LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – PHYSICS

SECOND SEMESTER – APRIL 2015

PH 2814 - EMBEDDED SYSTEMS

Date : 16/04/2015   Dept. No. [   ]   Max. : 100 Marks
Time : 01:00-04:00

Part – A

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

1. State why a microcontroller is referred to as a system on chip.
2. With suitable examples, distinguish between MOV and MOVX instructions of μC8051.
3. Write a note on the PCON register of μC8051.
4. Discuss the function of the instruction JBC P0.0,disp8.
5. Explain the function of the instruction BTG 15h, 1 of PIC.
6. Discuss the role of the D flag of PIC instructions.
7. Develop a program segment for PIC to toggle the bits of PORTA continuously.
8. Write notes on the 3-stage pipeline of ARM7 processors.
9. If r1 contains 2, what will be its content after, ADD r1, r1, LSL #3? Explain.
10. Distinguish between BX and the BLX instructions of ARM7.

Part – B

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

11. With an example each, explain the various arithmetic instructions of μC8051.
12. 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.
13. List any 7 features of PIC18 series of PIC processors.
14. Write notes on all the Arithmetic and Logical instructions of PIC.
15. List all possible conditional suffixes in ARM7 along with the flags being tested
16. Discuss the instructions to manipulate the CPSR of ARM7. Also develop code to disable all the external interrupts.   **(3+4.5)**

Part – C

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

17. An μC8051 microcontroller is connected serially to an IBM PC. Write a program for 8051 to transfer the message "WISH YOU ALL THE BEST", stored in an array serially at 9600 baud, 8-bit data, 1 stop bit. Do this repeatedly.
18. With a detailed block diagram, explain the internal architecture of μC8051.
19. In detail discuss the addressing capabilities of the PIC processors.
20. Write notes on the peripherals of PIC 16F877.
21. With a detailed block diagram, explain the internal architecture of LPC2148 processor.
22. Develop an ASM program for LPC2148 to convert the AD1.0 anlalog input and send it to P1 repeatedly.

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