 LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**M.Sc.** DEGREE EXAMINATION - **PHYSICS**

SECOND SEMESTER – APRIL 2012

# PH 2810 - MICROPROCESSOR & MICRO CONTROLLERS

Date : 17-04-2012 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

Part – A

Answer **ALL** Questions: (10x2=20)

1. Write a program segment for μP8086 to set the Trap Flag.
2. Write a note on the internal and external buses of μP8088.
3. Develop a program segment for μP8086 to exchange the contents of memory locations with offsets 100h and 200h with respect to SS.
4. Develop a program for μP8086 to convert a two digit unpacked BCD number in AX to packed BCD format in CL.
5. If AL contains 28h and CL contains 04h, what will be the contents of AL after (i) SHL AL,CL and (ii) ROL AL,CL.
6. Write a note on the signal of μP8086.
7. Define a macro which finds the square root of a number passed through AL.
8. State the differences between the RET and IRET instructions.
9. State why a microcontroller is referred to as a system on chip.
10. Develop a program for μC8051 to exchange the contents of R0 of Bank0 and R3 of Bank1.

# Part – B

Answer any **FOUR:** (4x7.5=30)

1. With an example for each, explain the various forms of the LOOP instructions of μP8086.
2. Develop an ASM program for μP8086 to set a byte variable LY if a word variable N represents a leap year. (Hint: A leap year is divisible by 4 and not by 64h).
3. Develop a two segment ASM segment for μP8086 to solve , by defining a procedure for square root.
4. Develop an ASM program for μP8086 to sort a word array.
5. With a neat diagram, discuss the internal architecture of μC8051.

# Part – C

Answer any **FOUR:** (4x12.5=50)

1. With three examples each, explain the modes of addressing of data in μP8086.
2. DPX and DPY are 32 bit signed numbers. Develop an ASM program for μP8086 to find the product and store the result at DPZ. DPX, DPY and DPZ are word variables.
3. Develop an ASM program for μP8086 to copy an array to an overlapping area using string primitives.
4. 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.Eight LEDs and a switch are connected to the Ports P0 and P1 of μC8051. Develop an ASM program

to make the LEDs glow in binary ascending order if the switch is OFF and from left to right if the

switch is ON.

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