Register No.: .... Name: ....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)
FIFTH SEMESTER B.TECH DEGREE EXAMINATION (S), FEBRUARY 2023
COMPUTER SCIENCE AND ENGINEERING
(2020 SCHEME)

Course Code :　　20CST307

Course Name:　　**Microprocessors and Microcontrollers**

Max. Marks　:　　**100**　　　　　　　　　　　　　　　　**Duration: 3 Hours**

PART A
(Answer all questions. Each question carries 3 marks)

1. Explain the following signals in 8086.
   i) HOLD ii)HLDA iii)DEN
2. Explain the procedure for generating physical address corresponds to the segment address 1055H and offset address 5555H.
3. Describe the use of following 8086 instructions: PUSH, POP, and PUSHF.
4. Show how will zero flag and sign flag reflects the result of the instruction **CMP BX, CX.**
5. Explain the use of Stack in 8086.
6. Explain how the INT n instruction finds the starting address of its interrupt service routine in IVT.
7. Explain the features of 8257 DMA controller.
8. What are the registers available in DMA controller? Mention its use.
9. List the IO ports available in 8051.
10. Write the sequence of 8051 instructions to store any two numbers at two consecutive locations 50H and 51H, multiply them and store the result in location 52H.

PART B
(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. a) Draw the architecture of 8085 and describe the functions of each block. (9)
    b) How does the 8086 processor access a word from an odd memory location? How many memory cycles does it take? (5)

OR

12. a) Explain the following (9)
    (a) Segment Register
    (b) Pointer and Index Register
    (c) Flag Register of 8086
    b) With a neat diagram describe how 8086 memory is organized. (5)

MODULE II

13. a) Write an 8086-assembly language program to find the count of even and odd numbers from a set of 10 sixteen-bit numbers. (9)

    b) List any five differences between 8086 and 8088 microprocessors. (5)

OR

14. a) Describe the addressing modes of 8086 in detail with examples. (9)

    b) What are assembler directives? List any four assembler directives and its usage. (5)

MODULE III

15. a) Explain interrupt cycle of 8086. (7)

    b) Explain the stack structure of 8086. (7)

OR

16. a) Draw and explain the internal architecture of 8259. (9)

    b) Explain types of Interrupts and Interrupt Service Routine in 8086. (5)

MODULE IV

17. a) Explain the architecture of 8255 with a neat diagram. (9)

    b) Give the purposes of the signals DRQ, TC and MARK in 8257? (5)

OR

18. a) Write a note on Programmable Interval Timer. (7)

    b) Explain different modes of operation of 8255 PPI. (7)

MODULE V

19. a) Write a note on interrupts of 8051. (7)

    b) What are the Special Purpose Registers of 8051? (7)

OR

20. a) Explain the architecture of 8051 microcontroller. (8)

    b) Explain addressing modes of 8051 microcontroller. (6)

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