

DSAA Computer Assignment 3

Anish Turlapaty, IIIT Sri City

13-20 October 2018

Maximum Grade: 10

1 Analysis and Synthesis

For the given periodic signals with the period $T = 3$, compute the Fourier coefficients and then reconstruct the original signal.

For each signal plot the following

- The original and reconstructed signal on the same plot
- The Fourier coefficients; both the real and imaginary components vs the theoretical values.

•

$$x(t) = t^3 \quad |t| < 1 \quad (1)$$

•

$$x(t) = 2|t| \quad |t| < 1$$

•

$$x(t) = \exp(-2|t|) \quad |t| < 1 \quad (2)$$

2 Convergence

For the three signals, demonstrate the convergence of the reconstructed signal with respect to the original signal.