

B.TECH. DEGREE EXAMINATION, DECEMBER 2012**Fifth Semester**

Branch : Electrical and Electronics Engineering

EE 010 503—SIGNALS AND SYSTEMS (EE)

(Regular—New Scheme)

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions briefly.
Each question carries 3 marks.*

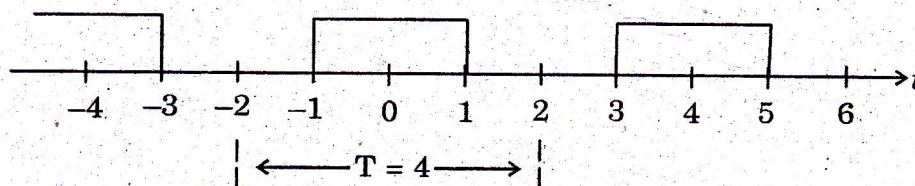
1. If $x(t) = V(t) + V(-t)$, where $V(t) = \sin t [u(t)]$, determine whether the signal is periodic.
2. Find the Fourier Transform of the rect function which is unity over the interval -0.5 to $+0.5$ and zero elsewhere.
3. Find the energy and power of the signal $x[n] = u[n]$.
4. Specify the Nyquist rate for the signal $g(t) = \sin^2(200t) + \sin(200t)$.
5. Find the image parameters of the T network with $\frac{Z_1}{2}$ each in series branch and Z_2 in shunt branch.

(5 × 3 = 15 marks)

Part B

*Answer all questions.
Each question carries 5 marks.*

6. Obtain the Fourier series representation of the following signal ?



7. Find the inverse Fourier Transforms of $X(j\omega) = \frac{j\omega + 2}{(j\omega)^2 + 5j\omega + 6}$.

Turn over