

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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