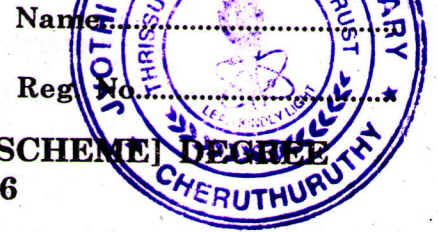


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**FIFTH SEMESTER B.TECH. (ENGINEERING) [14 SCHEME] DEGREE
EXAMINATION, NOVEMBER 2016**

EC 14 501—COMPUTER ORGANIZATION AND ARCHITECTURE

Time : Three Hours

Maximum : 100 Marks

Part A

Answer any eight questions.

1. Explain the basic structural units of computer hardware.
2. Implement the floating point operations in hardware.
3. Discuss on control memory used in microprogrammed control.
4. Evaluate the execution of an instruction using single and two bus datapath.
5. Design the hardware architecture for integer division.
6. What are the types of static RAM ? Explain any *one* with necessary diagram.
7. Explain the need for having a hierarchical memory organization.
8. Discuss the block diagram of $256\text{ K} \times 8$ memory using $256\text{ K} \times 1$ chips.
9. Differentiate CISC and RISC processors.
10. What are the types of interrupts ? Explain any *one* type with an example.

(8 × 5 = 40 marks)

Part B

Answer all questions.

1. What are the types of addressing modes ? Explain each with an example. (15 marks)

Or

2. Evaluate various fast multiplication performed during operation and justify each multiplication for its efficiency. (15 marks)

3. (a) Generate the control signals to drive the instructions in sequence. (6 marks)

- (b) Explain the hardwired control based on the sequence of operations. (9 marks)

Or

4. (a) Analyze the branch address modification with necessary example. (6 marks)

- (b) Explain the types of micro-instructions with its formats and encoding schemes. (9 marks)

Turn over

5. (a) Explain the hierarchical memory organization in detail with a block diagram. (9 marks)
- (b) What are the various high speed memories? Describe any *one* high speed memories. (6 marks)

Or

6. What is the need for Cache replacement? Examine various cache replacement algorithms and analyse it using the parameters. (15 marks)

7. (a) Explain the approaches to minimize register-memory operations on RISC machines. (9 marks)
- (b) Discuss briefly about the non-uniform memory access. (6 marks)

Or

8. (a) Explain the various serial I/O interface standards. (6 marks)
- (b) Discuss on handling the multiple device during processing. (9 marks)

[4 × 15 = 60 marks]