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Question Paper Code: 39403

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Electronics and Communication Engineering

01UEC903 - COMPUTER ARCHITECTURE AND ORGANIZATION

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Examine the operations involved in the execution of ADD R1,R0 instruction.
2. Differentiate direct and indirect addressing mode.
3. What is a ripple carry adder?
4. Discuss the principle behind the Booth's multiplier.
5. What is microprogramming?
6. What is Write-After-Write (WAW) hazard?
7. Compare sequential access and random access memories.
8. State the principles of memory interleaving.
9. Mention the significance of buses and its types in computer architecture
10. What is memory mapped I/O?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Describe the evolution of computers. (8)
(ii) Explain the instruction types designed for computers. (8)

Or

- (b) Explain the operation of each functional unit in the computer system with suitable diagram. (16)

12. (a) (i) Analyze the algorithm for integer division with suitable example. (8)
(ii) Examine the use of multiple-bus organization for executing a three-operand instruction. (8)

Or

- (b) With a neat sketch, explain in detail about logic design for fast adders. (16)

13. (a) (i) Explain the various issues in data path implementation. (10)
(ii) Compare horizontal and vertical organization of architecture design. (6)

Or

- (b) Explain the super scalar operations with a neat diagram. (16)

14. (a) Give the structures of semiconductor RAM memories. (16)

Or

- (b) (i) Explain the direct mapping procedure for organization of cache memory. (8)
(ii) Write the principle of magnetic surface recording. (8)

15. (a) List out the three bus arbitration schemes. Explain any two with a diagram. (16)

Or

- (b) (i) Explain the design aspects of vectored interrupts. (10)
(ii) Compare CISC and RISC processors. (6)