



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – PHYSICS

FIRST SEMESTER – NOVEMBER 2017

PH 1808 - ELECTRONICS - I

Date: 04-11-2017
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

Part – A

Answer ALL Questions.

(10x2=20)

1. Explain the concept of the virtual ground in an Op-amp.
2. Draw the circuit diagram of an op-amp based unity gain buffer.
3. List four single instructions of μP8085 each of which clear the 'A' register.
4. With an example, explain the LDAX rp instruction of μP8085 .
5. Write a note on the PSW of μP8085 .
6. Write a subroutine for μP8085 to clear ZF, PF and CF.
7. Explain the role of the S0 and S1 signals of μP8085 .
8. Develop a program to mask RST5.5 and RST6.5 of μP8085 .
9. Discuss the function of LD A,(IY+05) instruction of $\mu\text{P Z80}$.
10. Explain the role of the refresh register of $\mu\text{P Z80}$.

Part – B

Answer any FOUR.

(4x7.5=30)

11. Sketch a neat circuit diagram of an Op-amp based 4 bits R-2R ladder D/A converter and explain it's working in detail.
12. Explain the data addressing modes available in μP8085 with an example for each.
13. Develop a program for μP8085 to complement an array of 20H bytes with starting address 8000H.
14. Write a program for μP8085 to generate a delay using BC register pair as a counter. If the crystal frequency is 2MHz, calculate the largest possible delay.
15. Explain the block transfer and block search instructions available in $\mu\text{P Z80}$.

Part – C

Answer any FOUR.

(4x12.5=50)

16. With a neat circuit diagram, explain how Op-amps may be used to solve second order differential equations.
17. Write a program for μP8085 to solve, $a!+b!-c!$.
18. Develop a program for μP8085 to reverse a byte array of 10h elements.
19. With timing diagrams explain the status of the various signals of μP8085 during, (i) I/O read and (ii) Memory write machine cycles. (6+6.5)
20. Develop a program for Z80 to input from a port PA, 80h bytes and store them in consecutive memory locations using block manipulating instructions.

