IIIT-H
Networks, Signals, and Systems
Monsoon-2024

Prasad Krishnan, Aftab Hussain

Assignment 3 (Signals & Sys)

Submission Date & Time: As in the post
Instructions:

- **You are free to discuss the problems with co-students, TAs, and instructor if needed. However, you should write down all answers yourself.**
- All steps should be justified in detail.
- **Any attempt at plagiarism will result in ZERO for the assignment, apart from other academic consequences.**
- TAs will likely (but not guaranteed) also upload the solutions (some solutions may not be elaborate but gives essential ideas) after the submission. This will be treated as the master document for evaluation.
- **Evaluation done by TAs/Instructor will generally be final. Appeals on the evaluation will generally not be permitted for assignments, unless the solution is wrong for some question.**

Remark: Do not mind general remarks made in brackets. They are only to convey what the problem itself is about.

1. (This portion was given in Assignment 2 itself, but it had to be submitted as part of assignment 3 submission):
   LTI systems: (to be submitted as part of Assignment 3 Do problems as follows from Chap 2.
   - 2.22 (this problem deals with responses to various inputs with various impulse responses),
   - 2.23 (again responses of LTI systems to impulse train),
   - 2.29 (causality and stability of LTI systems)
   - 2.40 (this problem deals with finding impulse response and output),
   - 2.48 (determine various outputs if they can be determined),
2. **Many questions related to Laplace Transform, block diagrams, ROC, causal and stable systems. From Chapter 9**
   - 9.42 (Several true-false statements regarding ROCs)
   - 9.45 (determine $h(t)$ and $H(s)$ with ROC)
   - 9.46 (givenn causal stable system, determine $H(s)$ with given information).

- 9.47 [causality]
- 9.35 [block diagram based analysis]
- 9.22 (many inverse laplace transforms question).
- 9.17 (block diagram based analysis).