

# BE / In Sem - 33

Q1:

- classification of D.T. system - (4)
- A to D conversion process - (4)  
sampling theorem - (2)

Q2:

$$i) \quad \begin{array}{cccc} 1 & 2 & 1 & 2 \\ 1 & 2 & 1 & 2 \end{array}$$

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$$\begin{array}{cccc} 2 & 4 & 2 & 4 \end{array}$$

$$\begin{array}{cccc} 1 & 2 & 1 & 2 \end{array}$$

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$$\begin{array}{cccc} 1 & 2 & 1 & 2 \end{array}$$

$$\begin{array}{cccc} 1 & 2 & 1 & 2 \end{array}$$

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$$\begin{array}{cccc} 1 & 4 & 6 & 8 \end{array}$$

$$y(n) = \{1, 4, 6, 8, 9, 4, 4\} \quad \text{--- (5)}$$

ii)  $x(n) = \{3, 2, 1, 1\}$  -- (1)  
 $h(n) = \{1, 1, 1, 1\}$

3	2	1	1			
1	1	1	1			
<hr/>						
3	2	1	1			
3	2	1	1	x		
3	2	1	1	x		
3	2	1	1	x		
3	2	1	1	x		
<hr/>						
3	5	6	7	3	2	1

$y(n) = \{3, 5, 6, 7, 3, 2, 1\}$  -- (4)

Q3:-

- z-transform -- (2)
- any four properties with proof (8)

Q4:-

i)  $X(z) = \sum_{n=-\infty}^{\infty} x(n) \cdot z^{-n}$

$X(z) = \sum_{n=-2}^1 x(n) \cdot z^{-n}$

$= z^2 + z - 1 + z^{-1}$  -- (4)

with ROC all over z plane except  $|z| = 0 \& \infty$  -- (1)

ii)  $x(n) = \{1, 2, 1, 2, 1\}$  -- (1)

$X(z) = z^2 + z + 1 + z + z^2$  -- (3)

ROC all over z plane except  $|z| = 0 \& \infty$

Q5:- Definition of D.T.F.T. -- (2)

any four properties -- (8)  
with proof.

Q6:-

- frequency response of 1st & 2nd order system -- (5)
- Convolution theorem with proof -- (5)