

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.**  
**(For candidates admitted during the academic year 2019-2020 and thereafter)**

**B.Sc. DEGREE EXAMINATION NOVEMBER 2023**  
**BRANCH III – PHYSICS**

**FIFTH SEMESTER**

**COURSE : MAJOR – CORE**  
**PAPER : MICROPROCESSORS AND MICROCONTROLLERS**  
**SUBJECT CODE : 19PH/MC/MM53**  
**TIME : 3 HOURS** **MAX. MARKS :100**

**SECTION – A**

**ANSWER ALL QUESTIONS: 25 MARKS**  
**I. CHOOSE THE CORRECT ANSWER: (10 X 1 = 10)**

1. In 8085 microprocessor which bus is bidirectional  
(i) Address bus      (ii) Data bus      (iii) Control bus      (iv) None of the above
2. Which bit position is assigned for sign flag in the flag register.  
(i) D<sub>2</sub>                  (ii) D<sub>4</sub>                  (iii) D<sub>7</sub>                  (iv) D<sub>0</sub>
3. The instruction ANI F0<sub>H</sub> belongs to which type of instruction  
(i) data transfer      (ii) logic              (iii) arithmetic      (iv) branching
4. Which instruction is an example of direct addressing mode.  
(i) STA 8052H      (ii) MVI A,3EH      (iii) HLT              (iv) MOVC,B
5. Which instruction is used to clear the accumulator  
(i) XRA A              (ii) MOV B,C      (iii) LXI H,8020H      (iv) CMA
6. Which flag is affected when the instruction MVI A,00H is executed  
(i) Sign flag          (ii) Carry flag      (iii) Zero flag          (iv) None of the above
7. Which of the following is a Vectored interrupt.  
(i) TRAP              (ii) RST 7              (iii) INTR              (iv) RST 2
8. In designing an input port the control signal generated are  
(i) I/O read          (ii) I/O write          (iii) I/O read and I/O write      (iv) ALE
9. How many ports are available in 8051 microcontroller  
(i) 4                      (ii) 8                      (iii) 16                      (iv) 2
10. In the strobed input or output mode, the data is loaded or unloaded using \_\_\_\_\_.  
(i). external strobe      (ii). hardware      (iii). control signal      (iv) none

**FILL IN THE BLANKS: (5 X 1 = 5)**

11. \_\_\_\_\_ and \_\_\_\_\_ instructions are used in Stack related operation .
12. \_\_\_\_\_ is defined as one subdivision of the operation performed in one clock period.
13. In 8085 , Multiplication is accomplished by repeated \_\_\_\_\_ operation.
14. \_\_\_\_\_ is a non-maskable interrupt.
15. In PPI 8255A the bit set and reset feature is available for port \_\_\_\_\_.

**ANSWER BRIEFLY:****(5 X 2 = 10)**

16. Explain with a diagram the control word format for 8255A?
17. Define machine cycle and Instruction cycle.
18. Mention some arithmetic instructions which does not affect the flags.
- 19.. Differentiate between hardware and software interrupt.
20. State the differences between microcontroller and embedded system.

**SECTION - B****ANSWER ANY FIVE QUESTIONS :****(5 X 6 = 30)**

21. Explain the various registers available in 8085 microprocessor
22. Explain the different addressing modes of 8085 microprocessor. Give examples.
23. Write an assembly language program to find the square root of a number.
24. What is an interrupt? What do you understand by the term masking, Interrupt vector and priorities
25. Discuss the applications of Embedded systems.
26. Illuminate the differences between Direct I/O and Memory mapped I/O.
27. Explain the different rotate instructions in 8085.

**SECTION – C****ANSWER ANY THREE QUESTIONS:****(3 X 15 = 45)**

28. Describe in detail the architecture of 8085 microprocessor with a neat diagram.
29. Explain the different data transfer instructions available in 8085 microprocessor
30. Write an assembly language program to arrange an array of numbers in ascending order and descending order.
31. Explain the interfacing of an input port using 8085 microprocessor.
32. Discuss the Architecture of 8051 microcontroller with a neat diagram.

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