

(6 pages)

Reg. No. :

Code No. : 8380

Sub. Code : HPHM 23

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2014.

Second Semester

Physics

MICROPROCESSOR AND MICROCONTROLLERS

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following instruction is not affects the direction flag?
(a) CLD (b) POPF
(c) STD (d) CLC
2. INTEL 8086 is the first _____ bit processor.
(a) 8 (b) 16
(c) 32 (d) 64

3. SUB M instruction in 8085 uses _____ addressing mode.
(a) Immediate (b) Register indirect
(c) Direct (d) Implied
4. PUSH and POP instructions are associated with the _____.
(a) Stack (b) Programme counter
(c) I/O device (d) Interrupt
5. Which of the following ICWs is used for master configuration of 8259?
(a) ICW1 (b) ICW2
(c) ICW3 (d) ICW4
6. How many clock cycles are used 8257 to transfer a byte of data?
(a) 4 (b) 10
(c) 6 (d) 8

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7. Which of the following is a volatile semiconductor memory?
- (a) PROM (b) NVRAM
(c) DRAM (d) ROM
8. The 8051 has _____ 8 bit bidirectional I/O ports.
- (a) 2 (b) 4
(c) 6 (d) 8
9. Key debouncing means
- (a) Key being pressed for a long time
(b) Momentary bounce before steady state reading
(c) Both (a) and (b)
(d) None of the above
10. XRA A is used to
- (a) Set the flags
(b) Set the accumulator
(c) Reset the accumulator
(d) None of the above

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the functions of :

- (i) HLDA
(ii) ALE
(iii) INTR.

Or

- (b) Explain the functions of control signals in 8085.

12. (a) Explain the instruction format of 8085 microprocessor with an example.

Or

- (b) What is subroutine? How is it useful? Explain the use of stack in CALL and RET instructions.

13. (a) Explain the functional behaviour of a DMA data transfer.

Or

- (b) Explain the interrupt mode of 8212.



14. (a) Explain the interrupt acknowledgement cycle of 8086.

Or

- (b) Discuss the important features of 8051. What is its area of applications?

15. (a) Describe interfacing of seven-segment display with its decoder to a microprocessor.

Or

- (b) Discuss a microprocessor based technique to measure resistance.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the internal architecture of 8086.

Or

- (b) Explain the evolution of microprocessors.

17. (a) With examples explain the different type of instructions in 8085.

Or

- (b) Write a program to arrange 8 bytes of data in ascending order.

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18. (a) With block diagram explain four different functional blocks of 8253.

Or

- (b) Explain the interfacing of 8259 with 8085 in I/O mapped I/O method.

19. (a) Explain the internal architecture of 8051.

Or

- (b) With examples explain different types of operations in 8051.

20. (a) Discuss how to measure, display and control speed of a using a microprocessor based system.

Or

- (b) Discuss a microprocessor based scheme to measure and display frequency.

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