



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – PHYSICS

FIRST SEMESTER – APRIL 2014

PH 1813 - ELECTRONICS

Date : 12/04/2014
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

Part – A

Answer ALL Questions.

(10x2=20)

1. Obtain an expression for the output of an Op-amp based inverting amplifier.
2. List any four properties of an ideal Op-amp.
3. Write a note on the flags in the PSW of μP8085 .
4. Develop an ASM program for μP8085 to complement the content of the memory location 4200h using memory indirect mode of addressing.
5. Develop an ASM program for μP8085 , to find the number of 1's in a byte in memory location 4300h and to store it at memory location 4301h.
6. Develop an ASM program for μP8085 to add two 8 bit numbers in memory and to store the 9 bit answer in memory.
7. Develop a program for μP8085 to generate a square wave at the SOD line.
8. What is the role of the $\overline{IO/\overline{M}}$ line of 8085?
9. Write a note on the alternate registers of Z80.
10. Develop an ASM program for Z80 which sets the C register to 1 if the MSB or LSB of the number at memory location 8100h is '1' else sets C register to 0.

Part – B

Answer any FOUR Questions.

(4x7.5=30)

11. Discuss with a neat block diagram the working of binary weighted ladder based D/A converter.
12. With a neat diagram explain the internal architecture of μP8085 .
13. Develop an ASM program for μP8085 to multiply two 8 bit numbers in memory and to store the 16 bit product in memory. Use memory indirect mode of addressing. Validate the data before multiplication.
14. Explain the sequence of events that take place in the event of INTR of μP8085 becoming active.
15. With an example each, explain the various addressing modes for data in Z80.

Part – C

Answer any FOUR Questions.

(4x12.5=50)

16. With a neat diagram explain the working of a successive approximation counter based A/D convertor.
17. Develop an ASM program for μP8085 to sort an array in descending order.
18. Develop an ASM program for μP8085 to solve, $q = a! - b! + \bar{c} - \sqrt{d}$ using a subroutine for factorial and another for square root.
19. Explain with a neat and detailed diagram how memory and IO devices may be connected to 8085 in memory mapped IO using the various busses. Assume the address range 0000h to 1FFFFh to be ROM, 4000h to 4FFFFh to be IO space and the rest to be RAM.

Develop ASM programs for Z80 to (a) to copy an array of 20h elements to a non overlapping area in memory using string primitives and (b) find how many times 'a' occurs in an array of ffh elements

