June – 2008

Roll No. ....

Subject Code—9448-X

P.G.D.C.A. EXAMINATION

(First Semester)

(Re-appear)

MS-03

DIGITAL ELECTRONICS

Time : 3 Hours   *Maximum Marks :* 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. (a) Draw the symbol of NAND, NOR, X-OR and X-NOR logic gates with 4 inputs and write their truth tables.

    (b) Realize OR, AND, X-OR logic gates from NAND gates only.

2. You have a four bit binary numbers A and B. Subtraction (A − B) is to be performed with the help of address only by 2's complement method. Draw its circuit and explain it.

3. Discuss the important features of TTL and MOS digital IC logic families.

4. Explain the difference between synchronous and asynchronous counters. Where asynchronous counters find applications when these are slow ? Draw the circuit of a decade counter and explain it.

5. Draw the circuit of a RAM cell and explain how information can be stored/read from this cell.

6. List the various A/D converters and explain (with the help of circuit diagram) the operation of a 4 bit successive approximation A/D converter.

7. (a) List the various varieties of ROM's and discuss the merits and demerits of each.

   (b) Draw the circuit of a 4 to 1 multiplexer and explain its operation.

8. Write short notes on any *two* of the following :

   (a) 4 bit shift register

   (b) 7 segment LED display

   (c) D/A converter.