Nov- Dec - 2012

Total No. of Questions : 12]

SEAT No. :

P825

[Total No. of Pages : 3

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T.E. (Computer Engineering)

DIGITAL SIGNAL PROCESSING

(2008 Pattern) (Sem. - I)

Time :3 Hours] *[Max. Marks :100*

Instructions to the candidates:

1) ***Answer any three questions from each section.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Define linear convolution. Explain different steps to calculate linear convolution with example. **[6]**

b) Define the impulse response of the DT system. Show that $h(n) = 0$ for $n < 0$, for a causal system. **[6]**

c) Explain quantization process in ADC. **[4]**

OR

Q2) a) Test the system $y(n) = x(n) + n\,x(n + 1)$ for causality, linearity and time invariance. **[6]**

b) State and explain the sampling theorem. **[6]**

c) Define the terms: natural & forced response for a causal system. **[4]**

Q3) a) Explain how N-point DFT and IDFT can be obtained by means of linear transformation matrix. **[8]**

b) State and prove differentiation property of F.T. **[6]**

c) Find $x((n + 2))_5$ and $x((-n))_5$ for the sequence $x(n) = \{1, 2, 3, 4\}$ **[4]**

OR

P.T.O.