Roll No. | | | | | | | | | | |

Total No. of Questions : 09

Total No. of Pages : 02

B.Tech.(Electronics Engg.) (2012 Onwards)
B.Tech.(ECE/ETE/Electronics & Computer Engg.) (2011 Onwards)
(Sem.–4)

SIGNALS AND SYSTEM

Subject Code : BTEC-402
Paper ID : [A1190]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. **Write briefly :**

a) What is the difference between a periodic & non periodic signal?

b) What is sampling theorem?

c) Define Convolution theorem.

d) What do you mean by memory less System?

e) Define Signal to Noise ratio.

f) What is noise figure?

g) Define power spectral density.

h) Give the Dirichlet Condition.

i) State condition of existence of Fourier Integral.

j) What do you mean by eygodicity?

SECTION-B

2 What do you mean by Random variables and Random Process?

3 Calculate SNR for Matched filter.

4. Discuss in detail about envelope detector.

5 State and prove time scaling and multiplication properties of Fourier series.

6 Show that the system described by following equation is linear

$$\frac{dy}{dt}+t^2 y(t)=(2t+3)x(t)$$

SECTION-C

7 Explain the response of LTI system to complex exponentials.

8 Explain Gaussian Noise & FET Noise.

9 Discuss the properties of Laplace Transform. For a LTI system, the impulse response $h(t) = u(t)$ Find :

a) Characteristic roots of the system

b) Stability of the system

c) Is this BIBO stable

d) What can this system be used