

(6 pages)

Reg. No. : .....

Code No. : 6380

Sub. Code : HPHM 23

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2016.

Second Semester

Physics

MICROPROCESSOR AND MICROCONTROLLER

(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. The Memory addresses assigned to a memory chip in a system are called
  - (a) Memory flag
  - (b) Memory map
  - (c) Memory data
  - (d) Memory bus
2. In general, decoders have active low output line as well as
  - (a) Disable lines
  - (b) Input lines
  - (c) Enable lines
  - (d) Binary lines

3. In a 8 bit processor systems, the commonly used code is,
  - (a) Binary code
  - (b) ASCII code
  - (c) Op code
  - (d) Numeric code
4. The starting memory location of the stack is defined in the main program and the space is
  - (a) Unreserved
  - (b) Reserved
  - (c) Frequently used
  - (d) Undefined
5. In 8255 ports A, B, C and the control register port are addressed by
  - (a)  $A_1 - A_2$  Pins
  - (b)  $A_0$  only
  - (c)  $A_0 - A_1$  Pins
  - (d)  $A_2 - A_1$  Pins
6. The Signal M/I/O in 8255 will be inverted before connecting to the
  - (a) Coder
  - (b) De-coder
  - (c) Data bus
  - (d) Control bias
7. The Addressing mode in the 8086, clearly specify the location of, \_\_\_\_\_
  - (a) Address
  - (b) Operand
  - (c) Memory
  - (d) Instruction

Page 2

Code No. : 6380





8. The 8051 can access, \_\_\_\_\_ KB of the external data memory.
- (a) 46 (b) 64  
(c) 66 (d) 62
9. The 7 — Segment LED displays are connected through the,
- (a) Buffers (b) Ground  
(c) Cathode (d) Anode
10. The instruction \_\_\_\_\_ has been used at the end of the program to repeat the whole process to generate square wave
- (a) JCP LOOP (b) JNZ BACK  
(c) JMP LOOP (d) JNP LOOP

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 bus system of 8085.
- Or
- (b) Explain the pin description for maximum mode in 8086.

Page 3 Code No. : 6380

12. (a) Discuss the timing diagram for instruction DCX D in 8085.

Or

- (b) Explain the different logic instructions of 8085 with example.
13. (a) Explain how you use I/O mapped I/O scheme for the allocation of address with example.

Or

- (b) Explain the working of DMA controller.
14. (a) Discuss the various interrupts available in 8051.

Or

- (b) Write a program to find the sum of N numbers using 8051 microcontroller.
15. (a) Explain how a DC motor speed can be controlled using microprocessor.

Or

- (b) Discuss how digital clock can be realized using microprocessor.

Page 4 Code No. : 6380

[P.T.O.]





PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss about the flag structures in 8085.

Or

- (b) Explain the operation of 8086 with its registers and interrupts.

17. (a) Discuss the addressing modes and instruction data flow of 8085.

Or

- (b) Write an assembly language program to separate odd and even numbers from an array of N numbers. Also, store the odd and even numbers in two separate memory blocks.

18. (a) Explain how the address, data and control buses are developed for memory interface.

Or

- (b) With schematic diagram of Intel 8259 explain how it is used as PIC and the interfacing of 8259 with I/O devices.

19. (a) Explain each block in the internal architecture of 8051 with block diagram.

Or

- (b) Explain the data transfer, logical and arithmetic operations of 8051.

20. (a) Describe how four 7 segment displays can be interfaced to 8085 using multiplexing technique.

Or

- (b) Explain with block diagrams and programs how frequency and resistance measurements can be made using a processor.

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