



VIT

Vellore Institute of Technology

Final Assessment Test – April 2018

Course: CSE2006 - Microprocessor and Interfacing

Class NBR(s): 3448 / 3471 / 3473 / 3476 / 3478 / 3482 /
3485 / 3486 / 4329

Time: Three Hours

Slot: B1

Max. Marks: 100

PART – A (8 X 5 = 40 Marks)

Answer ALL Questions

1. Illustrate the various advantages of 8086 architecture. *More no. of registers, powerful instruction set, high speed, high memory addressing capability,*
2. Categorize the addressing modes in 8086 according to type of instruction, execution with an example for each. *Sequential Transfer Instructions, Control Transfer Instructions*
3. Write a program to multiply the two ASCII values in CH and CL and leave the ASCII result in AH and AL. Determine the contents of AX if CX = 3639H.
4. Illustrate the need for Interrupt Vector Table (IVT) in 8086. Explain the address calculation for a random interrupt INT n.
5. Explain how 8255 supports various modes of data transfer techniques to handle IO devices with a neat block diagram.
6. Justify how 8253 combines hardware and software approach for precise delay generation with an example. *Mode 0 & Mode 4*
7. Explain various serial data transmission modes. Give the frame format for asynchronous data transfer mode. *Simplex, Half Duplex, Duplex.*
8. Categorize the 8087 instruction set and list out the instructions for transcendental functions. *Data Transfer, Arithmetic, Compare, Transcendental, Load Constant, Processor Control.*

PART – B (6 X 10 = 60 Marks)

Answer any SIX Questions

9. Discuss how 8086 operates in minimum mode with necessary functional diagram and timing diagram.
10. Write an ALP to arrange given series of hexadecimal bytes in an ascending order.
11. Illustrate various programming control structures with a real time example for each. *Trigonometric & Exponential*
(Give Pseudo-code, flowchart and assembly code) *ATAN, EXPM1, MYEXP*
12. Draw and Discuss the internal architecture of coprocessor 8087.
13. Discuss in detail the need for programmable Interrupt controller 8259 with necessary block diagram and initialization command words.
14. Design the hardware interface circuit for interfacing 8251 with 8086.
Write an ALP to transmit 100 bytes of data string starting at location 2000:5000H by setting the 8251A in asynchronous mode as a transmitter and receiver with even parity enabled, 1 Stop bit, 5-bit Character length, frequency 160 KHz and baud rate 10K.
15. Explain 8255 control word format in detail.
Derive the control word to initialize the 8255 for the following specifications:
 - a) Port B as an input port in mode-1
 - b) Port A as an output port in mode-0
 - c) Port C upper as an input port
 - d) Port C bit 3 as output

✓ 16. Explain your CAL 'J' project in the following aspects:

- ✓ a) Objectives with social Impact
- ✓ b) List of optimal number of components used
- ✓ c) Use of any on-chip peripherals in MCU
- ✓ d) Block and Interface diagram
- ✓ e) Software logic by flow chart
- ✓ f) Cost – Power – Time – Space effectiveness

