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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 - 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

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

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

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

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

Contd.....2

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

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 mutiplication 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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