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BMS College of Engineering, Bangalore-560019

(Autonomous Institute, Affiliated to VTU, Belgaum)

December 2015 Semester End Main Examinations

Course: Computer Organization & Architecture **Duration: 3 Hours**
Course Code: 15CS3DCCOA **Max Marks: 100**
Date: 17.12.2015

Instruction: Answer any five full questions choosing one from each unit.

UNIT-I

1.	a)	With a neat diagram, explain in detail the functional units of a Computer.	**10**
	b)	Explain the role of each of the parameters in the equation of a performance of a computer.	**03**
	c)	What is Subroutine linkage? Explain with an example, subroutine linkage using linkage register.	**07**

UNIT-II

2.	a)	Explain different ways of handling multiple devices using Interrupts.	**12**
	b)	Explain salient features of PCI bus.	**08**

OR

3.	a)	With a neat diagram explain parallel input port interface circuit.	**10**
	b)	Explain centralized and distributed bus arbitration techniques.	**10**

UNIT-III

4.	a)	With a neat schematic diagram, explain the design of a small memory chip consisting of 32 words of 8 bit each. Mark the address lines and data input/output lines.	**10**
	b)	With suitable block diagrams, discriminate the Direct-mapped cache from Set-associative-mapped cache, selecting suitable number of blocks and block frames.	**10**

OR

5.	a)	What is the need for Virtual memory? With a neat block diagram, explain the address translation mechanism of virtual memory.	**10**
	b)	With neat block diagram, explain the address distribution schemes used in addressing multiple-module memory systems. Mention the advantage of each scheme.	**10**

UNIT-IV

6.	a)	What are the advantages of Booth recoding? Perform the multiplication of 01100 X 11010 using Booth recording.	**08**
	b)	What are the advantages of carry-save adder? Perform the multiplication of 101101 X 111111 using carry-save addition and write the appropriate hardware circuit to perform the same.	**10**
	c)	Represent 0.021 in IEEE single floating point format.	**02**

UNIT-V

7.	a)	Using a Single Bus Architecure,Write & Explain the sequence of control steps required for ADD THE (IMMEDIATE) NUMBER NUM TO REGISTER R1.	**10**
	b)	Explain with block diagram the basic organization of a micro programmed Control unit.	**10**

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