LAHORE UNIVERSITY OF MANAGEMENT SCIENCES
Department of Electrical Engineering

EE310 Signals and Systems
Quiz 04

Name: _____

Campus ID: _____

Total Marks: 10
Time Duration: 15 minutes

Information: Let $x[n]$ and $y[n]$ both be discrete-time periodic signals having period N. The Fourier series coefficients of the signal $z[n] = x[n]y[n]$ are given by

$$c_k = \sum_{\ell=<N>} a_\ell b_{k-\ell}.$$

Question 1 (10 marks)

Given the following one period description of discrete-time signals of period $N = 12$, **determine and plot** the Fourier series coefficients for $k = 0, 1, \ldots, 11$.

(a) [3 marks]

$$x[n] = 3\cos(\pi n/2), \quad 0 \leq n \leq 11.$$

(b) [3 marks]

$$y[n] = \cos(\pi n/6), \quad 0 \leq n \leq 11.$$

(c) [4 marks]

$$z[n] = x[n]y[n]$$