Practice Exam 1 (Signals and Systems)
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Time Limit: 40 minutes

All answers must be fully simplified, unless explicitly indicated otherwise.
All steps must be shown.

- 2.101 a b
- 3.102 c
  - NOTE: You must make clear the rationale behind your answer.
- 3.103 j
  - NOTE: You must use a systematic method and clearly explain your answer. That is, no marks will be given for a 100% correct final answer unless it was found using a systematic method with all of the steps clearly explained. The explanation can be in point form as long as it is sufficiently clear.
- 3.105 e
  - NOTE: Your simplified formula be written as a single expression that is valid for all t.
- 3.106 b
  - NOTE: Write your final answer so that all terms with the same unit-step function factor are grouped together.
- 3.110 a
  - NOTE: You must make clear what condition is being tested to assess the BIBO stability of the system.
- 3.114 b

Practice Exam 2 (CT LTI Systems)
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Time Limit: 45 minutes
Exercises:

All answers must be fully simplified, unless explicitly indicated otherwise.
All steps must be shown.

- 4.101 h [convolution]
  The convolution integrals must be simplified as much as possible without performing the final integration step.

No unit step functions should appear anywhere in the answer.
- 4.106 b [impulse response]
- 4.107 a [memoryless/causal]
- 4.108 b [BIBO stable]
- 4.109 a [eigenfunctions]

Practice Exam 3 (CT Fourier Series)
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Time Limit: 50 minutes
Exercises:

All answers must be fully simplified, unless explicitly indicated otherwise.
All steps must be shown.

- 5.102 c
- 5.104 b
  You must explicitly show any formulas being used and justify why they are valid.
- 5.105 b
- 5.106 d
  You must fully justify your answer.
  You must, for example, show that the sequence has any properties that you claim it has.
- 5.107 b
  Express your final answer using cos/sin to the extent that it simplifies the answer.

Practice Exam 4 (CT Fourier Transform)
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Time Limit: 50 minutes
Exercises:

All answers must be fully simplified, unless explicitly indicated otherwise.
All steps must be shown.

- 6.103 c
- 6.109 a
- 6.111 a

- 6.116 c
- 6.118 d
- 6.121 c
- 6.122 a

Practice Exam 5 (Laplace Transform)
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Time Limit: 50 minutes
Exercises:

All answers must be fully simplified, unless explicitly indicated otherwise.
All steps must be shown.

- 7.105 e
- 7.110 a
- 7.113 f
  Note: You may assume that the following equations are given in the problem statement:
  v_0(t) = R [i_1(t) + i_2(t)] + v_1(t)
  i_1(t) = C (d/dt) v_1(t)
  i_2(t) = (1/L) \int_{-\infty}^{t} v_1(\tau) d\tau
- 7.116 d
- 7.118 b