



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

(An Autonomous Institution affiliated to VTU, Belgaum)

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

Semester End Examination; Dec - 2016/Jan - 2017

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. | Explain the various types of computers. | 5 |
| | b. Explain the three systems used for representing numbers with examples. | 5 |
| | c. Explain how performance is affected by technology and parallelism? | 6 |
| | d. Convert the decimal numbers 7 and 13 to 5 bit 2's complement numbers and perform addition. | 4 |
| 2 a. | Explain Big-endian and Little-endian methods with examples. | 5 |
| | b. Explain basic instruction types. | 5 |
| | c. What is an addressing mode? List and explain the various addressing modes. | 10 |

UNIT - II

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|------|---|----|
| 3 a. | What is subroutine nesting? Explain the role of processor stack while nesting. | 5 |
| | b. What is the basic technique of accessing an I/O device? What are its limitations? | 5 |
| | c. How multiple devices are handled in processing interrupts? Explain vectored interrupts in details. | 10 |
| 4 a. | Describe the interaction between assembly language and 'C' language. | 10 |
| | b. Explain various types of parameter passing with examples. | 10 |

UNIT - III

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| 5 a. | With a neat sketch, explain single bus organization of the data path inside a processor. Further, list and explain the generic operations performed during instruction executions. | 10 |
| | b. With neat sketches, explain hardwired control (Control unit, decoding-encoding logic). | 10 |
| 6 a. | What is bus arbitration? Explain simple arrangements for the same. | 5 |
| | b. Explain in detail PCI bus. | 10 |
| | c. Explain synchronous BUS operation. | 5 |

UNIT - IV

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|------|---|---|
| 7 a. | With a neat sketch, explain the organization of a 2m X 32 memory using 512 K x 8 static memory chips. | 6 |
| | b. Explain various forms of ROM. | 4 |
| | c. Write a note on DMA | 5 |
| | d. What is page replacement? With an example explain any one algorithm. | 5 |

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|------|---|----|
| 8 a. | Explain the three types of cache mapping. Give suitable examples. | 10 |
| b. | Explain hit rate and miss penalty. | 5 |
| c. | With a block diagram, explain virtual memory organizations. | 5 |

UNIT - V

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|-------|---|----|
| 9 a. | With diagram, explain binary addition/subtraction logic network. | 5 |
| b. | What is fast adder? Explain it's logic. | 5 |
| c. | Explain the process of multiplication of positive numbers with a registers configuration and an illustration. | 10 |
| 10 a. | What is bit-pair recoding of multiplier? Explain its benefit with an example. | 5 |
| b. | Write the circuit for a binary division. Illustrate how it works, taking an example. | 10 |
| c. | Explain single and double precision IEEE floating point presentations of numbers. | 5 |

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