



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, B.E. - Computer Science and Engineering

Semester End Examination; Dec - 2017/Jan - 2018

Computer Organization

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

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|---|----|--|---|
| 1 | a. | Briefly discuss Big-endian and Little-endian Assignments. Give example. | 5 |
| | b. | Explain different ways of Negative number representations. Give example. | 6 |
| | c. | Define addressing mode. Explain any four addressing modes. | 9 |
| 2 | a. | Explain the architectural connections between the processor and the memory. | 8 |
| | b. | Explain different types of instructions capable of performing various types of operations. | 8 |
| | c. | Using 5-bit representations, subtract the following numbers (-14) with (-8) using 2's complement method. | 4 |

UNIT - II

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|---|----|---|----|
| 3 | a. | Briefly discuss the working principle of the stack frame. | 10 |
| | b. | Explain different methods of vectored interrupt priority schemes. | 10 |
| 4 | a. | Give the general format of logical and arithmetic shift instructions. Explain with suitable examples. | 10 |
| | b. | Explain various types of parameter passing with example. | 10 |

UNIT - III

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|---|----|--|----|
| 5 | a. | With neat figure, explain single bus organization of the data path inside a processor. | 10 |
| | b. | What is bus arbitration? Explain the distributed arbitration scheme. | 10 |
| 6 | a. | Explain control unit organization. | 7 |
| | b. | Explain synchronous bus operation. | 7 |
| | c. | Write the control sequence for execution of the instruction ADD (R3), R1. | 6 |

UNIT - IV

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|---|----|---|----|
| 7 | a. | Briefly explain the internal organization of a 2 Mx8 dynamic memory chip. | 10 |
| | b. | With neat sketch, explain how the DMA controller registers that is accessed by the processor and use of DMA controllers in a computer system. | 10 |
| 8 | a. | Briefly discuss different types of ROM's. | 10 |
| | b. | Write a note on: i) Hit rate ii) Miss penalty. | 5 |
| | c. | Explain virtual memory address translation. | 5 |

UNIT - V

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|----|----|---|----|
| 9 | a. | Explain 4-bit carry-lookhead adder. | 8 |
| | b. | Explain different forms of IEEE standard for floating-point numbers. | 8 |
| | c. | Write an algorithm for nonstoring division. | 4 |
| 10 | a. | Briefly explain a logic circuit arrangement of restoring division also write an algorithm for the same. | 10 |
| | b. | Explain the bit-pair Recording of multipliers with a suitable example. | 10 |