U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

December 2018 / January 2019 Semester End Main Examinations

Programme: B.E.
Branch : INFORMATION SCIENCE AND ENGINEERING
Course Code: 15IS3DCCOE
Course Title: Computer Organization And Embedded Systems

Semester : III
Duration: 3 hrs.
Max Marks: 100
Date: 29.12.2018

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any may suitably assumed.

UNIT - I

1	a)	List and explain the basic steps needed to execute the machine instruction in terms of transfers between the components of processor, memory and control commands with an example and diagram.	**09**
	b)	Explain parameter passing using stacks with an example.	**05**
	c)	Describe Index and Indirect addressing modes with examples.	**06**

UNIT - II

2	a)	Illustrate the different ways of realizing a dual-ported register file with necessary diagrams	**05**
	b)	Discuss the organization of a CISC-style processor with the help of neat diagram.	**05**
	c)	To execute instructions, the processor must have some means of generating the control signals in the proper sequence. Discuss the hard wired approach used for generating the control signals, with block diagram.	**06**
	d)	List the sequence of actions needed to fetch and execute the instruction Add R3, R4, R5	**04**

UNIT - III

3	a)	Demonstrate the mapping of memory blocks using Direct mapped Cache.	**05**
	b)	Discuss the technique to translate virtual-memory address to physical address.	**09**
	c)	Explicate the need for enabling and disabling interrupts with an example scenario.	**06**

OR

4 a) Define bus arbitration. Discuss the process of bus arbitration with the help of neat diagram. **06**

b) Elucidate synchronous and asynchronous bus scheme for controlling data transfers on a bus with the help of neat timing diagrams. **08**

c) With the help of circuit discuss how the keyboard is connected to a processor. **06**

UNIT - IV

5 a) With an example explain the sequential circuit for binary division. **08**

b) Multiply the following pairs of signed 2's -complement numbers using the Booth algorithm and bit pair recording. Assume "A" as multiplicand and "B" as multiplier **06**

A=010111 and B=110110

c) Discuss the features of a 4-bit carry-lookahead adder with the help of neat diagram **06**

UNIT - V

6 a) With the help of block diagram discuss the organization of the microwave oven. **07**

b) Illustrate and explain the structure of all registers used in parallel interface along with the addresses assigned to them. **09**

c) Briefly discuss two applications to illustrate how sensors and actuators may be used. **04**

OR

7 a) Explain the structure of typical microcontroller chip with the help of neat diagram. **06**

b) Discuss any four examples of transducers and illustrate the basic principles used. **08**

c) Explain and discuss the organization of the digital camera. **06**

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