LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRSTSEMESTER – APRIL 2018

17PPH1MC03 /PH 1819- ELECTRONICS AND PROGRAMMING

Date: 28-04-2018 Dept. No. Max. : 100 Marks
Time: 09:00-12:00

Part – A

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

1. List any four properties of an ideal Op-Amp.
2. With a neat diagram, explain the use of an Op-Amp based unity gain buffer.
3. Write note on the segment registers of μP8086.
4. Explain the role of"NOT" instruction of μP8086.
5. Develop a program for μP8086 to clear all the conditional flags using the stack.
6. Develop a program segment for μP8086 to clear 10 memory locations.
7. Explain the use of the "REP" prefix of μP8086.
8. Write a note on the LDSinstruction of μP8086.
9. With an example for each, explain any twounary operators in C++?
10. Write a program in C++ to accept from the keyboard an integer and display whether it is divisible by 5 or not?

Part – B

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

11. With a neat circuit diagram, explain the working of an Op-amp based differentiator.
12. With two sample instructions for each, explain all the modes of addressing of data of μP8086.
13. Develop a program for μP8086 to find the number of 1s in a 16 bit number in memory.
14. With a neat block diagram, explain the features of the interrupt controller 8259A.
15. Explain the internal architecture of μP8086 with a block diagram.
16. Write a program in C++ to sort an array of integers in ascending order.

Part – C

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

17. Solve the simultaneous equations, 2X + Y = 5; X – Y = 2 using op-amps.
18. DPXand DPY are32 bitsunsigned numbers in memory. Develop an ASM program for μP8086 to find the product and store the result at DPZ.
19. Develop an ASM program for μP8086 to copy a word array to an overlapping area using string primitives.
20. With a block diagram discuss bus buffering and latching in μP8086 operated in minimum mode
21. Write a note on DMA controller. With a neat diagram explain the sequence of events which take place during DMA transfer using BUS stealing. (3+9.5).
22. Write a program in C++ to accept two 3x3 integer matrices and display the product matrix.