

## EE1101: Circuits and Network Analysis

## Assignment - 03

Handed out: 23 - Aug - 2024

Due : 02 - Sep - 2024 (before 5 PM)

## Instructions :

1. Please upload your assignment solutions to the course page on the Canvas platform. Only solutions submitted through this page will be reviewed. For specific guidelines, refer to the instructions provided on the course page.
2. It is suggested that you attempt all the problems. However, it is sufficient to submit solutions for problems that total 10 points.
3. Submissions received after the deadline will attract negative marking. Ensure that your submissions are named in the following format: RollNo-Assignment-03.pdf.

1. <sup>1</sup> Compute the Average (over cycle), Average (over half the cycle) and RMS values of the signals shown in Fig. 1 and Fig. 2.

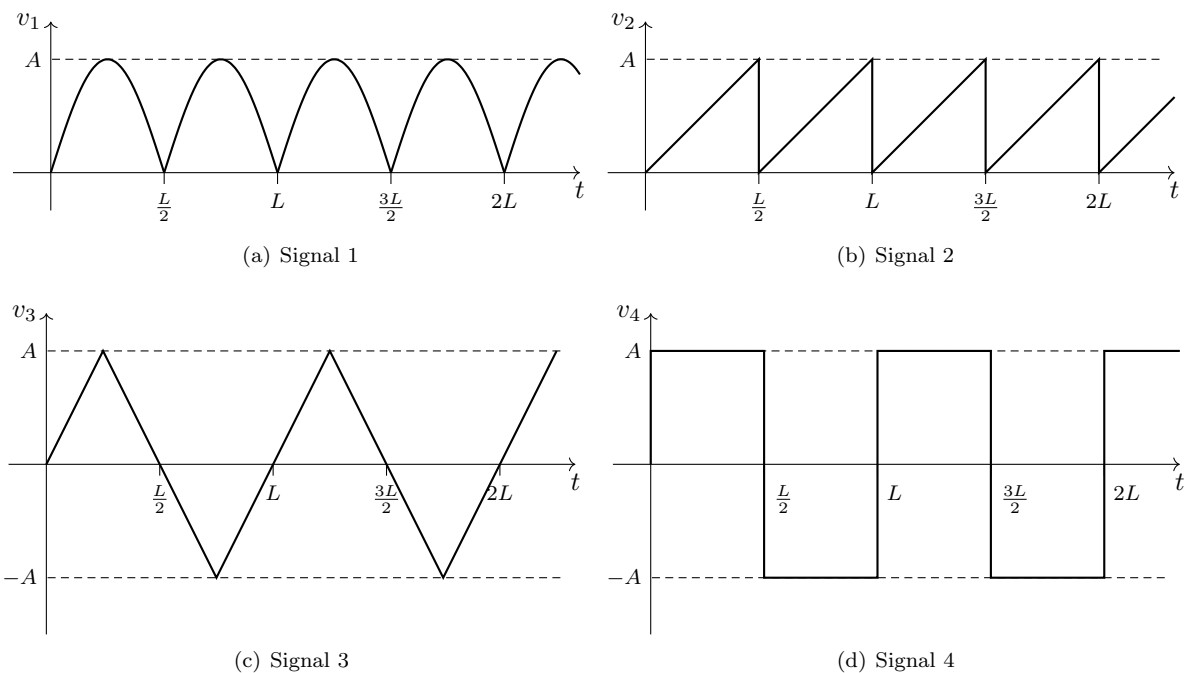


Fig. 1: Waveforms for analysis

Note that, the signals  $v_1(t)$  and  $v_6(t)$  are given by

$$v_1(t) = \begin{cases} A \sin(\omega t) & 0 \leq t \leq \frac{L}{2} \\ -A \sin(\omega t) & \frac{T}{2} < t < L \end{cases} \quad \text{and} \quad v_6(t) = \sum_{n=1}^4 \frac{A}{n} \sin(n\omega t) \quad (1)$$

<sup>1</sup>Grading: For each signals, 2 point will be awarded for average values and 2 points for RMS value.

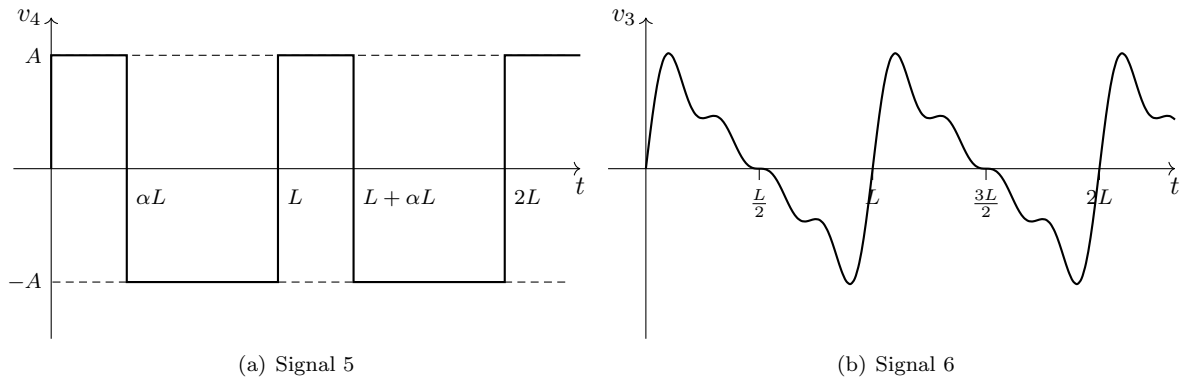


Fig. 2: Waveforms for analysis

Determine the value of  $\omega$  such that the expression for  $v_1(t)$  given by (1) represents the waveform shown in Fig. 1(a). Further, in Fig. 2(a)  $0 \leq \alpha \leq 1$ .