(6 pages) **Reg. No. :** .....

Code No. : 8535 **Sub. Code : HPHM 23**

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2013.

Second Semester

Physics

MICROPROCESSORS AND MICRO CONTROLLERS

(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. How many T states are there acknowledge cycle in 8086.

   (a) 4 (b) 8

   (c) 12 (d) 16

2. First personal computer was invented by

   (a) IBM (b) Microsoft

   (c) Zilog (d) Apple

3. The JMP instruction uses ———— byte instruction.

   (a) 0 byte (b) 1 byte

   (c) 2 byte (d) 3 byte

4. 8085 enters in to a wait state after the recongnition of

   (a) HOLD (b) READY

   (c) RESET (d) INTR

5. The 8253 is a ———— chip.

   (a) Programmable interval timer

   (b) Programmable interrupt controller

   (c) Programmable peripheral interface

   (d) USART

6. 8259 chip is also known as

   (a) PIC (b) PPI

   (c) PIT (d) USART

7. Which flags of 8086 are not present in 8085?

   (a) OF (b) DF

   (c) 2TF (d) All of these

8. In 8086 how many flags are used to control the processor operation.

(a) Nine (b) Six

(c) Three (d) Five

9. Instruction DAA means

(a) Decimal add accumulator

(b) Decimal adjust accumulator

(c) Double adjust accumulator

(d) None of the above

10. Total delay is given by

(a) Time to execute instruction outside loop

(b) Time to execute loop instructions

(c) Both (a) and (b)

(d) None of the above

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the functions of flag, program counter and stack pointer in 8085 microprocessor.

Or

(b) Explain the various interrupts of 8086.

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

Or

(b) Explain what operation is performed when the following instruction is executed.

(i) DAD

(ii) RAR

(iii) XHTL

(iv) RPE

13. (a) Explain the interfacing of 8253 with 8085 in I/O mapped I/O.

Or

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

14. (a) What are the operations performed by data transfer instructions in 8051.

Or

(b) How 20-bit physical address is computed in 8086?

15. (a) Describe interfacing of 7-segment display with its decoder to a microprocessor?

Or

(b) Explain the formation of codes for alphanumeric character.

PART C — (5 × 8 = 40 marks)

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

16. (a) Explain the evolution of microprocessors.

Or

(b) Draw the pin diagram of 8085 and explain their functions.

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

Or

(b) Using timing diagram explain the memory read operation in 8085.

18. (a) Explain the timing diagram of DMA cycle.

Or

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

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

Or

(b) What is addressing mode? With examples explain various addressing modes in 8086.

20. (a) Explain a microprocessor based technique to measure and control temperature.

Or

(b) Write a programme to generate square wave of pulse width 1 ms and space width 0.5 ms. Also, explains the method to calculate delay time.

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