Dec. 2005

Section - A (Marks : 2 each)

Q. 1 (a) Write the first four decimal digits in base 4.

(b) Convert the following logic function in a product of maxterms
$F(A, B, C) = (A' + B)(B' + C)$.

(c) Implement the Boolean function with three half-adder circuits
$F = A'BC + AB'C$.

(d) Define the terms decoder and demultiplexer.

(e) Perform the subtraction with the following unsigned binary number by taking the 2's compliment of the subtrahend 11010-10000

(f) Give the logic diagram and characteristic table of a clocked D Flip-flop.

(g) What is the role of Binary Ripple Counter ?

(h) Explain the role of PAL and PLA in digital design.

(i) What is the difference between hardwired control and micro programmed control ?

(j) What is the need of converting digital data into analog data ?

Section - B (Marks : 5 each)

Q. 2 Write a short not on transmission line effects.

Q. 3 Given an overview of Custom VLSI design.

Q. 4 Design a 16-bit ring counter with 4-bit shift registers.

Q. 5 Show the contents of an 8-bit register that stores the numbers + 33 and – 33 in sign – 1's complements and sing 2's complement form

Q. 6 Write a short note on DTL Digital circuit technology.

Section - C (Marks : 10 each)

Q. 7 Explain in detail the various types of memory systems used in digital design.

Discuss the advantage of a binary ladder network over a binary weighted register chain in D/A converter.

Design and draw the circuit of a shift register to generate the following wave train .... 1101011 ....

Give the flowchart of PLD design, programming and test process.

Design a combinational logic circuit for converting Gray code to binary.