Roll No. ....

2104

B. E. 4th Sem. (ECE)

Examination – May, 2011

DIGITAL ELECTRONICS

Paper : EE-204-E

Time : Three hours]   [Maximum Marks : 100

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

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

1. (a) Why NAND and NOR gate are called universal gate. Derive basic gates from these gates.   10

   (b) (i)   Multiply $(110.10)_2$ by $(11.01)_2$.   3

   (ii) Convert $(10101011)_2$ to its gray code.   2

   (iii) Convert $(12)_{10}$ to the number system whose base is 3.   5

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2. (a) Seven bit Hamming code is received as 1011001. Locate the error position and find the correct code, if even parity is used. **10**

(b) What are main disadvantages of Boolean algebra Reduction Method ? Give advantages of K-Map. Reduce the function Y (ABCD) = TTM (0, 2, 4, 6, 8, 9, 12) using K-map. **10**

3. (a) Implement the following function using 4×1 Multiplexer. **10**

$$y = \Sigma\,(0, 1, 2, 5, 9, 11, 13, 15)$$

(b) Design a code converter, which convert Binary code to grey code. **10**

4. (a) What is race around condition in J-K Flip Flop ? How it can be eliminated by different method ? **10**

(b) Design Mod 6 UP/Down counter using T-type Flip Flop. **10**

5. (a) What is the advantages of ECL logic family ? Explain how ECL gate works. **10**

(b) What do you mean by interfacing ? Explain the need. How will you interface TTL to C-MOS. **10**

6. (a) What is magnitude comparator ? Draw a circuit for u bit comparator. **10**

(b) Draw and explain the circuit for bi-directional shift register.   10

7. (a) Explain the R-2-R ladder type D/A converter.   10

    (b) Explain SAR AID converter.   10

8. Write short note on :   20

    (i) PLD's and CPLD's

    (ii) ROM and FPQA

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