



# Universidad Autónoma de Coahuila

## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	<b>14137625</b>
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>JESUS EMMANUEL MORALES MENUIOLA</b>		

## 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. Let  $A = 9 + 4j$ ,  $B = 5 + 2j$  and  $C = 5 + 6j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 4}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 9 m. The resistance of the metal frame used for the cube is  $9 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)



Figure 1

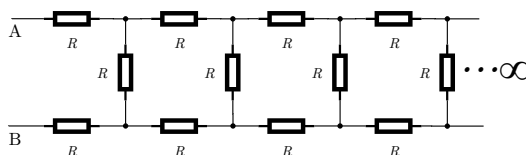


Figure 2



Figure 3

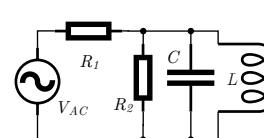


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 90 \Omega$ ,  $L = 0.8 \text{ H}$ ,  $C = 30 \mu\text{F}$  and  $V_{AC} = 60 \text{ V}$  at  $60 \text{ Hz}$ . (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



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## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	14121732
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>JOEL GERARDO AGUERO LLANAS</b>		

## 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. Let  $A = 2 + 5j$ ,  $B = 7 + 8j$  and  $C = 2 + 5j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 5}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 3 m. The resistance of the metal frame used for the cube is  $3 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

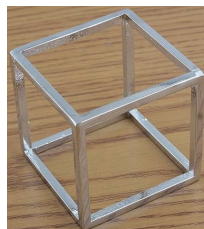


Figure 1

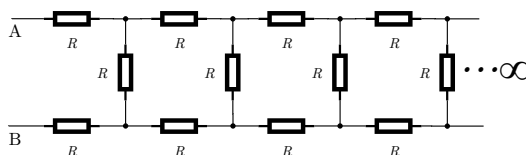


Figure 2

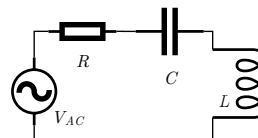


Figure 3

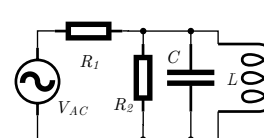


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 30 \Omega$ ,  $L = 0.4 \text{ H}$ ,  $C = 90 \mu\text{F}$  and  $V_{AC} = 50 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



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## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	14124427
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>JERSON CHAVEZ ORTIZ</b>		

## 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. Let  $A = 7 + 8j$ ,  $B = 3 + 9j$  and  $C = 2 + 9j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 8}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 5 m. The resistance of the metal frame used for the cube is  $3 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

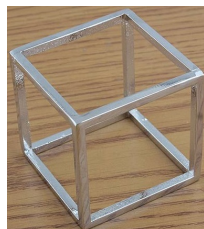


Figure 1

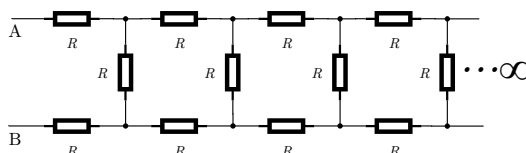


Figure 2

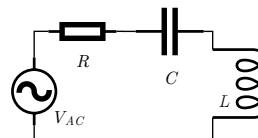


Figure 3

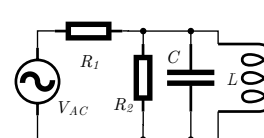


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 30 \Omega$ ,  $L = 0.2 \text{ H}$ ,  $C = 90 \mu\text{F}$  and  $V_{AC} = 40 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



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## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	<b>14156040</b>
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>LUIS ANTONIO FERNENDEZ CARRASCO</b>		

## 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. Let  $A = 5 + 8j$ ,  $B = 4 + 5j$  and  $C = 5 + 6j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 8}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 4 m. The resistance of the metal frame used for the cube is  $3 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

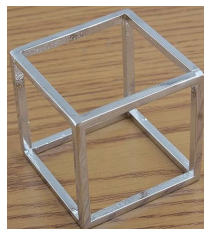


Figure 1

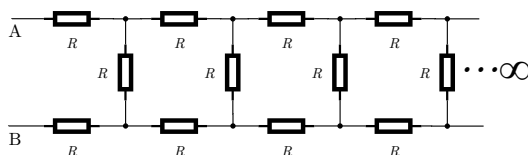


Figure 2

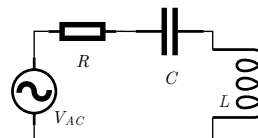


Figure 3

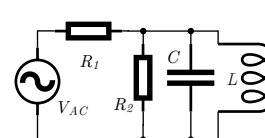


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 30 \Omega$ ,  $L = 0.5 \text{ H}$ ,  $C = 30 \mu\text{F}$  and  $V_{AC} = 30 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



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### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	<b>14156037</b>
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>MICHAEL MURILLO MENDEZ</b>		

## 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. Let  $A = 6 + 6j$ ,  $B = 9 + 2j$  and  $C = 4 + 6j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 6}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 2 m. The resistance of the metal frame used for the cube is  $5 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

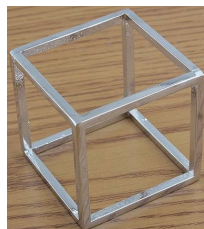


Figure 1

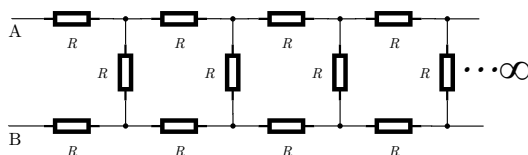


Figure 2

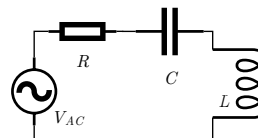


Figure 3

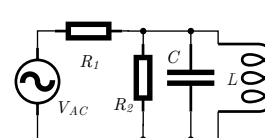


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 50 \Omega$ ,  $L = 0.7 \text{ H}$ ,  $C = 70 \mu\text{F}$  and  $V_{AC} = 80 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



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## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	<b>11073892</b>
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>JOSUE AMADOR SIFUENTES</b>		

## 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. Let  $A = 6 + 4j$ ,  $B = 5 + 2j$  and  $C = 2 + 4j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 4}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 4 m. The resistance of the metal frame used for the cube is  $8 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

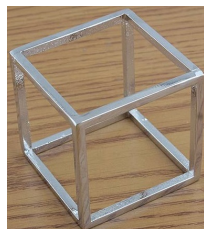


Figure 1

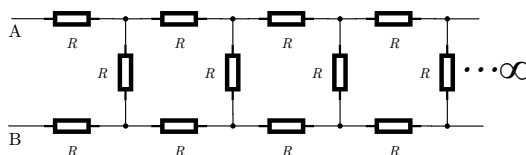


Figure 2

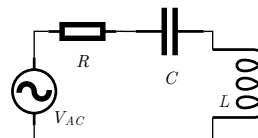


Figure 3

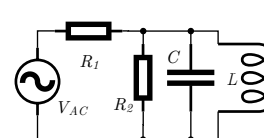


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 80 \Omega$ ,  $L = 0.5 \text{ H}$ ,  $C = 90 \mu\text{F}$  and  $V_{AC} = 40 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)





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## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	<b>11268436</b>
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>EDUARDO ZALDIVAR MARTINEZ</b>		

## 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. Let  $A = 6 + 8j$ ,  $B = 8 + 5j$  and  $C = 7 + 4j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 8}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 6 m. The resistance of the metal frame used for the cube is  $7 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)



Figure 1

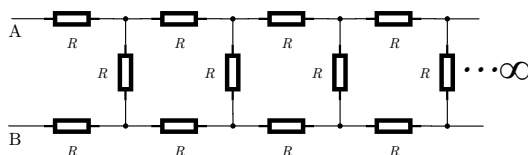


Figure 2



Figure 3

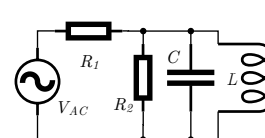


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 70 \Omega$ ,  $L = 0.5 \text{ H}$ ,  $C = 20 \mu\text{F}$  and  $V_{AC} = 20 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



# Universidad Autónoma de Coahuila

## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	14140390
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>LUIS DAVID MARENTES REYES</b>		

## 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. Let  $A = 7 + 3j$ ,  $B = 5 + 3j$  and  $C = 5 + 7j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 3}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 2 m. The resistance of the metal frame used for the cube is  $7 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

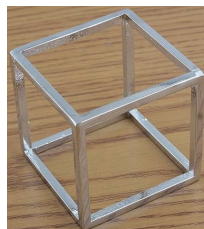


Figure 1

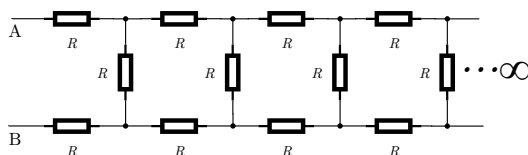


Figure 2

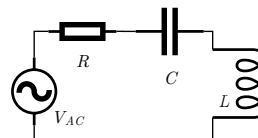


Figure 3

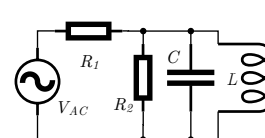


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 70 \Omega$ ,  $L = 0.5 \text{ H}$ ,  $C = 70 \mu\text{F}$  and  $V_{AC} = 40 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)





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## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	12068799
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>JESUS ANTONIO ROBLESREYES</b>		

## 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. Let  $A = 6 + 8j$ ,  $B = 2 + 6j$  and  $C = 3 + 8j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 8}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 5 m. The resistance of the metal frame used for the cube is  $3 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)



Figure 1

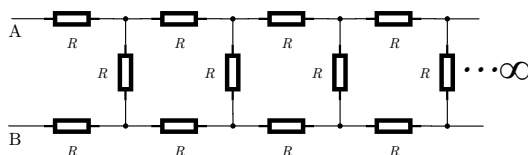


Figure 2



Figure 3

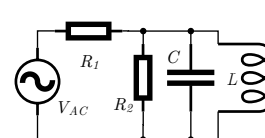


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 30 \Omega$ ,  $L = 0.3 \text{ H}$ ,  $C = 70 \mu\text{F}$  and  $V_{AC} = 60 \text{ V}$  at  $60 \text{ Hz}$ . (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



# Universidad Autónoma de Coahuila

## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	14150725
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>LILIANA VERA GLZ</b>		

## 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. Let  $A = 3 + 5j$ ,  $B = 6 + 9j$  and  $C = 2 + 7j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 5}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 9 m. The resistance of the metal frame used for the cube is  $2 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

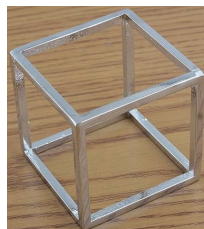


Figure 1

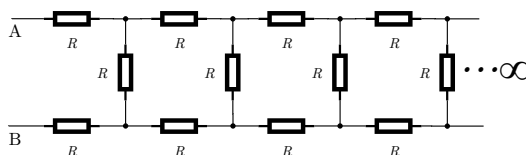


Figure 2

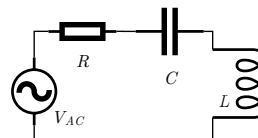


Figure 3

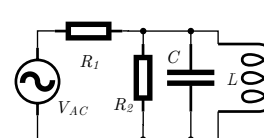


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 20 \Omega$ ,  $L = 0.4 \text{ H}$ ,  $C = 20 \mu\text{F}$  and  $V_{AC} = 60 \text{ V}$  at  $60 \text{ Hz}$ . (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



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## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	<b>14125016</b>
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>DAVID OTHONIEL SALDIVAR PEREZ</b>		

## 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. Let  $A = 3 + 7j$ ,  $B = 8 + 7j$  and  $C = 8 + 6j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 7}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 8 m. The resistance of the metal frame used for the cube is  $5 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

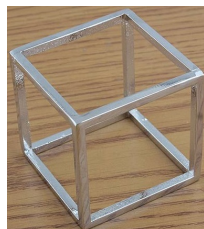


Figure 1

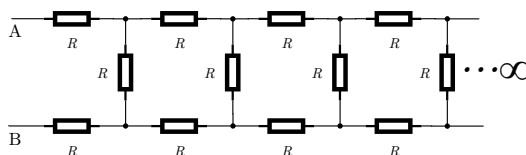


Figure 2

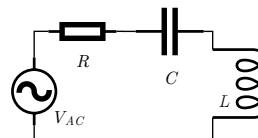


Figure 3

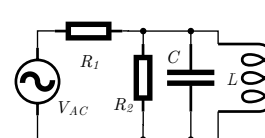


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 50 \Omega$ ,  $L = 0.3 \text{ H}$ ,  $C = 30 \mu\text{F}$  and  $V_{AC} = 20 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



# Universidad Autónoma de Coahuila

## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	<b>1205596</b>
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>ALBERTO VAZQUEZ MEDINA</b>		

## 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. Let  $A = 4 + 9j$ ,  $B = 2 + 4j$  and  $C = 5 + 9j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 9}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 5 m. The resistance of the metal frame used for the cube is  $5 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

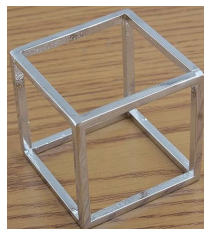


Figure 1

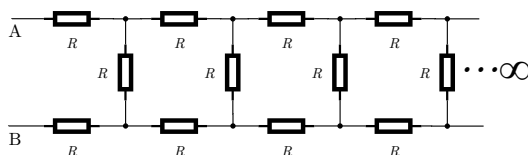


Figure 2

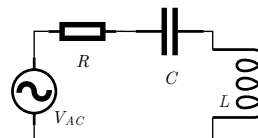


Figure 3

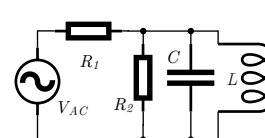


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 50 \Omega$ ,  $L = 0.7 \text{ H}$ ,  $C = 40 \mu\text{F}$  and  $V_{AC} = 30 \text{ V}$  at 60 Hz. (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



# Universidad Autónoma de Coahuila

## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	<b>12666518</b>
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>SAMUEL ROSAS GONZALEZ</b>		

## 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. Let  $A = 4 + 5j$ ,  $B = 2 + 8j$  and  $C = 2 + 6j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 5}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 8 m. The resistance of the metal frame used for the cube is  $7 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

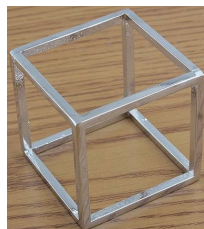


Figure 1

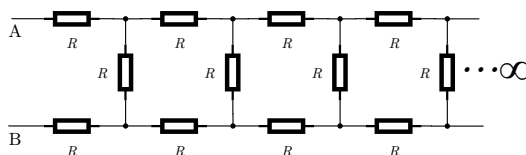


Figure 2

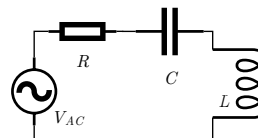


Figure 3

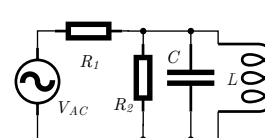


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 70 \Omega$ ,  $L = 0.7 \text{ H}$ ,  $C = 20 \mu\text{F}$  and  $V_{AC} = 60 \text{ V}$  at  $60 \text{ Hz}$ . (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)



# Universidad Autónoma de Coahuila

## Facultad de Ingeniería Mecánica y Eléctrica

### Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Basics of DC and AC circuits	Registration #	12064655
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	<b>EDSON ORLANDONAVARRO RAMIREZ</b>		

## 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. Let  $A = 5 + 5j$ ,  $B = 9 + 6j$  and  $C = 4 + 7j$ , simplify the following expressions. (2 points)

(a)  $A^3$  (b)  $\frac{A^2 B}{C}$  (c)  $\frac{A}{B} + C$  (d)  $\frac{A}{\frac{B}{C} + 5}$

2. The side of the cube-shaped metal frame shown in Figure 1 is 3 m. The resistance of the metal frame used for the cube is  $2 \Omega \text{ m}^{-1}$ . Calculate the resistance between two opposite corners. (2 points)

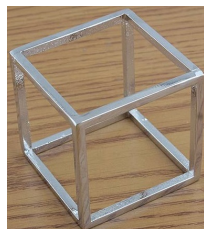


Figure 1

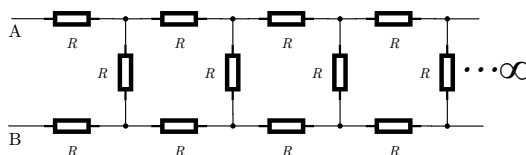


Figure 2

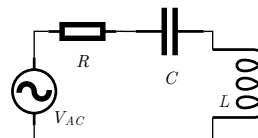


Figure 3

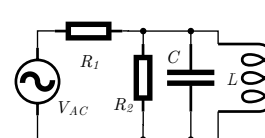


Figure 4

3. Find the equivalent resistance of the circuit shown in Figure 2. (2 points)
4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4. The values are  $R = R_1 = R_2 = 20 \Omega$ ,  $L = 0.3 \text{ H}$ ,  $C = 30 \mu\text{F}$  and  $V_{AC} = 90 \text{ V}$  at  $60 \text{ Hz}$ . (2 points)
5. Find the resonant frequency for the circuit shown in Figure 3 and Figure 4. Calculate current, voltage and power across each element of the circuit shown in Figure 3 and Figure 4 at the resonant frequency. Use the values given the above problem. (2 points)