

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.
(For candidates admitted during the academic year 2019-2020& thereafter)
B.Sc. DEGREE EXAMINATION NOVEMBER 2021
BRANCH III - PHYSICS
FIFTH SEMESTER (ONLINE EXAMINATION)

COURSE : MAJOR – CORE

PAPER : MICROPROCESSORS AND MICROCONTROLLERS

SUBJECT CODE :19PH/MC/MM53

TIME : 3 HRS

MAX. MARKS :100

SECTION A (34 marks)

Answer all the questions:

Choose the right option: (1 mark each)

1. A group of 16 bits is called (Identify all the right options)
 - a. Word
 - b. Byte
 - c. Nibble
 - d. Double byte
2. What is the memory capacity of 8085 microprocessor?
 - a. 8KB b. 16KB c. 32KB. d. 64KB
3. Which is not a 16 bit data manipulation instruction
 - a. INX H
 - b. INR M
 - c. LDAX H
 - d. LHLD addr
4. Multiplying 100H and 04H yields
 - a. 1024 b. 104 c. 256. D. 1004
5. For I/O read operation which status lines go low_____
 - a. S0 and RD bar
 - b. S1 and WR bar
 - c. S0 and WR bar
 - d. S1 and RD bar
6. An instruction best suited to initialise the memory pointer is _____
 - a. LHLD addr
 - b. LXIH addr
 - c. LDA addr
 - d. LDAX reg pair
7. Pending interrupts are serviced using_____instruction.
 - a. EI
 - b. RIM
 - c. INTR
 - d. SIM

8. Which of the following is a non-programmable I/O port
- a. 8255A
 - b. 8212
 - c. 74157
 - d. 7476

Fill in the blanks: (1 mark each)

9. The register which holds the information about the nature of results of arithmetic or logic operations is called as _____.
10. In 8085 number of maskable interrupts are _____.
11. The type of stack basis applied in 8085 _____.
12. If Accumulator in 8085 contains 74 H, its content after executing the instruction ANI 0FH will be _____.
13. In microcontroller 8051 the memory space available for ROM is _____.

Answer briefly: (3 marks each)

14. How do you increment the contents of the memory locations whose address is stored in HL?
15. Give the advantage of address multiplexing.
16. Why is accumulator called a special purpose register?
17. What is an I/O port?
18. Give any three applications of microcontrollers.
19. Explain the role of INTA line in 8085.
20. Enumerate the four primary operations of microprocessors.

SECTION –B

Answer any FOUR of the following:

(4 X 9 = 36 marks)

21. Assuming that the 8255A has been interfaced to the 8085 so that port address 03H will select the chip and pulse A0 and A1 inputs high. Now suppose that the following configuration is desired:

Port A strobed o/p (mode 1) Port B simple I/P (mode 0), Port C (lower) simple O/P (mode 0) Port C (PC4 - PC5) simple I/P (mode 0)

Establish the control word and initialise the PPI 8255 with necessary instructions.

22. What is a microcontroller? How is a microcontroller different from a microprocessor?
23. What are flags? Draw the bit position and discuss the various types of flags available in $\mu P8085$.
24. Write an ALP to find the square root of a number which is placed in a memory location and use Register indirect mode to fetch the same.
25. Explain the hardware interrupts available in $\mu P8085$ and explain its priorities.

SECTION –C

Answer any ONE of the following:

(1 X 30 = 30 marks)

26. a. Discuss in detail the μP initiated operations and the BUS organisation of $\mu P8085$.
(15 marks)
- b. Explain the methodology used in sorting an array of 10 numbers stored in memory locations and Write an ALP to sort them in descending order.
(15 marks)
27. a. Explain in detail the various Load instructions available in $\mu P8085$. (15 marks)
- b. Bring out the important features of 8255 PPI chip? Explain the mode 0 operation of 8255 with suitable examples. (15 marks)