CQ6.07

Given:

L = 11 mH (milli H)

The inductor current i changes 9.6 A/ms (Amps per milli sec) for a short while.

What is the voltage across the inductor during this period?

V_L = ?? V

Answer: 105.6

Calculated Question

The correct answer is: 105.600

Correct

Marks for this submission: 5.0/5.0.

Question 12

Correct

Mark 5.0 out of 5.0

P6.13_10ed

The voltage across a 5 μF (micro F) capacitor is $v_c = 500\ t\ e^{-2{,}500\ t}$ V for $t \geq 0$.

Find the current "through" the capacitor for $t > 0$.

Find the power at the terminals of the capacitor when t = 80 μs (micro sec).

Select one:

- a. $i_c = 2.5\ e^{-2500t}$ (1-2500 t) mV (milli Volts)
  p_c = 53.626 μW (micro Watts) absorbing ✓
- b. $i_c = 2.5\ e^{-2500t}$ (1-2500 t) V
  p_c = 53.626 W absorbing
- c. $i_c = 5.3\ e^{-5000t}$ (1-2500 t) mV (milli Volts)
  p_c = -53.626 μW (micro Watts) delivering
- d. $i_c = 0.5\ e^{-2500t}$ (1-2500 t) mV (milli Volts)
  p_c = 13.626 mW (milli Watts) absorbing

Your answer is correct.

Multiple choice

$i_c = 2.5\ e^{-2500t}$ (1-2500 t) mV (milli Volts)
p_c = 53.626 μW (micro Watts) absorbing

The correct answer is: $i_c = 2.5\ e^{-2500t}$ (1-2500 t) mV (milli Volts)
p_c = 53.626 μW (micro Watts) absorbing

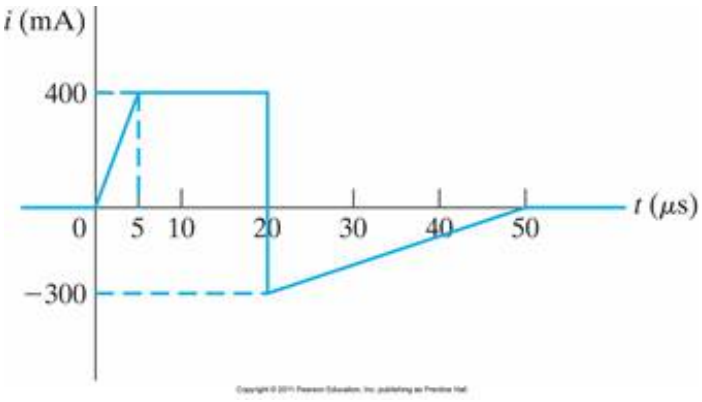
Correct

Marks for this submission: 5.0/5.0.

Question 13

Correct

Mark 5.0 out of 5.0



P6.14_9ed

The current shown in the figure is applied to a 0.25 μF (micro F) capacitor.

The initial voltage across the capacitor is zero.

Find the charge on the capacitor at t = 15 μs (micro sec).

Q_{15ms} = 5 ✓ μC (micro C)

Find the voltage across the capacitor at t = 15 μs (micro sec).

V_{15ms} = 20 ✓ V

Numeric Answer

Q_{15ms} = 5 μC (micro Coulombs)

V_{15ms} = 20 Volts

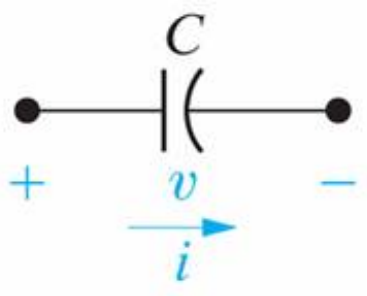
Correct

Marks for this submission: 5.0/5.0.

Question 14

Correct

Mark 5.0 out of 5.0



CQ6.10

Given:

C = 38 μF (micro Farad)

The capacitor voltage v changes at 2 V/μs (Volts per micro sec) for a short while.

What is the current displaced around the capacitor during this period?

i_C = ?? Amps

Answer: 76

Calculated Question

The correct answer is: 76.000

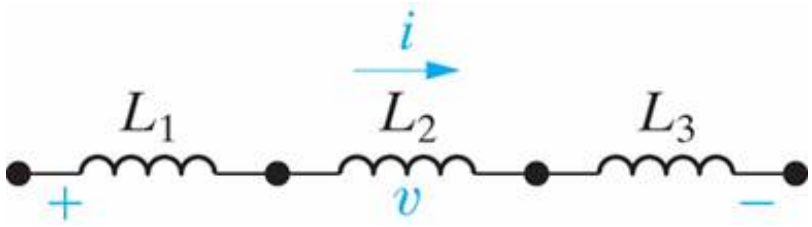
Correct

Marks for this submission: 5.0/5.0.

Question 15

Correct

Mark 5.0 out of 5.0



CQ6.04

Given:

L_1 = 1.5 mH (milli Henry) L_2 = 6.8 mH (milli Henry) L_3 = 5.6 mH (milli Henry)

Find the equivalent inductance L_{Eq}.

L_{Eq} = ?? mH (milli Henry)

Answer: 13.9

Calculated Question

The correct answer is: 13.900

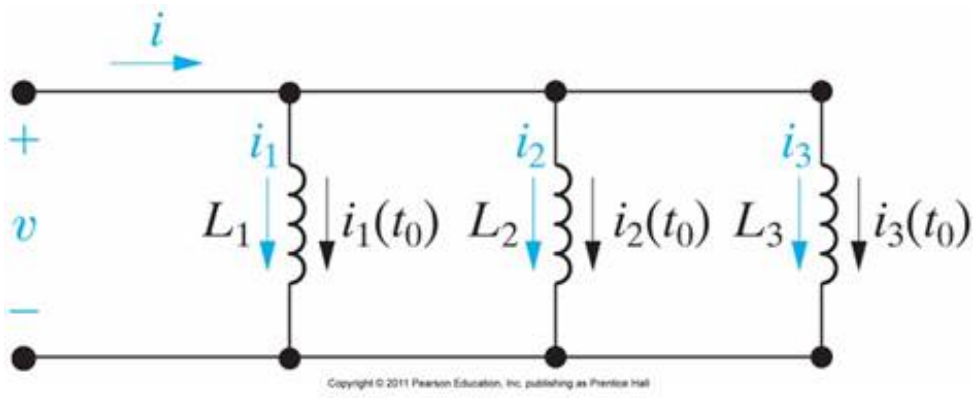
Correct

Marks for this submission: 5.0/5.0.

Question 16

Correct

Mark 5.0 out of 5.0



CQ6.05

Given:

L_1 = 2.8 mH (milli Henry) L_2 = 6.3 mH (milli Henry) L_3 = 7.3 mH (milli Henry)

Find the equivalent inductance L_{Eq}.

L_{Eq} = ?? mH (milli Henry)

Answer: 1.53

Calculated Question

The correct answer is: 1.532

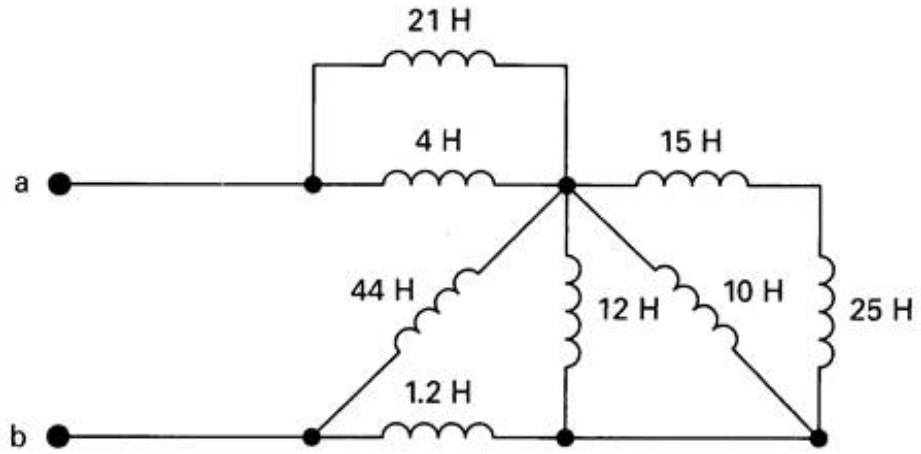
Correct

Marks for this submission: 5.0/5.0.

Question 17

Correct

Mark 5.0 out of 5.0



P6.20_6ed

Find the equivalent inductance with respect to the terminals a,b.

L_{Eq} = 8.6 ✓ H

Numeric Answer

L_{Eq} = 8.64 H

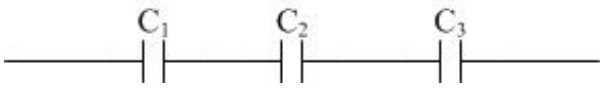
Correct

Marks for this submission: 5.0/5.0.

Question 18

Correct

Mark 5.0 out of 5.0



CQ6.01

Given:

C_1 = 2.3 µF (micro Farad) C_2 = 6.8 µF (micro Farad) C_3 = 1.8 µF (micro Farad)

Find the equivalent capacitance C_{Eq}.

C_{Eq} = ?? µF (micro Farad)

Answer: .88 ✓

The correct answer is: 0.879

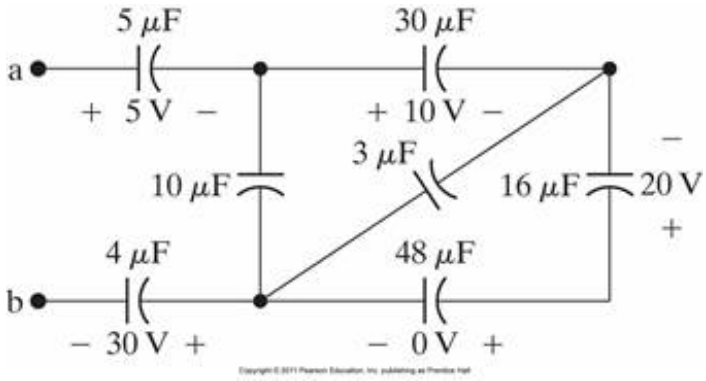
Correct

Marks for this submission: 5.0/5.0.

Question 19

Correct

Mark 5.0 out of 5.0



P6.26_9ed

Find the equivalent capacitance with respect to the terminals a,b.

C_{Eq} = 2 ✓ μF (micro F)

And find the initial voltage across the equivalent capacitance.

V_{Ceq} = 25 ✓ V

Numeric Answer

C_{Eq} = 2 μF (micro F)

V_{Ceq} = 25 V

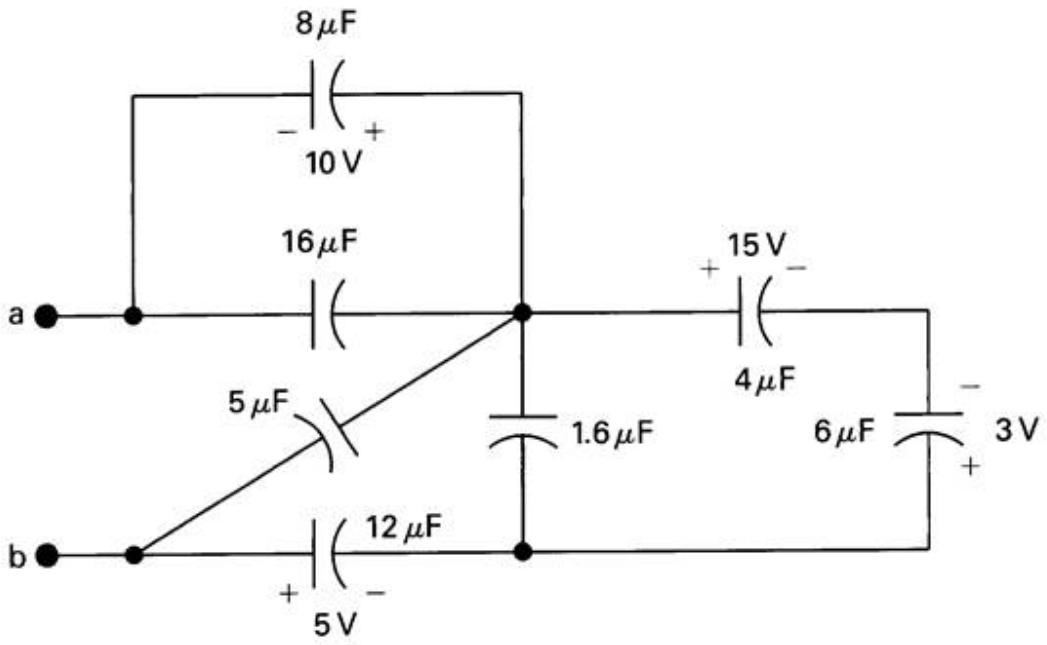
Correct

Marks for this submission: 5.0/5.0.

Question 20

Correct

Mark 3.3 out of 5.0



P6.24_6ed

Find the equivalent capacitance with respect to the terminals a,b.

C_{Eq} = 6 ✓ μF (micro F)

And find the initial voltage across the equivalent capacitance.

$V_{ab} = V_{Ceq}$ = -3 ✓ V

Numeric Answer

C_{Eq} = 6 μF (micro F)

V_{Ceq} = -3 V

Correct

Marks for this submission: 5.0/5.0. Accounting for previous tries, this gives **3.3/5.0**.