

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



**M.Sc. DEGREE EXAMINATION – PHYSICS**

**SECOND SEMESTER – APRIL 2016**

**PH 2810 – MICROPROCESSOR & MICRO CONTROLLERS**

Date: 16-04-2016

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

**PART – A**

Answer ALL Questions.

(10x2=20 marks)

1. What is the role of the DF in the PSW of  $\mu P8086$ ?
2. Write a note on the queue of  $\mu P8086$ .
3. Write a program for 8086 to unpack a two digit packed BCD number in AL.
4. Discuss the role of the r/m field in the instructions of  $\mu P8086$ .
5. Develop a program for  $\mu P8086$  to exchange the contents of two memory locations.
6. Explain the role of BHE signal of  $\mu P8086$ .
7. Illustrate with an example the EQU assembler directive.
8. Explain how the trap flag of  $\mu P8086$  may be used in debugging.
9. How is the architecture of a microprocessor different from that of a microcontroller?
10. Write a note on the PCON register of  $\mu C8051$ .

**PART – B**

Answer any FOUR Questions.

(4x7.5=30 marks)

11. With suitable examples, discuss the CALL and RET instructions of  $\mu P8086$ .
12. With an example for each, explain the various forms of the REP prefix of  $\mu P8086$ .
13. Write a program for  $\mu P8086$  to convert a two digit packed BCD number in AL to binary format.
14. Develop a program for  $\mu P8086$  to reverse a byte array without using any other array.
15. With a neat circuit diagram, explain how priority may be assigned using Daisy Chain.
16. With a sample instruction for each, explain all the modes of addressing of data in  $\mu C8051$ .

**PART – C**

Answer any FOUR Questions.

(4x12.5=50 marks)

17. DPX and DPY are 32-bit unsigned numbers. Develop an ASM program for  $\mu P8086$  to find the product and store the result in DPZ. Assume DPX, DPY and DPZ to be word variables.
18. An 8 bit A/D converter with a temperature transducer is connected to  $\mu P8086$  through ports. Develop an ASM module to collect temperature data every 10 minutes for one hour and store it in memory.
19. Develop a program for  $\mu P8086$  to count the number of numerals in an alphanumeric array.
20. Explain with a block diagram the sequence of events that take place when a maskable interrupt of  $\mu P8086$  occurs and the subsequent return.
21. With a block diagram discuss bus buffering and latching in  $\mu P8086$  operated in minimum mode.
22. A  $\mu C 8051$  is connected serially to an IBM PC. Write a program to serially transfer the message “WISH YOU ALL THE BEST”, stored in an array at 9600 baud, 8-bit data, 1 stop bit. Do this repeatedly.

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