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M.Tech I Semester Supplementary Examinations February/March 2018 **DSP PROCESSORS & ARCHITECTURES**

(Common to DSCE, DECS & ECE)

(For students admitted in 2012, 2013, 2014, 2015 & 2016 only)

Time: 3 hours

Max. Marks: 60

Answer any FIVE questions All questions carry equal marks

- Differentiate decimation and interpolation. 1 (a)
 - (b) Write a matlab code to generate power spectrum of a sine wave.
- 2 (a) How can guantization error and overflow error be reduced?
 - (b) Discuss the analogue to digital conversion errors occurring in a DSP system.
- 3 (a) Design an interface to connect a 64k x 16 flash memory to a DSP processor.
 - (b) What are the blocks which differentiate a DSP processor and an ordinary microprocessor?
- 4 Design a pipelined FIR digital filter and justify the increase in speed.
- 5 (a) Draw the internal architecture of TMS320C54XX processor and explain each of its blocks.
 - (b) Discuss the data addressing modes of TMS320C54XX processor.
- With a flow diagram, explain how an IIR filter is implemented using a DSP processor. 6
- Write an assembly language or C program using TMS320C54XX to implement a 8-point FFT 7 and draw the flowchart.
- al www.fils (a) Interface a DMA controller with a DSP processor. 8
 - Give the I/O map. (b)