

Register Number

--	--	--	--	--	--	--

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E-EEE

Title of the Paper: Digital Systems

Sub. Code: 6C0038

Date: 11/11/2010

Max. Marks: 80

Time: 3 Hours

Session: AN

PART - A

(10 X 2 = 20)

Answer ALL the Questions

1. What are universal gates?
2. Convert the binary number 1010101010111 to gray code.
3. State the difference between PLA and PAL.
4. Draw a pair, a quad, and an octet on K-map.
5. Write the difference between a decoder and a demultiplexer.
6. Design a half adder.
7. What is race around condition?
8. State the operation of D flipflop.
9. What is HTL?
10. Mention the advantages and disadvantages of TTL.

PART – B
Answer All the Questions

(5 x 12 = 60)

11. Design a logic circuit to convert the Binary Coded decimal to Excess 3 code and to grey code.
(or)
12. With an example discuss the reduction of switching equations using Boolean Algebra.
13. Find the minimum sum of products expression using K map for the function $F = \sum m(6, 8, 9, 10, 11, 12, 13, 14)$ and realize the minimized function using only NAND gates.
(or)
14. Simplify using Quine McClusky method
 $F = \sum m(0, 1, 2, 3, 10, 11, 12, 13, 14, 15)$.
15. Design a eight bit comparator using logic gates.
(or)
16. Design a 4bit serial in serial out shift register.
17. Design a synchronous counter which counts in the sequence 0,2,4,6,0,2,4,6,... using D flipflop.
(or)
18. Using the excitation tables of S-R and J-K Flip flops, carry out the following conversions
 - (a) S-R to J-K
 - (b) S-R to D
 - (c) J-K to D
 - (d) D to J-K
19. Explain the working of TTL, ECL and DTL.
(or)
20. Implement the following function using PROM.
 $F = \sum m(1, 2, 4, 7, 8, 10, 11)$