



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

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, B.E. - Information 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

- 1 a. Explain the connection between the processor and memory of a computer with a neat diagram. 10
- b. Briefly explain conditional codes with example. 6
- c. Differentiate between CISC and RISC Instruction set. 4
- 2 a. With example, explain the following addressing nodes : 10
 - i) Register mode ii) Absolute mode iii) Immediate mode
 - iv) Indirect mode v) Index mode.
- b. Explain the following in brief : 10
 - i) Processor clock ii) Basic performance equation iii) Pipe lining
 - iv) Clock rate v) Spec rating.

UNIT - II

- 3 a. Explain I/O parallel interface for an input device with a diagram. 8
- b. Write a program that reads one line from keyboard, stores it in memory buffer and echoes it back to display. 8
- c. Mention the sequence of events involved in interrupt handling. 4
- 4 a. What is Bus Arbitration? Explain two Bus Arbitration methods. 12
- b. Explain all the available method to handle the interrupt requests from multiple devices. 8

UNIT - III

- 5 a. Explain internal organization of bit cells in a memory chip. 10
- b. Explain set associative cache mapping technique. 10
- 6 a. With a neat diagram, explain how virtual memory address is translated to physical memory address? 10
- b. Define the following terms with respect to cache memory : 10
 - i) Cache Hit/miss ii) Locality of reference iii) Dirty bit
 - iv) Write back v) Write through.

UNIT - IV

- 7 a. Explain the design of sequential binary multiplier. 10
b. Write an algorithm for performing restoring division and compute $10101 \div 101$. 10
- 8 a. Describe the hardware implementation of floating point addition-subtraction unit. 12
b. Perform 14×-7 using Booth's algorithm. 8

UNIT -V

- 9 a. Explain the hard-wired control unit organization. 10
b. Explain the process of fetching a word from memory with example. 10
- 10 a. Draw the flow chart for micro program of the instruction add src, rdst. 8
b. Show the three possible ways of implementing multiprocessor system with block diagram. 12

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