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M. TECH.

(SEM -II) THEORY EXAMINATION 2017-18

VLSI DSP ARCHITECTURES

Time: 3 Hours *Total Marks: 70*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 7 = 14**

a. What is the basic difference between CISC, RISC processor?

b. What do you mean by fallacies?

c. Give some applications of DSP processor.

d. What do you mean by data hazards?

e. What are the differences between DSP and normal processors?

f. What do you mean by dynamic range of DSP processors?

g. What are the different speed issues of DSP devices?

SECTION B

2. Attempt any *three* of the following: **7 x 3 = 21**

a) Explain the issues to be considered in designing and implementing a DSP system, with the help of a neat block diagram.

b) Explain bus architecture and memory of the DSP processor.

c) Explain the ADC interface in programmed I/O mode.

d) Explain multi cycle implementations.

e) How hardware description languages are helpful for digital system design? Explain.

SECTION C

3. Attempt any one part of the following: **7 x 1 = 7**

(a) What are the different sources of errors in DSP implementations?

(b) Briefly explain the major features of programmable DSPs.

4. Attempt any one part of the following: **7 x 1 = 7**

(a) What are the different number formats that are used to represent signals and coefficients in DSP systems? Explain any two of them.

(b) Discuss in brief about the data addressing capabilities of programmable DSP devices with examples.

5. Attempt any one part of the following: **7 x 1 = 7**

(a) Write a brief note on Micro Signal architecture

(b) Explain the essential features of Instruction set architectures of CISC, RISC processor.

6. Attempt any one part of the following: **7 x 1 = 7**

(a) Explain the concept of Pipelining for speeding up the execution of an Instruction.

(b) Discuss in brief about the basic peripherals in analog devices family of DSP devices

7. Attempt any one part of the following: **7 x 1 = 7**

(a) Briefly explain parallel I/O interface.

(b) Explain the performance of any two recent INTEL processors.