



Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	9132341
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	EDGAR CERDA PEREZ		

Instructions

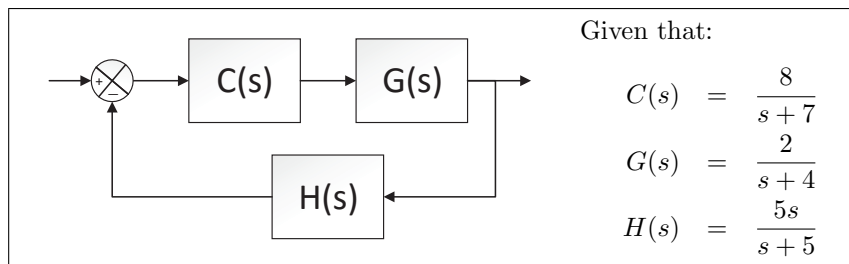
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with 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. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^8 + 7)e^{2t} - e^{-9t} \cos(t) - t \cos(4t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	8053323
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	JUAN PABLO DUARTE MONSIVAIS		

Instructions

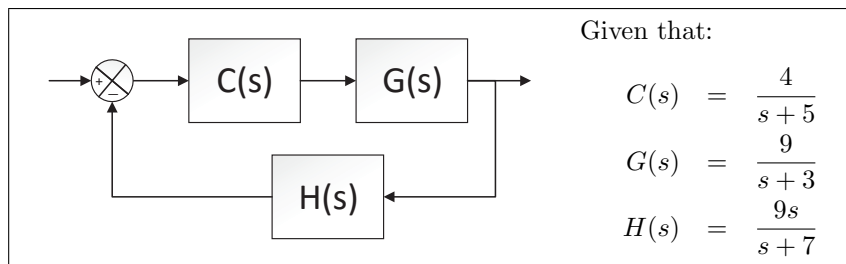
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^9 + 6)e^{5t} - e^{-7t} \cos(t) - t \cos(7t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12127844
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	JUAN MIGUEL BARRIENTOS GARCIA		

Instructions

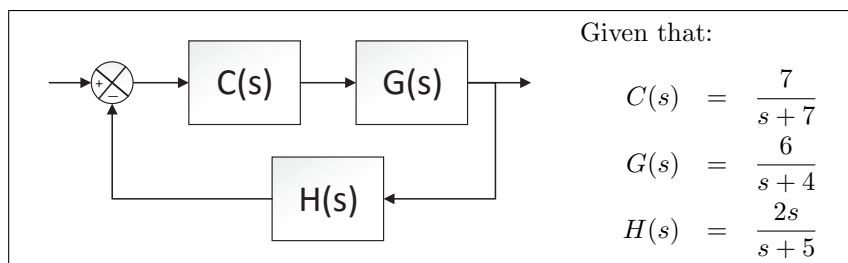
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^8 + 8)e^{8t} - e^{-4t} \cos(t) - t \cos(2t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12132791
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	ISRAEL GONZALEZ		

Instructions

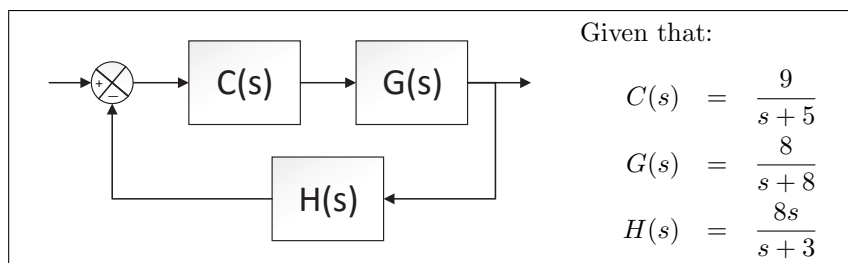
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^5 + 3)e^{2t} - e^{-7t} \cos(t) - t \cos(8t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	10062268
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	JULIO ALEJANDRO MARIN GARCIA		

Instructions

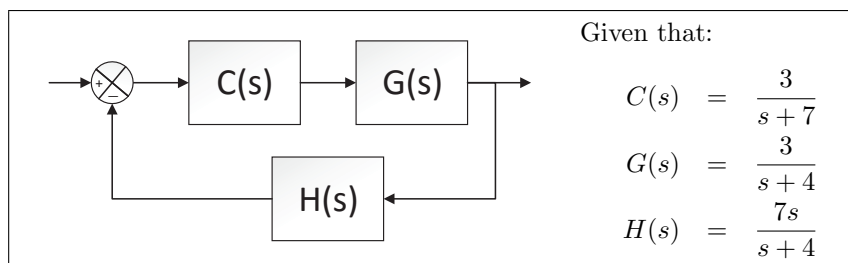
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^4 + 5)e^{8t} - e^{-4t} \cos(t) - t \cos(5t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	7050612
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	BEATRIZ ELIZABETH ALBA PEREZ		

Instructions

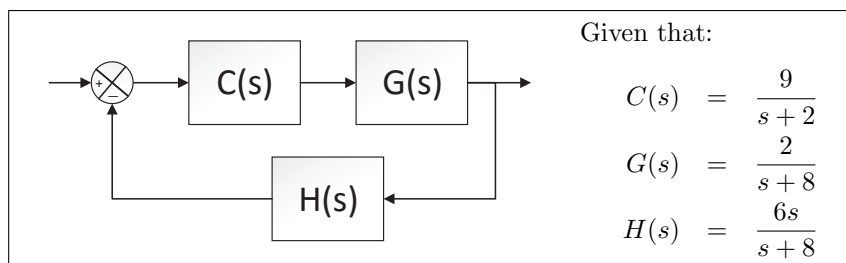
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^6 + 5)e^{5t} - e^{-8t} \cos(t) - t \cos(9t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	98017052
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	LUIZ EDUARDO		

Instructions

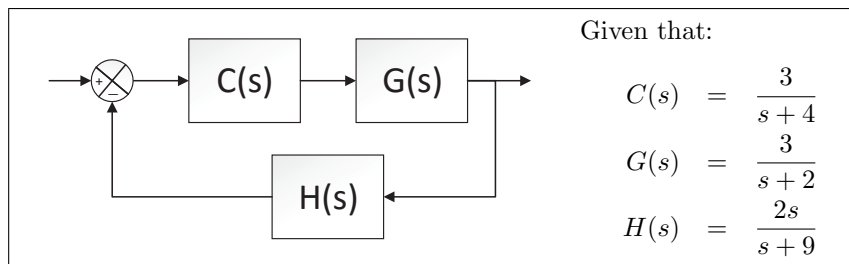
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^6 + 7)e^{4t} - e^{-9t} \cos(t) - t \cos(9t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12125213
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	EMMANUEL ALEJANDRO		

Instructions

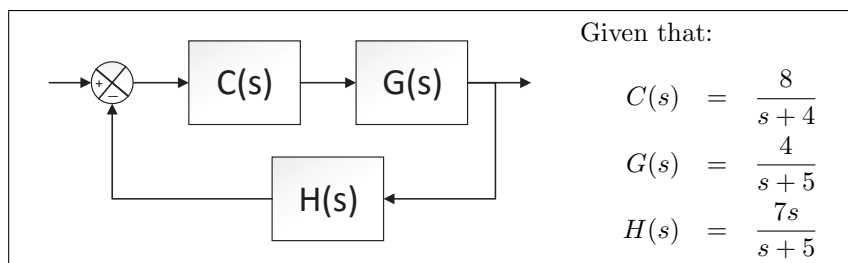
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^6 + 8)e^{6t} - e^{-7t} \cos(t) - t \cos(6t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12146394
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	JOSELY ROSALES		

Instructions

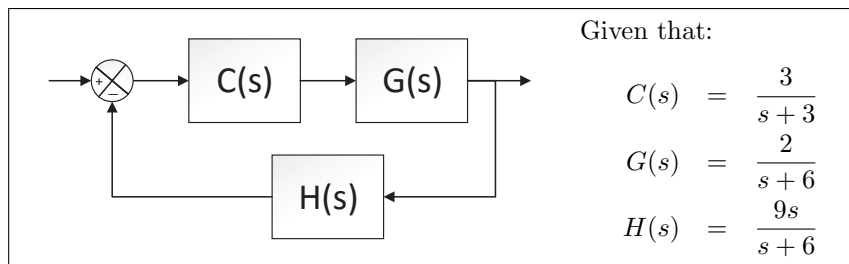
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^2 + 2)e^{2t} - e^{-2t} \cos(t) - t \cos(9t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12133449
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	MARIO ALBERTO GAMEZ ROQUE		

Instructions

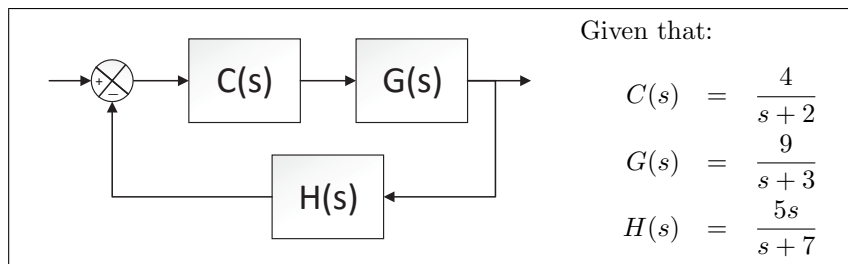
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^4 + 9)e^{2t} - e^{-3t} \cos(t) - t \cos(8t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12146385
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	RODRIGUEZ PEREZ RODOLFO		

Instructions

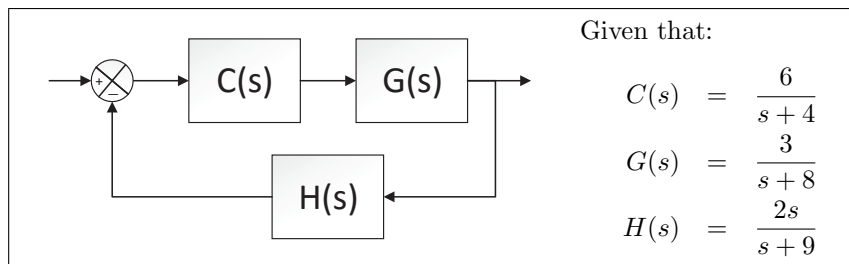
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^2 + 3)e^{6t} - e^{-9t} \cos(t) - t \cos(5t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	10056986
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	ARTURO CORDERO ROBLES		

Instructions

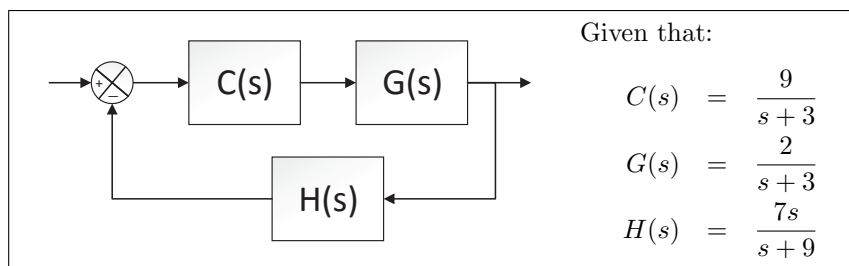
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^3 + 4)e^{7t} - e^{-5t} \cos(t) - t \cos(6t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12128743
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	GIBRAM ALFONSO HERNANDEZ MARTINEZ		

Instructions

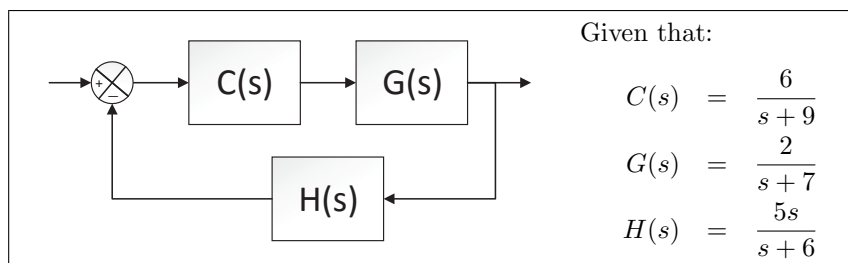
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3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained will be reduced)
4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^4 + 6)e^{6t} - e^{-2t} \cos(t) - t \cos(2t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12157333
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	EDGAR RICARDO CHAIREZ VILLARRIAL		

Instructions

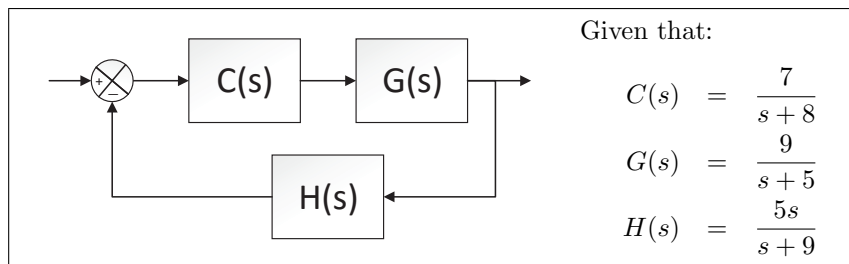
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2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with his/her answer sheets. (20% of the marks obtained 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. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^6 + 3)e^{5t} - e^{-8t} \cos(t) - t \cos(7t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12154267
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	JOSE FRANCISCO TOVAR JARAMILLO-		

Instructions

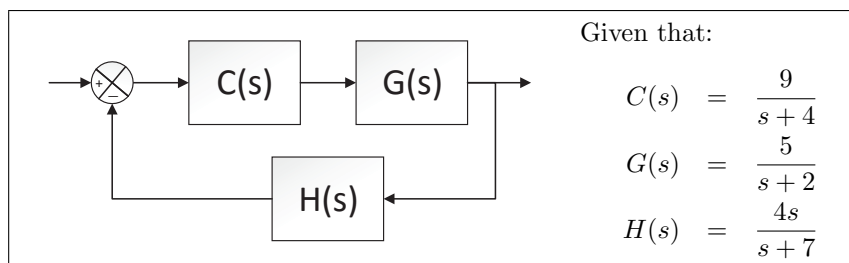
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^3 + 6)e^{9t} - e^{-6t} \cos(t) - t \cos(4t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12142724
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	ALLISON DANIELA MACIAS HERNANDEZ		

Instructions

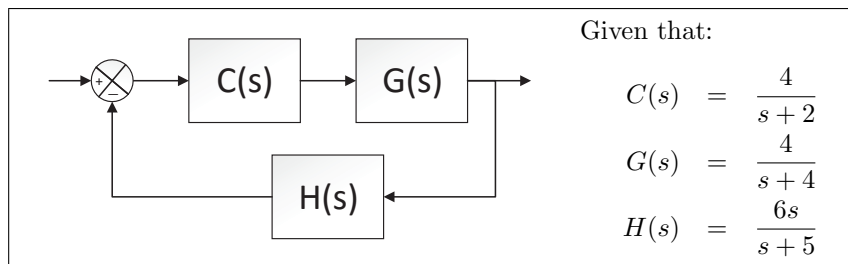
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4. In the calculations, the student should maintain at least a precision of 3 decimal places with a correct rounding. (20% of the marks obtained will be reduced)

Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^2 + 3)e^{8t} - e^{-2t} \cos(t) - t \cos(8t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



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Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	10068360
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	KIM EDUARDO SANCHEZ REYES		

Instructions

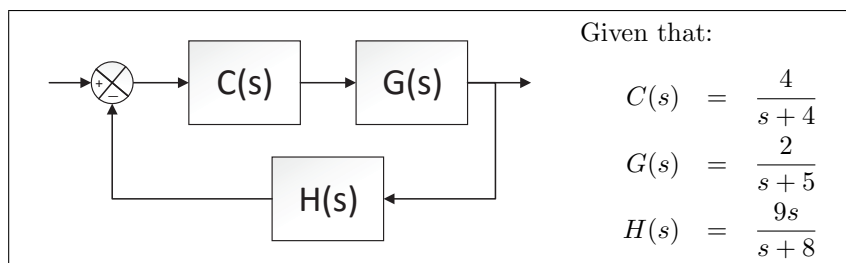
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Questions

1. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^3 + 7)e^{2t} - e^{-3t} \cos(t) - t \cos(6t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	11288180
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	JORGE ANTONIO MOLINA RAMIREZ		

Instructions

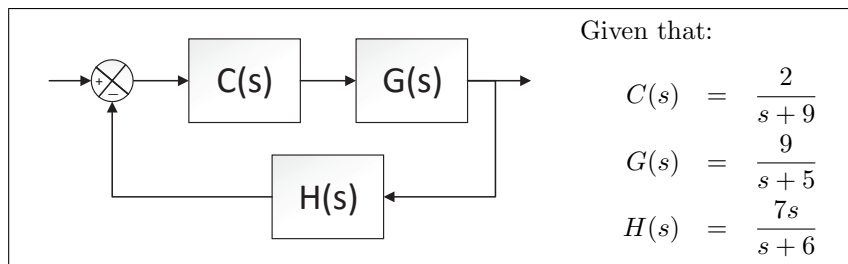
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with 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. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^8 + 2)e^{5t} - e^{-6t} \cos(t) - t \cos(4t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	12139200
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	CARLOS RODOLFO MENA MONTES		

Instructions

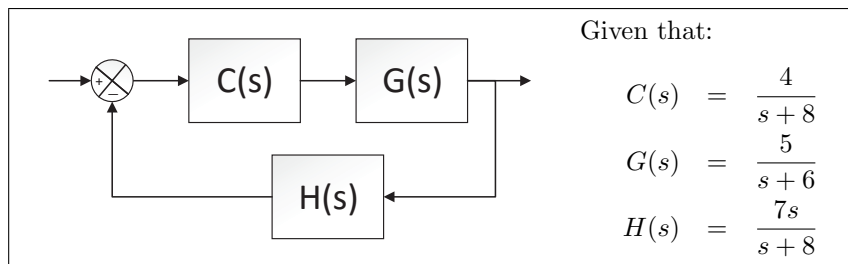
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with 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. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^7 + 4)e^{3t} - e^{-8t} \cos(t) - t \cos(4t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	10053330
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	JOSE FERNANDO AGUILAR COLORADO		

Instructions

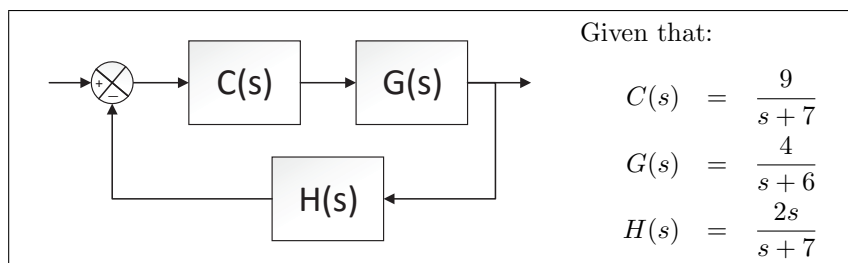
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with 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. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^5 + 4)e^{4t} - e^{-9t} \cos(t) - t \cos(9t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	5113606
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	OBDULIA CASTANEDA PEREZ		

Instructions

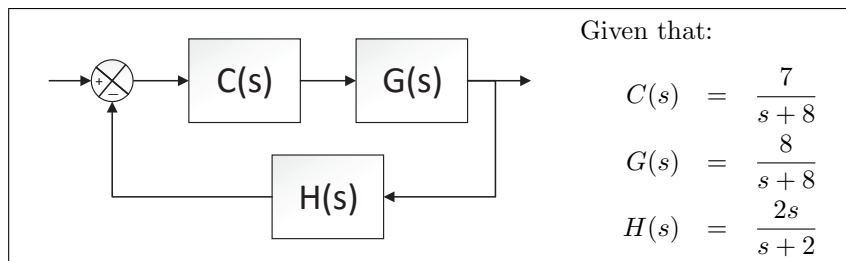
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with 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. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^3 + 8)e^{2t} - e^{-4t} \cos(t) - t \cos(5t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	10073388
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	AXEL JAVIER RODRIGUEZ MARIN		

Instructions

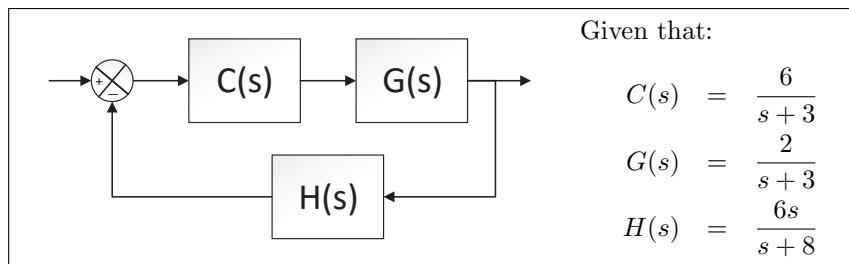
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with 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. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^6 + 3)e^{8t} - e^{-5t} \cos(t) - t \cos(7t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)



Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Digital control	Group	9A
Degree	Electrical engineering	Due for	01/09/2016
Exam / Homework	Homework 1: Continuous-time control theory	Registration #	06052185
Professor's name	Suresh Kumar Gadi	Marks Obtained	____ / 10
Student's name	ROGELIO CASTILLO REYES		

Instructions

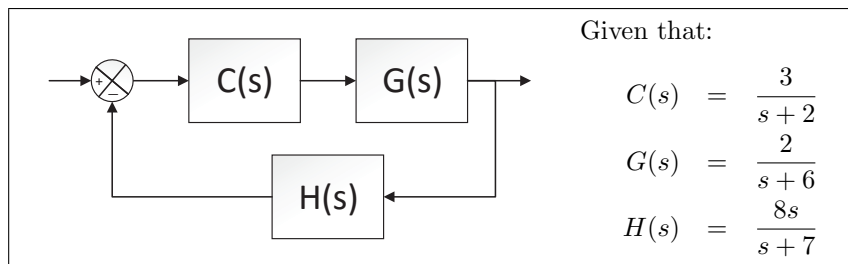
1. The student should submit the homework on or before the due date. (LATE SUBMISSION = 0 MARKS)
2. Answers should be hand written on the A4 or Letter size bond papers. (20% of the marks obtained will be reduced)
3. The student should print his/her corresponding question-paper and staple it along with 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. Find the Laplace transformation for the following function. (2 points)

$$f(t) = (t^2 + 6)e^{9t} - e^{-7t} \cos(t) - t \cos(4t)$$

2. Simplify the following block diagram. (2 points)



3. Find analytically the impulse and step response for the above system. (2 points)
4. Plot the above responses. (2 points)
5. Find the stability for the above system with the help of the Routh-Hurwitz stability criterion. (2 points)