Roll No. .....

2104

B. E. (4th Semester) (ECE)

Examination, May, 2012

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 complain in this regard, will be entertained after examination.

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

1. (a) Define Universal gates. Derive Basic gates from Universal gates. 10

(b) (i) Multiply $(110.101)_2$ by $(101.110)_2$ 3

(ii) Convert $(758.46)_{10}$ into Hexcade. 3

(iii) Convert $(7B94.1C)_{16}$ into grey code. 4

2. (a) Eleven bit Hamming code is received as 10111011101 locate the error position and find correct code if odd parity is used. 10

(b) Solve the functions using *k* map. For SoPsPoS. 10

$f(ABCD) = \pi(0, 2, 3, 5, 8, 9, 11)$

3. (a) Solve the function by Quine Moluskey method :

$y(ABCDE) = \Sigma (0, 1, 4, 7, 9, 11, 21, 26, 30) + d (3, 12, 18)$

(b) Implement the given function using 4XI MUX. 10

$F(ABCD) = \Sigma (0, 2, 4, 8, 11, 13)$

4. (a) Draw the diagram of full Adder and explain its working with example. 10

(b) Differentiate between a MUX and ENCODER with suitable examples. 10

5. (a) Explain Race arround condition in JK flip-flop and functioning of JK Master Slave FF configuration. 10

(b) Enumerate advantages of DCTL Logic family. Explain how DCTL gate works. 10

6. (a) Explain working of R-2R Ladder Network. 10

(b) Draw a circuit for 4 bit comparator. 10

7. (a) Design a 4 bit updown counter using shift Register. 10

(b) Differentiate between Synchronous and Assynchronous counters. Also give out advantages of each with applications.

8. Write short notes :

(i) PLAs SCPLDs 10

(ii) ROM and FPGA. 10
