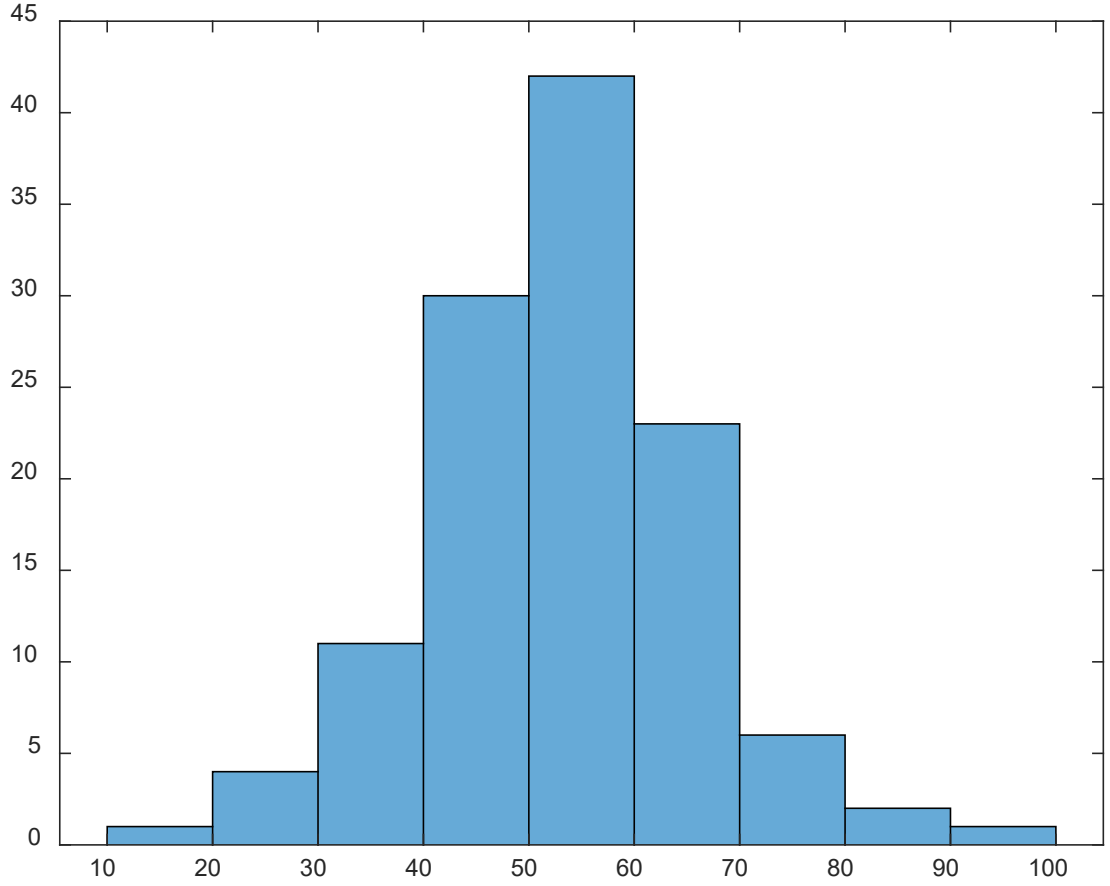
Mark Distribution of Test 1



Note: Minimum 30% coursework requirement for passing the course refers to the total but not individual work.

Comments for Question 1

- (a) is less satisfactory. Some are not able to differentiate continuous-time and discrete-discrete signals, leading to errors such as incorrectly sketching with continuous line.

- (b) is not satisfactory. Most fail to obtain the correct signal range of $n = [-3, 3]$, which can be determined from $x[-n]$. In this question, (2.12) must be applied. Note that the answer cannot be directly observed from $x[n]$ as in Example 2.3(d) because this only applies for infinite $x[n]$ only, i.e., $n = [-\infty, \infty]$. Hence writing that the even component is 1 and the odd component is n is incorrect.

Comments for Question 2

- (a) and (b) are satisfactory. Most are able to determine that the signal is periodic and not an energy signal.

- (c) is not satisfactory. Most are not able to calculate the power correctly. It can be considered as an extension of Example 2.4(b). Some do not write down the signal energy, which is just a conceptual question, and does not involve any calculations.

Comments for Question 3

- (a) is less satisfactory. Most understand how to calculate power, but they often fail to compute the result correctly. Some even provide a negative power value, which is impossible as power and energy values cannot be negative.

- (b) is not satisfactory. Most understand how to calculate the Fourier series coefficients, but they fail to compute the result correctly.

  Similar question arises in Assignment 1, In-Class Exercise and Worked Example, e.g., Question 7 of Assignment 1.

Comments for Question 4

- This is less satisfactory. Most understand how to calculate convolution, yet they often fail to compute the values correctly.

  Similar question arises in Assignment 1, In-Class Exercise and Worked Example, e.g., Question 6 of Assignment 1.

Comments for Question 5

- (a), (c)-(e) are satisfactory. Most are able to determine that the system is non-memoryless, linear, time-invariant and non-casual.

- (b) is less satisfactory. Most can determine that the system is invertible, but are not able to provide a correct justification. Note that it is similar to Example 3.2(c).

- (f) is not satisfactory. Most are not able to calculate the answer correctly. In fact, it can be done easily by directly setting $x[n] = \delta[n]$ and then perform simplification.

- (g) is not satisfactory too. It is the most challenging question in the test but can be done by following In-Class Exercise/Worked Example after obtaining $h[n]$.

Comments for Question 6

- This is not satisfactory. Most do not provide any answers. Some attempt to calculate the Fourier transform but fail.

  Note that (a) just exactly follows Example 5.6. While (b) is similar to Example 5.3 and Question 3 of In-Class Exercise 1.

Recommendations

- Understand concepts.
- Practice all questions (including MATLAB examples) in lecture notes, in-class exercises and assignments (e.g., computing Fourier series coefficients, convolution). Unexpectedly, many errors come from simple arithmetic operations.
- Show steps in answering the questions. Do not just write down the answers.
- Try to solve problems in an efficient manner.
- Check if you are able to achieve the learning outcomes at each chapter and the overall learning outcomes of the course.