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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belgaum)
Fourth Semester, B.E. - Computer Science and Engineering
Semester End Examination; June - 2016
Microprocessor

Time: 3 hrs   *Max. Marks: 100*

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

UNIT - I

1. a. What is segmentation? What is the need for segmentation for 8086 processor? Explain the procedure to complete physical address with respect to segment address offset address and registers. Compute the physical address given DS = 1000 h, SS = 2000 h, CS = 8080 h, BX = 1123 h, IP = 100 h, SP = 4000 h.   10

   b. What is addressing mode? Explain the various addressing modes of 8086 processor.   10

2. a. Illustrate with an example pipelining in 8086 processor.   10

   b. Differentiate between bus interface unit and execution unit of 8086 processor.   4

   c. Write the machine code for the following and also write the meaning of S and W bit.
      i) MOV AX, CX   ii) MOV [SI], BX   6

UNIT - II

3. a. Write an assembly program to find largest of four integers (do not use array).   10

   b. Define pseudo instruction and explain any four pseudo instructions.   10

4. a. Write an assembly language program to separate an array of integers (positive, negative, zeroes) into positive array having only positive integers, negative array having only negative integers. Also count the number of positive numbers, zeroes and negative numbers.   10

   b. Explain the stack related instructions of 8086 processor.   10

UNIT - III

5. a. Explain the need for interrupt vector table with a neat diagram.   6

   b. Write a program having recursive procedure to find factorial of an integer.   8

   c. Explain PUBLIC and EXTRN with an example in brief.   6

6. a. List the signals involved in interrupt call and also the steps for executing an interrupt call.   8

   b. Differentiate between procedures and macros.   6

   c. Write a recursive procedure to compute nCr.   6

UNIT - IV

7. a. Explain with diagram programmed I/O transfer.   10

   b. Illustrate the working of following instructions with example :
      i) REPE   ii) SCASB   10

8 a. Write an interrupt routine for inputting a line of characters.   10

  b. Write an assembly language program to read a string of uppercase and lowercase characters and reverse the case of each character.

           10

Example:	JayaCHamaRaJendra	-	Input
	jAYAchAMArAjENDRA	-	output

UNIT - V

9 a. Explain the function of following pins:

     i) $MN\,|\overline{MX}$ ii) $\overline{INTA}$ iii) HOLD   10

     iv) CLK   v) READY

  b. Draw the 8086 minimum mode configuration and explain.   10

10a. What is the significance of control word register of 8259A? Explain in detail.   10

  b. Explain ICW's with the flowchart for masking interrupt request.   10

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