



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – PHYSICS

SECOND SEMESTER – NOVEMBER 2016

PH 2810 - MICROPROCESSOR & MICRO CONTROLLERS

Date: 05-11-2016
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

Part – A

Answer ALL Questions.

(10x2=20)

1. “The starting physical address of any segment is divisible by 16d” – Justify.
2. Write a note on the queue of μP8088 .
3. Explain the role of the ‘W’ bit and the ‘V’ bits of μP8086 instructions.
4. Develop a program segment for μP8086 to fill a word array ARY with 5005H.
5. Develop a program for μP8086 to find the number of 1s in the number in AX.
6. Write a note on the DT/\bar{R} signal of μP8086 .
7. Define a macro which stores in BL the factorial of a number in AL.
8. State the differences between the LOOP and LOOPE instructions.
9. Write a note on the ports of μC8051 .
10. Explain the role of the TR and TF flags of μC8051 .

Part – B

Answer any FOUR.

(4x7.5=30)

11. Explain the various shift and rotate instructions available in μP8086 .
12. Develop an ASM program for μP8086 to generate the first ten elements of the Fibonacci series and to store them in a byte array ARY. Assume the first two elements to be 0 and 1.
13. Develop an ASM program for μP8086 to capitalize an array of upper and lower case alphabets.
14. With a block diagram discuss bus buffering and latching in μP8086 operated in minimum mode.
15. With an example each, explain the various modes of addressing data in μC8051 .
16. Discuss in detail the SFRs of μC8051 .

Part – C

Answer any FOUR.

(4x12.5=50)

17. Write detailed notes on all the string manipulating instructions of μP8086 .
18. Develop an ASM program for μP8086 to solve $a = \sqrt{b} + \sqrt{c} - \sqrt{d}$, by defining a procedure for square root. Use relative indexed mode of addressing for data.
19. Develop an ASM program for μP8086 to sort a byte array in ascending order.
20. With a block diagram discuss bus buffering and latching in μP8086 operated in maximum mode.
21. Develop an interface and an ASM program for μC8051 to make LEDs toggle 5 times a second using timer0 interrupt. The crystal frequency is 1.2 MHz.
22. Develop an interface and an ASM program for μC8051 to implement data acquisition using an 8 bit A/D converter using an external interrupt for EOC.
