Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14137625***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JESUS EMMANUEL MORALES MENUIOLA***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.05\,\text{s}$. The values are $R = R_1 = R_2 = 40\,\Omega$, $L = 50\,\text{mH}$, $C = 200\,\mu\text{F}$ and $V_{AC} = 50\,\text{V}$ at $90\,\text{Hz}$. (3 + 3 points)

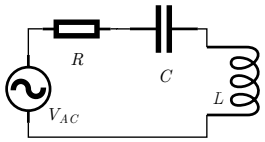

Figure 1

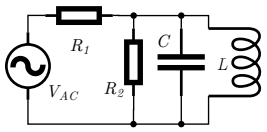

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 7 V and frequency 50 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 7 V and frequency 70 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 3 V and frequency 40 Hz. (0.5 point)
   (d) Triangular wave with amplitude 3 V and frequency 50 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 2 V and frequency 90 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 9 V and frequency 50 Hz. (0.5 point)
   (g) Pulse wave with amplitude 4 V, duty cycle 50 % and frequency 80 Hz. (0.5 point)

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14121732***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JOEL GERARDO AGUERO LLANAS***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.02\,\text{s}$. The values are $R = R_1 = R_2 = 50\,\Omega$, $L = 90\,\text{mH}$, $C = 600\,\mu\text{F}$ and $V_{AC} = 70\,\text{V}$ at $20\,\text{Hz}$. (3 + 3 points)

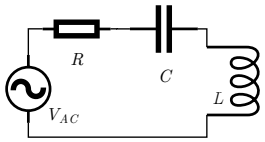

Figure 1

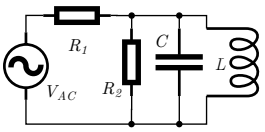

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 9 V and frequency 80 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 2 V and frequency 40 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 4 V and frequency 70 Hz. (0.5 point)
   (d) Triangular wave with amplitude 5 V and frequency 60 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 8 V and frequency 50 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 5 V and frequency 70 Hz. (0.5 point)
   (g) Pulse wave with amplitude 6 V, duty cycle 20 % and frequency 70 Hz. (0.5 point)

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Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14124427***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***JERSON CHAVEZ ORTIZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.05\,\text{s}$. The values are $R = R_1 = R_2 = 60\,\Omega$, $L = 30\,\text{mH}$, $C = 900\,\mu\text{F}$ and $V_{AC} = 70\,\text{V}$ at $30\,\text{Hz}$. (3 + 3 points)

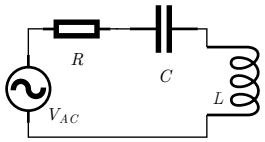

Figure 1

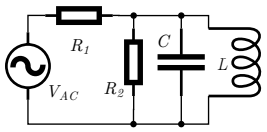

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 6 V and frequency 40 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 4 V and frequency 90 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 7 V and frequency 20 Hz. (0.5 point)
   (d) Triangular wave with amplitude 8 V and frequency 80 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 8 V and frequency 80 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 5 V and frequency 70 Hz. (0.5 point)
   (g) Pulse wave with amplitude 3 V, duty cycle 40 % and frequency 80 Hz. (0.5 point)

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Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14156040***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***LUIS ANTNONIO FERNENDEZ CARRASCO***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.07\,\text{s}$. The values are $R = R_1 = R_2 = 80\,\Omega$, $L = 50\,\text{mH}$, $C = 400\,\mu\text{F}$ and $V_{AC} = 60\,\text{V}$ at $90\,\text{Hz}$. (3 + 3 points)

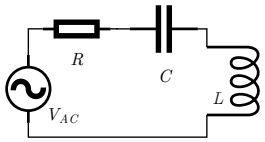

Figure 1

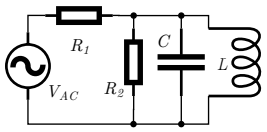

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 3 V and frequency 70 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 8 V and frequency 50 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 8 V and frequency 60 Hz. (0.5 point)
   (d) Triangular wave with amplitude 4 V and frequency 80 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 2 V and frequency 50 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 4 V and frequency 30 Hz. (0.5 point)
   (g) Pulse wave with amplitude 6 V, duty cycle 70 % and frequency 20 Hz. (0.5 point)

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Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14156037***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***MICHAEL MURILLO MENDEZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.06\,\text{s}$. The values are $R = R_1 = R_2 = 90\,\Omega$, $L = 60\,\text{mH}$, $C = 700\,\mu\text{F}$ and $V_{AC} = 20\,\text{V}$ at $70\,\text{Hz}$. (3 + 3 points)

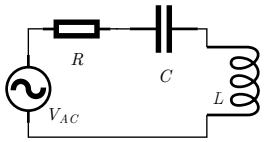

Figure 1

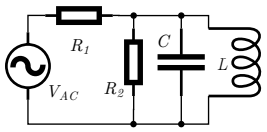

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 8 V and frequency 90 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 3 V and frequency 20 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 3 V and frequency 90 Hz. (0.5 point)
   (d) Triangular wave with amplitude 5 V and frequency 30 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 4 V and frequency 90 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 2 V and frequency 40 Hz. (0.5 point)
   (g) Pulse wave with amplitude 6 V, duty cycle 90 % and frequency 50 Hz. (0.5 point)

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***11073892***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***JOSUE AMADOR SIFUENTES***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.02\,\text{s}$. The values are $R = R_1 = R_2 = 90\,\Omega$, $L = 60\,\text{mH}$, $C = 500\,\mu\text{F}$ and $V_{AC} = 40\,\text{V}$ at $90\,\text{Hz}$. (3 + 3 points)

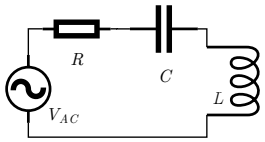

Figure 1

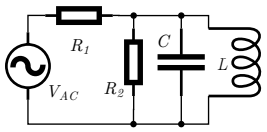

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 5 V and frequency 50 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 7 V and frequency 90 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 6 V and frequency 30 Hz. (0.5 point)
   (d) Triangular wave with amplitude 7 V and frequency 80 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 5 V and frequency 60 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 9 V and frequency 40 Hz. (0.5 point)
   (g) Pulse wave with amplitude 8 V, duty cycle 40 % and frequency 70 Hz. (0.5 point)

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***11268436***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***EDUARDO ZALDIVAR MARTINEZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.04\,\text{s}$. The values are $R = R_1 = R_2 = 70\,\Omega$, $L = 20\,\text{mH}$, $C = 500\,\mu\text{F}$ and $V_{AC} = 50\,\text{V}$ at $40\,\text{Hz}$. (3 + 3 points)

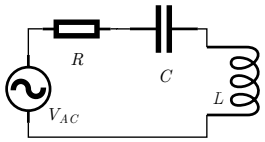

Figure 1

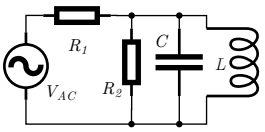

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 8 V and frequency 80 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 5 V and frequency 60 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 4 V and frequency 30 Hz. (0.5 point)
   (d) Triangular wave with amplitude 8 V and frequency 20 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 7 V and frequency 90 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 2 V and frequency 70 Hz. (0.5 point)
   (g) Pulse wave with amplitude 7 V, duty cycle 90 % and frequency 20 Hz. (0.5 point)

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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14140390***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***LUIS DAVID MARENTES REYES***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.03\,\text{s}$. The values are $R = R_1 = R_2 = 80\,\Omega$, $L = 70\,\text{mH}$, $C = 300\,\mu\text{F}$ and $V_{AC} = 70\,\text{V}$ at $80\,\text{Hz}$. (3 + 3 points)

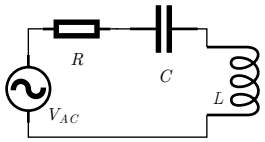

Figure 1

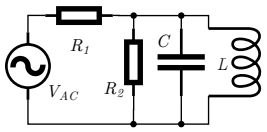

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 3 V and frequency 60 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 9 V and frequency 30 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 3 V and frequency 80 Hz. (0.5 point)
   (d) Triangular wave with amplitude 4 V and frequency 30 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 2 V and frequency 90 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 8 V and frequency 70 Hz. (0.5 point)
   (g) Pulse wave with amplitude 2 V, duty cycle 80 % and frequency 30 Hz. (0.5 point)

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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***12068799***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JESUS ANTONIO ROBLESREYES***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.05\,\text{s}$. The values are $R = R_1 = R_2 = 50\,\Omega$, $L = 20\,\text{mH}$, $C = 300\,\mu\text{F}$ and $V_{AC} = 70\,\text{V}$ at $40\,\text{Hz}$. (3 + 3 points)

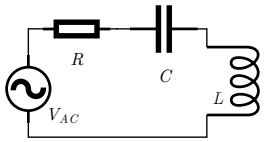

Figure 1

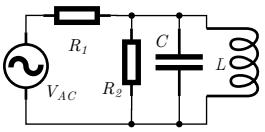

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 6 V and frequency 20 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 9 V and frequency 30 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 9 V and frequency 20 Hz. (0.5 point)
   (d) Triangular wave with amplitude 6 V and frequency 70 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 7 V and frequency 40 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 2 V and frequency 70 Hz. (0.5 point)
   (g) Pulse wave with amplitude 8 V, duty cycle 60 % and frequency 30 Hz. (0.5 point)

Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14150725***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***LILIANA VERA GLZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.05\,\text{s}$. The values are $R = R_1 = R_2 = 30\,\Omega$, $L = 40\,\text{mH}$, $C = 600\,\mu\text{F}$ and $V_{AC} = 90\,\text{V}$ at $40\,\text{Hz}$. (3 + 3 points)

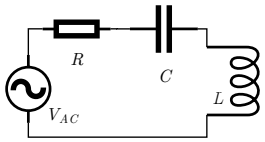

Figure 1

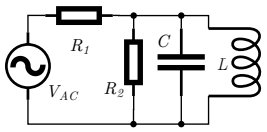

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 5 V and frequency 30 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 4 V and frequency 90 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 4 V and frequency 60 Hz. (0.5 point)
   (d) Triangular wave with amplitude 9 V and frequency 30 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 9 V and frequency 90 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 4 V and frequency 70 Hz. (0.5 point)
   (g) Pulse wave with amplitude 7 V, duty cycle 60 % and frequency 20 Hz. (0.5 point)

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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14125016***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***DAVID OTHONIEL SALDIVAR PEREZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.02\,\text{s}$. The values are $R = R_1 = R_2 = 30\,\Omega$, $L = 60\,\text{mH}$, $C = 900\,\mu\text{F}$ and $V_{AC} = 50\,\text{V}$ at $40\,\text{Hz}$. (3 + 3 points)

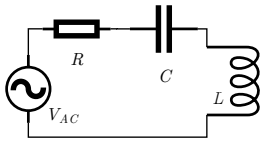

Figure 1

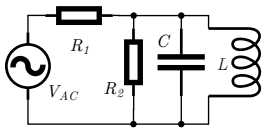

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude $5\,\text{V}$ and frequency $60\,\text{Hz}$. (1 point)
   (b) Half-wave rectified sine wave with amplitude $3\,\text{V}$ and frequency $40\,\text{Hz}$. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude $2\,\text{V}$ and frequency $70\,\text{Hz}$. (0.5 point)
   (d) Triangular wave with amplitude $7\,\text{V}$ and frequency $40\,\text{Hz}$. (0.5 point)
   (e) Sawtooth wave with amplitude $2\,\text{V}$ and frequency $20\,\text{Hz}$. (0.5 point)
   (f) Rectangular wave with amplitude $7\,\text{V}$ and frequency $60\,\text{Hz}$. (0.5 point)
   (g) Pulse wave with amplitude $6\,\text{V}$, duty cycle $30\,\%$ and frequency $70\,\text{Hz}$. (0.5 point)

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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***1205596***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***ALBERTO VAZQUEZ MEDINA***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.08\,\text{s}$. The values are $R = R_1 = R_2 = 50\,\Omega$, $L = 70\,\text{mH}$, $C = 700\,\mu\text{F}$ and $V_{AC} = 80\,\text{V}$ at $60\,\text{Hz}$. (3 + 3 points)

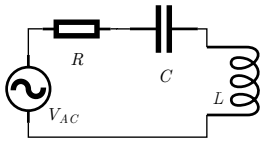

Figure 1

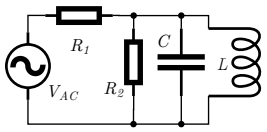

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 8 V and frequency 80 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 4 V and frequency 70 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 6 V and frequency 70 Hz. (0.5 point)
   (d) Triangular wave with amplitude 7 V and frequency 90 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 7 V and frequency 40 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 4 V and frequency 80 Hz. (0.5 point)
   (g) Pulse wave with amplitude 6 V, duty cycle 20 % and frequency 60 Hz. (0.5 point)

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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***12666518***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***SAMUEL ROSAS GONZALEZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.03\,\text{s}$. The values are $R = R_1 = R_2 = 50\,\Omega$, $L = 70\,\text{mH}$, $C = 900\,\mu\text{F}$ and $V_{AC} = 50\,\text{V}$ at $70\,\text{Hz}$. (3 + 3 points)

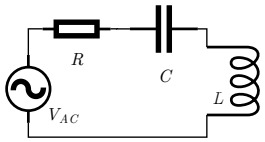

Figure 1

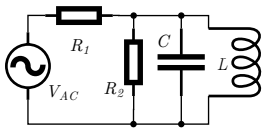

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 4 V and frequency 20 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 2 V and frequency 60 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 9 V and frequency 70 Hz. (0.5 point)
   (d) Triangular wave with amplitude 4 V and frequency 80 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 8 V and frequency 40 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 6 V and frequency 80 Hz. (0.5 point)
   (g) Pulse wave with amplitude 4 V, duty cycle 70 % and frequency 70 Hz. (0.5 point)

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***12064655***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***EDSON ORLANDONAVARRO RAMIREZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.07\,\text{s}$. The values are $R = R_1 = R_2 = 70\,\Omega$, $L = 90\,\text{mH}$, $C = 600\,\mu\text{F}$ and $V_{AC} = 90\,\text{V}$ at $40\,\text{Hz}$. (3 + 3 points)

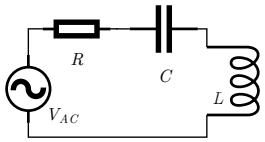

Figure 1

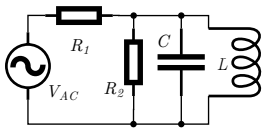

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude $4\,\text{V}$ and frequency $80\,\text{Hz}$. (1 point)
   (b) Half-wave rectified sine wave with amplitude $5\,\text{V}$ and frequency $40\,\text{Hz}$. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude $5\,\text{V}$ and frequency $40\,\text{Hz}$. (0.5 point)
   (d) Triangular wave with amplitude $3\,\text{V}$ and frequency $30\,\text{Hz}$. (0.5 point)
   (e) Sawtooth wave with amplitude $7\,\text{V}$ and frequency $80\,\text{Hz}$. (0.5 point)
   (f) Rectangular wave with amplitude $3\,\text{V}$ and frequency $70\,\text{Hz}$. (0.5 point)
   (g) Pulse wave with amplitude $9\,\text{V}$, duty cycle $30\,\%$ and frequency $50\,\text{Hz}$. (0.5 point)

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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***11126870***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JUAN GAEL GONZALEZ RODRIGUEZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.06\,\text{s}$. The values are $R = R_1 = R_2 = 60\,\Omega$, $L = 80\,\text{mH}$, $C = 800\,\mu\text{F}$ and $V_{AC} = 90\,\text{V}$ at $90\,\text{Hz}$. (3 + 3 points)

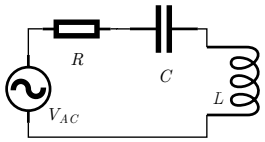

Figure 1

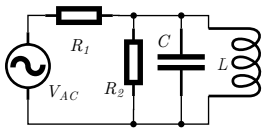

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude $5\,\text{V}$ and frequency $20\,\text{Hz}$. (1 point)
   (b) Half-wave rectified sine wave with amplitude $9\,\text{V}$ and frequency $90\,\text{Hz}$. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude $4\,\text{V}$ and frequency $20\,\text{Hz}$. (0.5 point)
   (d) Triangular wave with amplitude $9\,\text{V}$ and frequency $60\,\text{Hz}$. (0.5 point)
   (e) Sawtooth wave with amplitude $3\,\text{V}$ and frequency $60\,\text{Hz}$. (0.5 point)
   (f) Rectangular wave with amplitude $6\,\text{V}$ and frequency $40\,\text{Hz}$. (0.5 point)
   (g) Pulse wave with amplitude $6\,\text{V}$, duty cycle $70\,\%$ and frequency $20\,\text{Hz}$. (0.5 point)

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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14155580***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***LUIS ALEJANDRO URBINA GONZALEZ***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.07\,\text{s}$. The values are $R = R_1 = R_2 = 60\,\Omega$, $L = 20\,\text{mH}$, $C = 400\,\mu\text{F}$ and $V_{AC} = 40\,\text{V}$ at $70\,\text{Hz}$. (3 + 3 points)

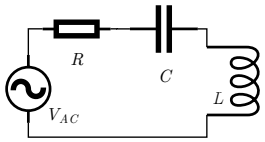

Figure 1

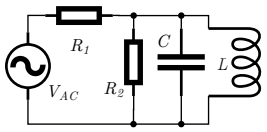

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude $4\,\text{V}$ and frequency $60\,\text{Hz}$. (1 point)
   (b) Half-wave rectified sine wave with amplitude $9\,\text{V}$ and frequency $60\,\text{Hz}$. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude $5\,\text{V}$ and frequency $50\,\text{Hz}$. (0.5 point)
   (d) Triangular wave with amplitude $4\,\text{V}$ and frequency $80\,\text{Hz}$. (0.5 point)
   (e) Sawtooth wave with amplitude $4\,\text{V}$ and frequency $40\,\text{Hz}$. (0.5 point)
   (f) Rectangular wave with amplitude $2\,\text{V}$ and frequency $30\,\text{Hz}$. (0.5 point)
   (g) Pulse wave with amplitude $2\,\text{V}$, duty cycle $60\,\%$ and frequency $50\,\text{Hz}$. (0.5 point)

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14629184***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JOSE WALDO QUINTANA ARANDA***		

Instructions

1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Draw the phase diagram, waveforms for the voltage across each element and current through each element of the circuits shown in Figure 1 and Figure 2. Ignoring the transient behavior and considering that the reference is the input voltage, which starts its zero at $t = 0\,\text{s}$, find the instantaneous voltage and current through each element at $t = 0.05\,\text{s}$. The values are $R = R_1 = R_2 = 50\,\Omega$, $L = 30\,\text{mH}$, $C = 500\,\mu\text{F}$ and $V_{AC} = 40\,\text{V}$ at $90\,\text{Hz}$. (3 + 3 points)

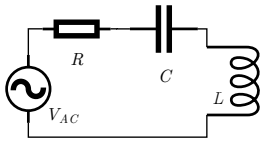

Figure 1

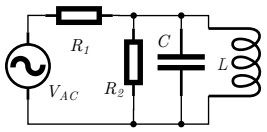

Figure 2

2. Find root mean square (RMS), average rectified value (ARV), peak factor, form factor for the following periodic functions. Show all the work. (4 points)
   (a) Sine wave with amplitude 7 V and frequency 20 Hz. (1 point)
   (b) Half-wave rectified sine wave with amplitude 8 V and frequency 40 Hz. (0.5 point)
   (c) Full-wave rectified sine wave with amplitude 2 V and frequency 90 Hz. (0.5 point)
   (d) Triangular wave with amplitude 4 V and frequency 20 Hz. (0.5 point)
   (e) Sawtooth wave with amplitude 5 V and frequency 20 Hz. (0.5 point)
   (f) Rectangular wave with amplitude 3 V and frequency 50 Hz. (0.5 point)
   (g) Pulse wave with amplitude 5 V, duty cycle 20 % and frequency 30 Hz. (0.5 point)