

Roll No.

Total No. of Pages : 02

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PIT B.Tech. ECE (Sem.-4)  
**SIGNALS AND SYSTEMS**  
Subject Code : UC-BTEC-403-19  
M.Code : 79986  
Date of Examination : 09-07-22

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS 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) Give an example of causality property.
- b) Determine the signal for Even or Odd signal  $x(n) = x(-2n)$ .
- c) Differentiate between continuous and discrete time signals.
- d) What are the advantages of Laplace transform?
- e) Describe LSI systems.
- f) Explain Frequency-shifting property of Fourier Transform.
- g) Give the expressions for Mean, Median and Mode.
- h) Explain Sampling Theorem.
- i) Define stability.
- j) Explain Aliasing and its effects.

### SECTION-B

2. Describe Energy and power signals with examples.
3. Derive the expression for periodic inputs to an LSI system.
4. Find the Laplace Transform of signal  $x(t) = [\sin w_0 t] u(t)$ .
5. State Parseval's relation for discrete-time aperiodic signals
6. Define Z-Transform and its properties.

### SECTION-C

7. Explain various time operations on continuous time signal by using examples.
8. Derive notion of frequency response and its relation to the impulse response.
9. With the help of example explain Discrete-Time Fourier Transform.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**