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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. - 2015

Computer Organization

Time: 3 hrs

Max. Marks: 100

Note: i) Answer **FIVE** full questions, selecting at least **ONE** full question from each **unit**.

ii) Assume suitably missing data if required.

UNIT - I

- 1 a. Mention four types of operations to be performed by instructions in a computer. Explain with basic types of instruction formats to carry out $C \leftarrow [A] + [B]$. 8
- b. Explain shift instructions with example. 6
- c. Explain Big - Endian and Little - Endian assignments. 6
- 2 a. Explain the input and output operation with a neat diagram. 8
- b. Define addressing mode. Explain any five addressing modes with example. 12

UNIT - II

- 3 a. Define bus arbitration. Explain in detail any one approach of bus arbitration. 8
- b. What is an interrupt? Explain various methods for handling multiple interrupt requests. 12
- 4 a. With a neat diagram, explain in detail the input interface circuit. 10
- b. Describe how a read operation is performed on a PCI bus. 10

UNIT - III

- 5 a. With a neat diagram, explain the organization of bit cells in a memory chip. 8
- b. Explain; i) A static RAM cell ii) A dynamic memory cell. 6
- c. List and explain the different types of read only memories. 6
6. a. With a neat diagram, explain the translation of a virtual address to a physical address. 10
- b. Explain any two Cache mapping functions. 10

UNIT - IV

- 7 a. Explain Booth's algorithm. Apply Booth's algorithm to multiply the signed numbers +13 and -6 [5 bit representation]. 10
- b. Explain a 16 bit carry look ahead adder built from 4-bit adders. 10
- 8 a. Write the algorithm for restoring division. Given $A = 01000$ and $B = 00011$, perform A/B using restoring division algorithm. 12
- b. Explain the IEEE standard for floating point numbers. 8

UNIT - V

- 9 a. Explain the three bus organization with a neat diagram. 10
- b. Discuss the organization of hardwired control unit. 10
- 10 a. With a diagram, explain the memory organization of multiprocessors. 10
- b. What is a pipeline? Explain 4 stage pipelining. 10

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