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

(An Autonomous Institution affiliated to VTU, Belagavi)

Fourth Semester, B.E. - Electronics and Communication Engineering

Semester End Examination; May / June - 2019

Microprocessor and Microcontroller

Time: 3 hrs *Max. Marks: 100*

Note: *Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a. Explain the basic architecture of 8086 processor with neat block diagram. 10

b. Develop an assembly level program to arrange the block of data in descending order and store the largest number in memory location (0x3010). 10

2 a. Explain the different addressing modes available in 8086 processor with example. 10

b. Develop an assembly level program to add the block of 12 data and find the average of the 12 data and store in memory location (0x3020). 10

UNIT - II

3 a. Explain the following instructions with example :

i) BTC ii) SCAS iii) NEG

iv) AAM v) IDIV 10

b. Explain Pentium registers and Pentium memory management. 10

4 a. Develop an ALP to perform the arithmetic operations and store the sum, difference, product, remainder in separate memory locations. 10

b. Compare 8086 and 80386 processor with reference to their salient features. 10

UNIT - III

5 a. Explain basic architecture of 8051 with neat block diagram. 10

b. Differentiate the following :

i) RISC and CISC 10

ii) Harvard architecture and Von-Neumamn architecture

6 a. Explain the various addressing modes available in 8051 with example. 10

b. Differentiate Maskable and Non-Maskable interrupts. Also explain the interrupt structure in 8051 microcontroller. 10

UNIT - IV

7 a. What are interrupt vectors? Provide their RAM locations. Indicate the different priority assigned to various interrupts after reset. 10

b. Write an ALP in 8051 to implement BCD UP and DOWN counter and display the count on P_0 with appropriate delay between counts. 10

Contd…2

8 a. Explain the following with examples :

i) Incrementing and Decrementing operations

ii) Call and Subroutine

iii) Byte level logical operations and Bit level logical operations 10

b. Write an ALP that continuously get 8-bit data from P_0 and sent to P_1 while simultaneously creating a square wave of 200 μs period on P2.1. Use timer 0 to create a square wave. 10

UNIT - V

9 a. Explain step by step procedure to interface 4×4 matrices keypad with 8051 along with a relevant diagram. 10

b. Write an ALP to display "ECE-2018" on LCD display and show the interfacing circuit with functional pins of LCD. 10

10 a. Explain how D/A converter are interfaced to 8051 architecture? 10

b. Explain serial communication registers with their function with respect to 8051 microcontroller. 10

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