Printed Pages:02 **Sub Code: EEC402**

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B.Tech
(SEM IV) THEORY EXAMINATION 2017-18
Computer Architecture and Organization

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

a) Define System Design Methodology and system representation.
b) Describe the meaning and function of a PLD.
c) What is fixed point arithmetic? Describe the method for representing fixed point numbers.
d) What do you mean by pipelining?
e) Describe the meaning of Datapath Design.
f) Explain the difference between fixed point and floating point arithmetic.
g) What do you understand by Address translation?
h) Explain the concept of memory allocation with example.
i) Describe the various types or levels of memory found in a typical computer.
j) What do you mean by locality of reference? Explain with an example.

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a) Explain the processor level design with suitable diagrams and describe the processor level components
b) What do you understand by addressing modes? Discuss the various types of addressing modes with the help of suitable examples.
c) Design a binary Adder/Subtracter circuit. Explain its working with overflow condition.
d) Explain the difference between hardwired control and micro programmed control.
e) Draw the block diagram and discuss the internal architecture of 8085. Describe the registers of 8085.

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

(a) What is register level design? Describe the register level components. Design a circuit performing Z = A + B.

(b) What is a programmable logic device? List various techniques to program to PLD. Explain any one technique with example.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is an instruction set? Describe the instruction format and explain the function of each bit of the instruction format.

(b) Describe the CPU behavior with the help of a diagram. Draw and explain the function of an accumulator based CPU.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) What do you mean by pipeline processing? Explain with example.

(b) Describe the structure of combinational ALU and sequential ALU.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Give the block diagram of microprogram sequencer for a control memory and explain it properly.

(b) What do you understand by term Superscalar? Explain the concept of superscalar processing.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is Cache Memory? How is it implemented? Give the significance of cache memory in computer system.

(b) Describe the basic concepts Communication methods. Describe the various interconnection structures and compare their properties.