

Total No. of Questions : 12]

SEAT No. :

[Total No. of Pages : 3

P825

[4263] - 344

T.E. (Computer Engineering)
DIGITAL SIGNAL PROCESSING
(2008 Pattern) (Sem. - I)

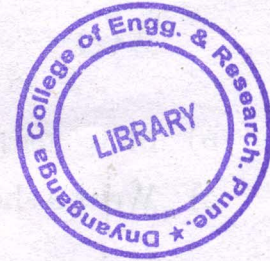
Time : 3 Hours]

[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.

