**ASSIGNMENT 4&5**

**V SEM ECE B (2019-20)**

**UNIT IV:**

1. What is Multirate signal processing
2. Discuss the process of downsampling and Upsampling with an example each
3. Derive expression for the spectrum of output signal of a downsampler
4. Explain the concept of aliasing after downsampling with an example and how can it be avoided
5. Derive expression for the spectrum of output signal of a Upsampler
6. Explain the concept of imaging after upsampling with an example and how can it be avoided
7. Write brief note on Decimator and Interpolator
8. Consider DT signal x(n)={1,3,5,7,9,2,4,6,8}, Determine Down sampled version of signal for (i) D=2, (ii)D=3
9. Consider DT signal x(n)={1,2,3,4,5,-5,-4,-3,-2,-1}, Determine Up sampled version of signal for (i) I=2, (ii)I=3
10. Discuss the steps involved in sampling rate conversion by a rational factor I/D
11. Discuss on Multistage implementation of sampling rate conversion

**UNIT V:**

1. Differentiate briefly Microproessor, Microcontroller and Digital signal proessors
2. What are the special features of DSPs?
3. How is Fast data access achieved in DSPs
4. What hardware features of DSP enables fast Computation
5. Differentiate Von Neumann and Harward architecture
6. Explain modified Harward architecture employed in DSPs
7. Write short note on (i) MAC unit, (ii) Barrel shifter (iii)Pipelining, (iv) Special addressing modes,(v) guard bits
8. What are the functional units of CPU of TMS320C54XX
9. What are the internal buses of TMS320C54XX
10. What are different addressing modes of TMS320C54XX
11. Write short notes on Instruction pipelining in TMS320C54XX

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