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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electronics & Computer Engg.) (Sem.-5,6)

DIGITAL SIGNAL PROCESSING

Subject Code : BTEC-502

M.Code : 71164

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. Answer briefly :**

- a) Why the ROC of Z-transform can not contain any pole?
- b) What is the difference between energy and power signal?
- c) Give the computational efficiency of FFT over DFT.
- d) What is correlation?
- e) Differentiate FIR filters and IIR filters.
- f) List the advantages of digital signal processing.
- g) Write the desirable features of DSP processors.
- h) What do you mean by symmetric and anti-symmetric FIR filters?
- i) Give the properties of linear time invariant discrete time system.
- j) Give the two properties of ROC.

SECTION-B

2. Explain the properties of Z-transform.
3. Check whether the following is linear, time invariant, casual and stable :

$$y(n) = x(n) + nx(n+1).$$

4. Determine the Z-transform of the signal $x(n) = (-1)^n 2^{-n} u(n)$.
5. Explain the direct form realization of FIR filter.
6. Compute the 4 point DFT of $x(n) = \{0,1,2,3\}$

SECTION-C

7. Explain the different types of structures for the realization of IIR filter.
8. Write Short notes on :
 - a) Magnitude and phase response of FIR filters.
 - b) Goertzel algorithm
9. Explain in detail the architectural features of a DSP processor.

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.