F/E/TY

Reg. No:

VIT
Vellore Institute of Technology

Final Assessment Test - April 2025

Course: CSI2006 - Microprocessor and Interfacing Techniques
Class NBR(s): 4183 / 4189 / 4200 / 4205 Slot: F1
Time: Three Hours Max. Marks: 100

- KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
- DON'T WRITE ANYTHING ON THE QUESTION PAPER

Answer ALL Questions
(10 X 10 = 100 Marks)

1. a) What is pipelining architecture of a microprocessor, Explain with respect to 8086 microprocessor architecture?

   b) A program pushes three values (AX = 1234H, BX = 5678H, CX = 9ABCH) onto the stack. After some operations, it pops the values back. What will be the final values in AX, BX, and CX after popping?

2. Write an Intel 8086 ALP to find out the count of odd and even numbers from a given series of 16 bit hexadecimal numbers.

3. Explain interrupt related service routines with interrupt vector table. Calculate CS: IP for interrupt "OVERFLOW interrupt" and TYPE-64.

4. a) Define Stack memory, Stack pointer and Stack Top Address using PUSH instruction in 8086.

   b) Show the status of general purpose register, stack memory and stack pointer after execution of each instruction of following ALP using Stack Memory bank diagram. Assume SS = 5000H and SP = 20FFH.

```
MOV AX , 2025 H
MOV BX, 1992  H
MOV CX, 37D5 H
PUSH BX
PUSH CX
POP AX
ADD AX, BX
PUSH AX
HLT
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5. Design an interface between 8086 microprocessor and two chips 4k X 8 EPROM and two chips 4k X 8 RAM. Select the starting address of the EPROM and RAM suitably. Tabulate the address range of EPROM and RAM.

6.(a) Design a system in which a stepper motor is connected to 8086 via 8255 and explain its working with a block diagram. Describe how interfacing is carried out and explain it with the 8086 ALP program, flowchart and algorithm.

OR

6.(b) Design a system in which DAC using 0800 is connected to 8086 via 8255 and explain its working with a block diagram. Describe how interfacing is carried out and explain it with the 8086 ALP program, flowchart and algorithm.

7. Explain the role of priority interrupt controller using the 8259 Programmable Interrupt Controller.

8. Draw a block diagram of the 8251 USART chip, and explain all major components, their functions and its applications.

9.(a) Explain the architecture of the 8087 numeric processor with a neat diagram.

OR

9.(b) Draw the format of Control Word Register in the 8087 processor and explain the flags in it.

10. Draw an interface of 8 LEDs with 8051 port 0 and write an assembly language program to, flash all the LEDs ON and OFF for 1 second each.

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