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BMS College of Engineering, Bengaluru-560019

(Autonomous Institute, Affiliated to VTU, Belgaum)

December 2015 Semester End Main Examinations

Course: Computer Organization And Embedded Systems **Duration: 3 Hours**

Course Code: 15IS3DCCOE **Max Marks: 100**

Date: 10.12.2015

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

UNIT-I

1. a) With the help of neat diagram, list and explain the steps needed to execute the Machine instructions **10**

LOAD R4, LOCA

ADD R4, R2,R3

b) Explain subroutine nesting through parameter passing with example. **10**

UNIT-II

2. a) Describe the design of a hardwired control unit. **10**

b) Illustrate the sequence of actions needed to fetch and execute the instruction given below using data path diagram. **10**

Load R5,X(R7)

UNIT-III

3. a) With an neat diagram describe an serial interface circuit. **10**

b) Illustrate how the keyboard and display devices are connected to the processor from the software point of view and explain the registers in the Keyboard and display interfaces. **10**

OR

4. a) Explain the basic structure of memory hierarchy and define the different types of locality. **10**

b) Explain the concept of page fault in virtual memory with an neat diagram. **10**

UNIT-IV

5. a) Multiply the following pairs of signed 2's complement numbers using **12**
(I) Booth algorithm (II) Bit-pair recoding of multipliers.
Assume A is the multiplicand and B is the multiplier.

(i) A=010111 , B=110110

(ii) A=110011 , B=101100

b) Explain Carry-Lookahead adder. Design 16-bit carry-look ahead adder from 4-bit adders. **08**

UNIT-V

6. a) Explain with an block diagram the microcontroller chip for embedded applications. **10**

b) Illustrate the processing and control capability of an digital camera. **10**

OR

7. a) Illustrate how sensors and actuators are used in the following applications: **10**
   i) Home heating control
   ii) Cruise control

b) Explain Serial Interface Registers of an simple microcontroller. **10**

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