



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION - PHYSICS

SECOND SEMESTER – NOVEMBER 2013

PH 2810 - MICROPROCESSOR & MICRO CONTROLLERS

Date : 06/11/2013
Time : 1:00 - 4:00

Dept. No.

Max. : 100 Marks

Part – A

Answer ALL Questions:

(10x2=20)

1. Write a note on the status flags of $\mu P8086$.
2. Write a note on any two one bit indicators in the instructions of $\mu P8088$.
3. Develop a program segment for $\mu P8086$ to complement the content of a memory location with offset 100h with respect to SS.
4. Develop a program for $\mu P8086$ to convert a 2 digit packed BCD number to unpacked format.
5. Develop a program for $\mu P8086$ to find the factorial of a byte in memory.
6. Write a note on the DT/\bar{R} signal of $\mu P8086$.
7. Define a macro which stores in AX the square of a number in AL.
8. State the differences between the REP and REPE prefixes of $\mu P8086$ instructions.
9. Develop a program for $\mu C8051$ to multiply 05H and 1AH and to store the result in the internal RAM at an address 10H.
10. Write a note on the default stack of the microcontroller $\mu C8051$.

Part – B

Answer any FOUR:

(4x7.5=30)

11. Discuss in detail the conditional branch instructions of $\mu P8086$.
12. Develop an ASM86 program to convert a binary number in memory to two digit packed BCD format and store it in memory.
13. Develop an ASM program for $\mu P8086$ to reverse a byte array.
14. With a block diagram discuss bus buffering and latching in $\mu P8086$ operated in maximum mode.
15. With an example each, explain the various modes of addressing data in $\mu C8051$.

Part – C

Answer any FOUR:

(4x12.5=50)

16. With two sample instructions for each, discuss in detail the addressing modes of data in $\mu P8086$.
17. Develop an ASM program for 8086 to solve $a = \sqrt{b} + \sqrt{c} - \sqrt{d}$, by defining a procedure for square root. Use relative indexed mode of addressing for data.
18. Develop ASM programs for 8086 to, (a) find how many times 'a' occurs, and (b) to replace all 'a' by 'A', in an array ARY of 1000 elements. (5 + 7.5).
19. With a block diagram explain the functioning of the interrupt controller 8259A. Also explain how two 8259As may be cascaded to act as master and slave. (6.5+6).
20. Develop an interface and an ASM program for $\mu C8051$ to implement data acquisition using an 8 bit A/D converter.
