May 2005

Section - A (Marks : 2 each)

1. (a) [illegible]
(b) [illegible] a product of maxterms [illegible] A B D.
(c) [illegible] three half-adder circuit [illegible] ABC
(d) What do you mean by BCD adder ?
(e) Perform the subtraction with the following unsigned binary number by taking the 2's complement of the subtrahend 1101 – 1000

(f) Describe the advantage of using PLA over ROM for realizing some Boolean functions.
(g) What is the role of Binary Counter ?
(h) What is the difference between custom and semi-custom design in VLSI ?
(i) Why we need D/A techniques ?
(j) What do you mean by PLD's ?

Section - B (Marks : 5 each)

2. Describe the advantage of using PLA over ROM for realizing some Boolean functions.
3. Write a short note on transmission line effects.
4. Show the contents of an 8-bit register that stores the numbers + 33 and – 33 in binary and sign 2's complement form.
5. Design a simple BCD-to-seven-segment decoder.
6. Write a short note on MOS Digital circuit technology.

Section - C (Marks : 10 each)

7. Explain in detail the various Bus structures used in digital design.
8. (a) Give the flow chart of PLD design, programming and test process.
(b) A computer employs RAM chips of 256 × 8 and ROM chips of 1024 × 8. The computer system needs 2K bytes of RAM, 4 K bytes of ROM, and four interface units, each with four registers. A memory-mapped I/O configuration is used. The two highest order bits of the address bus are assigned 00 for RAM, and 10 for interface registers. How many ROM and ROM chips are needed ?
Q 9 (a) Explain how a shift register can be used to generate or check a parity.
(b) A certain 12 bit BCD D/A converter has a full-scale output of 9.99 V.
Determine the percent resolution.
Determine the converter's step size.