

Inter Session Examination - December 2013

Course : ITE205 - Digital Electronics and Microprocessors Slot: B1+B2

Class NBR : 1354

Time : Three Hours Max.Marks:100

Answer ALL Questions

1. Design a 4-to-1 line multiplexer specifying the Logic diagram, Block diagram and Function table. [5]

2. a) Perform the following:-

Multiply in binary: 11111111 * 101.

b) Convert the hexadecimal number F3A7C2 to octal. [2]

3. Realize OR and EXOR gates using NAND gate with Truth Tables. [5]

4. Design the circuit for the following truth table [5]

Inputs		outputs	
A	В	C	D
0	0	0	0
0	1	1	1
1	0	1	0
1	1	1	1

5. a) Simplify the given Boolean Function using K Map and Implement with Logic Gates. [10]

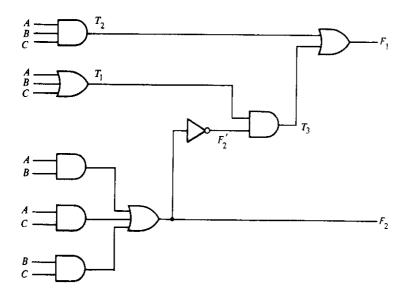
i) $F(A,B,C,D) = \Sigma(0,6,8,13,14) + d(2,4,10)$

ii) $F(w,x,y,z) = \Pi(0,1,2,3,7,8,10) + d(5,6,11,15)$

OR

- 5. b) Design and implement 4-bit magnitude comparator. [10]
- 6. Design and implement binary to gray code converter. [10]
- 7. Design a 4 –bit BCD Adder. [10]

8. Analyze the following combinational logic circuit.



- 9. a) Obtain 4: 16 Decoder using 3:8 Decoder.
 - b) Design and implement 8: 3 Encoder using logic gates. [5]
- 10. a) Implement the following function using Multiplexer. [6] $F(a,b,c,d) = \sum (1,3,4,11,12,13,14,15)$
 - b) Design 4-bit shift register in SIPO mode. [4]
- 11. a) Design 4- bit ripple counter using JK Flipflop [10]

OR

- 11. b) Design and implement Decade counter using T-Flipflop. [10]
- 12. Explain the CPU architecture 8086 Microprocessor. [10]

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[10]

[5]