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

(An Autonomous Institution affiliated to VTU, Belagavi)

Fourth Semester, B.E. - Information Science and Engineering

Semester End Examination; May/June - 2019

Microprocessor

Time: 3 hrs *Max. Marks: 100*

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

UNIT - I

1 a. What is a Microprocessor? With example, explain the different addressing modes of the 8086 microprocessor. 12

b. Discuss the flag registers used in 8086 microprocessor. 8

2 a. Identify the addressing mode of the following instructions :

i) MOV AX, [SI] ii) MOV AX, BX iii) IN AL, DX

iv) MOV AL, 123H v) ADD AX, DX vi) PUSH BX 6

b. List different 8086 instruction formats. 4

c. Give the brief explanations of different categories of registers present in 8086 with the special functions performed by each registers. 10

UNIT - II

3 a. Explain the following instructions :

i) LEA ii) XCHG iii) DAA

iv) LDS v) MUL vi) XLAT 12

b. Explain stack related instructions of 8086. 4

c. Explain any four conditional branch instructions with example 4

4 a. Explain Shift and Rotate instructions in 8086 processor. 10

b. What is an assembler directive? Explain any four assembler directives. 10

UNIT - III

5 a. With a neat sketch, brief out the steps involved in creating assembly language program. 10

b. Distinguish between NEAR procedure and FAR procedure with example. 6

c. Explain EXTRN and PUBLIC. 4

6 a. Write an assembly language program to read *n* integers and sort them in ascending order using bubble sort. 10

b. Develop assembly language macro stored in two different files;

i) One macro (module) is to read character from the keyboard

ii) To display a character (from different file) 10

iii) Use the above two macros to read a string of characters from the keyboard terminated by the carriage return and print the string on the display in the next line

Contd…2

UNIT - IV

7 a. Explain different types of REP instructions of 8086 microprocessor. 6

b. Explain the working of CMPSB instruction with an example. 6

c. Write a program to check whether the given string is palindrome or not. 8

8 a. Write a program to find the total number of occurrence of character 'E' in a given string. 10

b. Differentiate between programmed I/O and interrupt I/O. 10

UNIT - V

9 a. Explain the following pins in 8086 :

i) $MN / \overline{MX}$ ii) $DT / \overline{R}$ iii) NMI 10

iv) READY v) QS_0 and QS_1

b. Explain the working of 8086 processor in minimum mode. 10

10 a. With a neat diagram, explain the working of 8259 interrupt controller. 10

b. Draw and explain timing diagram of write operation of 8086 processor. 6

c. Discuss the functions of $\overline{S_0}, \overline{S_1}, \overline{S_2}$ pin in 8086 microprocessor. 4

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