Started on	Sunday, 2 October 2016, 11:52 PM
State	Finished
Completed on	Monday, 3 October 2016, 5:15 AM
Time taken	5 hours 22 mins
Grade	**65.00** out of 100.00

Question 1

Correct

Mark 10.00 out of 10.00

A1.05_9ed

Given this set of equations:

$$v_1\left(\frac{1}{60\Omega}+\frac{1}{15\Omega}+\frac{1}{5\Omega}\right)+v_2\left(\frac{-1}{5\Omega}\right)=15\,A$$

$$v_1\left(\frac{-1}{5\Omega}\right)+v_2\left(\frac{1}{5\Omega}+\frac{1}{2\Omega}\right)=-5\,A$$

Find the two voltages.

v_1 = 60 ✓ V

v_2 = 10 ✓ V

Numeric Answers

v_1 = 60.0 V

v_2 = 10.0 V

Correct

Marks for this submission: 10.00/10.00.

Question 2

Correct

Mark 10.00 out of 10.00

A1.04_9ed

Given the following set of equations:

$21\ i_1 - 9\ i_2 - 12\ i_3 = -33$

$-3\ i_1 + 6\ i_2 - 2\ i_3 = 3$

$-8\ i_1 - 4\ i_2 + 22\ i_3 = 50$

Find the three currents.

$i_1 =$ 1 ✓ A

$i_2 =$ 2 ✓ A

$i_3 =$ 3 ✓ A

Numeric Answers

$i_1 = 1.0$ A

$i_2 = 2.0$ A

$i_3 = 3.0$ A

Correct

Marks for this submission: 10.00/10.00.

Question 3

Incorrect

Mark 0.00 out of 10.00

A1.09_6ed

Given this set of equations:

$$V_1\left(\frac{1}{j40\Omega}+\frac{1}{40\Omega}+\frac{1}{60\Omega}\right)+V_0\left(\frac{-1}{60\Omega}\right)=\frac{100\angle 0^\circ}{j40\Omega}$$

$$V_1\left(\frac{-1}{60\Omega}\right)+V_0\left(\frac{1}{60\Omega}+\frac{1}{j20\Omega}\right)=0$$

Find the two voltages.

V1 = 2 ✗ + j 1 ✗ V

V0 = 0 ✗ + j 0.075 ✗ V

Numeric Answers

V_1 = 30 – j 40 V

V_0 = 15.0 + j 5.0 V

Incorrect

Marks for this submission: 0.00/10.00.

Question 4

Not answered

Mark 0.00 out of 10.00

A1.03_9ed

Given the following set of equations:

$I_1 (13 - j\ 14) + I_2 (-12 + j\ 16) + I_x (0) = 150$

$I_1 (-12 + j\ 16) + I_2 (13 - j\ 13) + I_x (39) = 0$

$I_1 (-1) + I_2 (1) + I_x (1) = 0$

Find the three phasor currents.

$I_1 =$ [ ] + j [ ] A

$I_2 =$ [ ] + j [ ] A

$I_x =$ [ ] + j [ ] A

Numeric Answers

$I_1 = -26 - j\ 52$ A

$I_2 = -24 - j\ 58$ A

$I_x = -2 + j\ 6$ A

Question 5

Incorrect

Mark 0.00 out of 10.00

A1.08_9ed

Given this set of equations:

$$\frac{v_0 - 10V}{10\Omega} + \frac{v_0}{40\Omega} + \frac{v_0 - (-20i_\Delta)}{20\Omega} = 0$$

$$v_0\left(-\frac{1}{10\Omega}\right) + i_\Delta\left(-\frac{1}{3}\right) = -1.333$$

Find the voltage and current.

v_0 = 1 ✗ V

i_Δ = 0 ✗ A

Numeric Answers

v_1 = 24.0 V

i_D = -3.2 A

Incorrect

Marks for this submission: 0.00/10.00.

Question 6

Correct

Mark 10.00 out of 10.00

A1.06_9ed

Given this set of equations:

$$V_1\left(\frac{1}{1\Omega}+\frac{1}{8\Omega}\right)+V_2\left(\frac{-1}{8\Omega}\right)=4.5A$$

$$V_1\left(\frac{-1}{8\Omega}\right)+V_2\left(\frac{1}{8\Omega}+\frac{1}{12\Omega}+\frac{1}{4\Omega}\right)=\frac{30V}{4\Omega}$$

Find the two voltages.

v_1 = 6 ✓ V

v_2 = 18 ✓ V

Numeric Answers

v_1 = 6.0 V

v_2 = 18.0 V

Correct

Marks for this submission: 10.00/10.00.

Question 7

Partially correct

Mark 6.67 out of 10.00

A1.07_9ed

Given this set of equations:

$$V_1\left(\frac{1}{6\Omega}\right)+V_2(0)+i_1(1)=8.333A$$

$$V_1\left(\frac{1}{6\Omega}+\frac{1}{8\Omega}+\frac{1}{2\Omega}\right)+V_2\left(\frac{-1}{2\Omega}\right)-3i_1=\frac{50V}{6\Omega}$$

$$V_1\left(\frac{-1}{2\Omega}\right)+V_2\left(\frac{1}{4\Omega}+\frac{1}{2\Omega}\right)+i_1(3)=5A$$

Find the two voltages and the one current.

v_1 = 31.98 ✓ V

v_2 = 15.78 ✗ V

i_1 = 3 ✓ A

Numeric Answers

v_1 = 32.0 V

v_2 = 16.0 V

i_1 = 3.0 A

Partially correct

Marks for this submission: 6.67/10.00. Accounting for previous tries, this gives **6.67/10.00**.

Question 8

Correct

Mark 10.00 out of 10.00

A1.01_9ed

Given the following set of equations:

$1.7\ v_1 - 0.5\ v_2 = 10$

$-0.5\ v_1 + 0.6\ v_2 = 2$

Find the two voltages.

v_1 = 9.09 V

v_2 = 10.91 V

Numeric Answers

$v_1 = 9.0909$ V

$v_2 = 10.9091$ V

Correct

Marks for this submission: 10.00/10.00.

Question 9

Correct

Mark 10.00 out of 10.00

A1.02_9ed

Given the following set of equations:

$25\ i_1 - 5\ i_2 - 20\ i_3 = 50$

$-5\ i_1 + 10\ i_2 - 4\ i_3 = 0$

$-5\ i_1 - 4\ i_2 + 9\ i_3 = 0$

Find the three currents.

i_1 = 29.6 ✓ A

i_2 = 26 ✓ A

i_3 = 28 ✓ A

Numeric Answers

$i_1 = 29.60$ A

$i_2 = 26.0$ A

$i_3 = 28.0$ A

Correct

Marks for this submission: 10.00/10.00.

Question 10

Partially correct

Mark 8.33 out of 10.00

A1.10_6ed

Given this set of equations:

$$i_a(5)+i_b(-5)+i_c(j3)=0$$
$$i_a(-5)+i_b(5+j2)+i_c(-j2)=j5$$
$$i_a(0)+i_b(0)+i_c(1)=5$$

Find the three currents.

i_a = 0 ✓ + j 6 ✗ A

i_b = 0 ✓ + j 0 ✓ {-0.1|0.1} A

i_c = 5 ✓ + j 0 ✓ A

Numeric Answers

i_a = 0 - j 3 A

i_b = 0 + j 0 A

i_c = 5 + j 0 A

Partially correct

Marks for this submission: 8.33/10.00. Accounting for previous tries, this gives **8.33/10.00**.