Seat No. : _____

LE-105

April-2014

B.Sc. (Sem.-VI)

CC-308 : ELECTRONICS

Time : 3 Hours] **[Max. Marks : 70**

1. (a) (i) Explain 4-bit binary ladder and derive the equation for output voltage. **10**

(ii) Draw the binary ladder with a digital input of 0100.

OR

(i) Explain counter type A/D converter.

(ii) How does the continuous – type A/D converter differ from the counter-type A/D converter ?

(b) With illustration explain monotonicity test. **4**

OR

Draw the circuit diagram of dual – slope A/D converter.

2. (a) Giving flowchart writes instructions to set up time delays, using one register, a register pair and a loop-within-a-loop techniques. **10**

OR

With flowchart and delay calculations, write a program to construct a Zero-to-Nine counter. Assume the clock frequency is 2 MHz.

(b) Give the instructions and delay calculations of a hexadecimal counter of a system with a 0.5μs clock period. Use register C to set up a two millisecond delay between each count. **4**

OR

Write a program to turn a light on and off every 10 seconds.

3. (a) Give and explain with illustration, the instructions required for the execution of stack. **9**

OR

Illustrate how information is exchanged between the program counter and the stack and identify the contents of the stack pointer register when a subroutine is called.

(b) Explain : Conditional call and Return instruction. **5**

OR

(i) Draw flowchart for the traffic signal controller.

(ii) Give the block diagram of multiple-calling for a subroutine.

4. (a) Explain 8255A general-purpose programmable devices, compatible with any microprocessor. **10**

OR

Explain DAC 0808 giving its features, pin configuration, block diagram and typical applications.

(b) Write a note on Mode 0 and BSR Mode. **4**

OR

Write a program to generate square wave.

5. Do as directed : **14**

(1) What is the LSB weight of a 8-bit resistive ladder ?

(2) How many comparators are required to build a 5-bit simultaneous A/D converter.

(3) What do you understand by SAR ?

(4) What is the greatest weakness of a single-ramp A/D converter ?

(5) Give full form of instruction RAR.

(6) Define : counter.

(7) Accuracy of the time delay depends on the accuracy of _____.

(8) What RST instruction does ?

(9) A stack is a _____ - bit register.

(10) 8085 instruction set includes _____ Restart instructions.

(11) Define : Setting time of DAC.

(12) How many bits are required in a DAC to get a resolution of 1 mv, if full scale output voltage is 10V ?

(13) What is the resolution of a 10-bit DAC ?

(14) Give the name of two programmable devices of Intel family.

_____