



**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/July - 2015**  
**Microprocessor**

*Time: 3 hrs*

*Max. Marks: 100*

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

**UNIT - I**

- 1 a. Explain with figure the architecture of 8086 processor. 12
- b. Explain the following addressing mode with an example.
- i. Immediate addressing mode
- ii. Direct addressing mode 8
- iii. Indirect addressing mode
- iv. Relative based indexed addressing mode
- 2 a. Explain with an example instruction format. Obtain the machine code for the following instructions. 12
- i. MOV AL, BL
- ii. ADD CX, DX
- b. Assume 5MHz clock and determine the execution time of an instruction which uses base indexed addressing to add the word content of word in memory and AX register and puts the result in AX. First assume that the word has even address and then assume it has odd address. 5
- c. With an example explain physical address calculation. 3

**UNIT - II**

- 3 a. Explain the following instructions with an example.
- i. ADD
- ii. JMP 10
- iii. JNZ
- iv. DAA
- v. IMUL
- b. Write a program to add array of N word data. 10
- 4 a. Explain with an example structures and records. 10
- b. Explain the following directives with an example.
- i. EVEN
- ii. ORG
- iii. SEGMENT 10
- iv. PRIVATE
- v. LENGTH

**UNIT - III**

- 5 a. Write a recursive program to find NCR. 10  
b. Define Interrupt. List the different types of Interrupts available in 8086. What are the steps taken by the processor when interrupt occurs? 10
- 6 a. How Labels are handled in MACRO? Explain with an example. 10  
b. Write two modules to accept a character and to display a character. Using the above modules write a program to accept and display N characters. 10

**UNIT - IV**

- 7 a. Write a program to count the VOWELS in a given string. 10  
b. With figure explain programmed I/O. 10
- 8 a. Explain the following instructions with an example. 10  
i. XLAT  
ii. SCAS  
iii. MOVS  
iv. CMPS  
v. REP
- b. Explain with figure DMA transfer. 10

**UNIT - V**

- 9 a. Explain the function of the following PINS. 10  
i. ALE  
ii. NMI  
iii. M/IO  
iv. HOLD  
v. INTR
- b. With timing diagram explain write operation of 8086 working in minimum mode. 10
- 10a. With block diagram explain the working of 8259A. 10  
b. Explain system bus standards. 10

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