**DSP ASSIGNMENT -1( UNIT 1)**

**V SEM ECE ‘B’ SEC 2019-20**

1. EXPRESS THE DISCRETE TIME SEQUENCE x[n]={1, 3, 5, 7} AS SUMMATION OF IMPULSES
2. DESCRIBE WITH BLOCK DIAGRAM OF DIGITAL SIGNAL PROCESSING SYSTEM
3. WHAT ARE THE ADVANTAGES & DISADVANTAGES OF DSP COMPARED TO ASP
4. DEFINE DTFT, DFT AND ZT
5. ESTABLISH RELATIONSHIP BETWEEN:

1). FT & DTFT,

2). DTFT & ZT,

3). DFT & ZT,

4).DTFT & DFT

1. DETERMINE 4-POINT DFT OF 1). x[n]={ 2, 4, 3, -5}, 2).x(n)={2,2-j,2+j, -2}
2. DEFINE TWIDDLE FACTOR & PROVE TWO PROPERTIES OF TWIDDLE FACTOR
3. DESCRIBE FREQUECY SPECTRUM OF DFT & LIST ITS PROPERTIES
4. LIST & PROVE FOLLOWING PROPERTIES OF DFT:

1). PERIODICITY,

2).CIRCULAR TIME SHIFTING,

3) CIRCULAR TIME REVERSAL,

4). SYMMETRY

1. DIFERENTIATE LINEAR & CIRCULAR CONVOLUTION
2. FOR A LINEARLY CONVOLVED SEQUENCE, HOW TO DETERMINE :

1). n VALUE AT THE STARTING & ENDING OF THE RESULTING SEQUENCE ,

2). LENGTH OF THE RESULTING SEQUENCE

1. OBTAIN CIRCULAR CONVOLUTION OF x1[n]={ -1,1+j, -3, 4} and x2[n]={2, 3, 3+j,3) USING:

1). CONCENTRIC CIRCLES METHOD,

2). MATRIX MULTIPLICATION METHOD

1. WHAT IS FFT?. WHO ARE ITS TWO INVENTORS ? WHAT IS THE IMPORTANCE OF FFT?
2. EXPLAIN THE REDUCTION IN COMPUTAIONAL COMPLEXITY OF FFT OVER DFT (CONSIDER VARIOUS VALUES OF N)
3. WRITE BASIC BUTTERFLY STRUCTURES OF DIT-FFT & DIF-FFT
4. DETERMINE 8 -POINT DFT USING DIT-FFT ALGORITM , GIVEN x[n]=(1,3, 4, J, 2+J, -5, -7, J}
5. DETERMINE 8- POINT DFT USING DIF-FFT ALGORITM , GIVEN x[n]=(0,2,j, 1,-j, 2, -5, -7}
6. WRITE NOTES ON IN-PLACE COMPUTATION AND BIT REVERSED ORDER WRT FFT

**LAST DATE FOR SUBMISISSION: 3/8/2019**

**Dr.. SHOBHA REDDY**

**COURSE INSTRUCTOR**