LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**M.Sc.** DEGREE EXAMINATION - **PHYSICS**

FIRST SEMESTER – NOVEMBER 2010

# PH 1813 / 1808 - ELECTRONICS

Date : 13-11-10 Dept. No. Max. : 100 Marks

Time : 1:00 - 4:00

**Part – A**

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

1. With a neat circuit diagram obtain the expression for the output for an Op-amp based difference amplifier.
2. Write a note on the linearity and accuracy of an A/D converter.
3. Write a program for µP 8085 to 2s complement the content of a memory location.
4. Write a subroutine for µP8085 to generate the highest possible delay using BC pair.
5. Write a program segment for µP8085 to generate a square wave in SOD line.
6. Write a subroutine for µP8085 which returns through the accumulator the square of a number passed through register B without destroying other registers.
7. Write a program for µP8085 to find the number of zeros in a byte.
8. Write a program segment for µP8085 to mask RST6.5 and RST7.5 if SID is 1.
9. Write a note on the indexed mode of addressing of µP Z80.
10. Write a program segment for µP Z80 to halt the system if the second bit of the accumulator is zero using bit manipulating instruction.

**Part – B**

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

1. Sketch a neat circuit diagram of a 4 bit weighted resistor D/A converter and explain it’s working in detail.
2. With a neat diagram, explain the internal architecture of µP8085.
3. Develop a program for µP8085 to capitalize an array of 20H bytes.
4. With timing diagram explain the interrupt acknowledge machine cycle of µP8085.
5. Explain the various block transfer and block search instructions available in µPZ80.

**Part – C**

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

1. Develop an interface and a program for µP8085 to implement a 4 bit A/D counter based converter.
2. Discuss in detail all the vectored interrupts of µP8085.
3. Develop a program for µP 8085 to solve with a subroutine for factorial, another for multiplication and another for division.
4. Eight LEDs are connected to an output port and two switches to an input port. Develop a program for µP8085 make the LEDs glow as given in the table below.

|  |  |  |
| --- | --- | --- |
| **S1** | **S0** | **LEDs** |
| **0** | **0** | **All ON** |
| **0** | **1** | **All OFF** |
| **1** | **0** | **Left to Right** |
| **1** | **1** | **Diverging** |

1. Develop a program for Z80 to reverse a byte array of ‘n’ elements.

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