

(2013-2014)
Question Bank: PDT

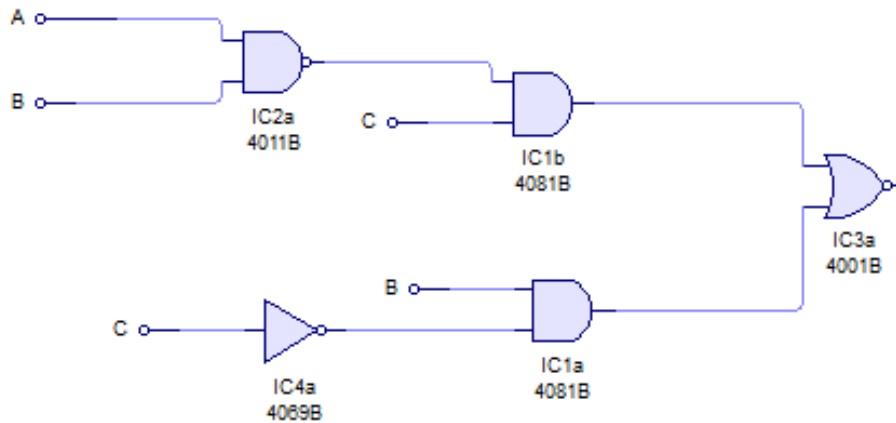
CHAPTER 1: NUMBER SYSTEM

1. Convert the following number to Decimal 3m
a) $(110101)_2$ b) $(A4)_{16}$
 2. Convert the following number in to Binary 4m
a) $(736)_8$ b) $(2F9)_{16}$
 3. Convert the following number in to Octal 4m
a) $(247)_{10}$ b) $(A72)_{16}$
 4. Convert the following number in to Hexadecimal 4m
a) $(123)_8$ b) $(95)_{10}$
 5. Perform the subtraction using $(45)_{10} - (47)_{10}$ using 4m
a) 1's Compliment method
b) 2's Compliment method
 6. Perform the following 4m
A) $1001 * 1101$ B) $1001 / 0011$
- Codes:**
7. Add $(569)_{10}$ & $(687)_{10}$ in BCD 4m
 8. Convert the following in to BCD & subtract them using 9's & 10's compliment 4m
 $(637)_{10} - (142)_{10}$
 9. Convert (any one) 4m
a) $(274.6)_{10}$ in to Gray code & XS-3 code.
b) $(10110.101)_2$ in to Gray code & XS-3 code.
 10. Convert Binary to BCD $(110101)_2$ & $(101101)_2$ and add them 4m
 11. State the rules for BCD Addition. 3m

CHAPTER 2: LOGIC GATES

12. Draw symbol & Truth Table for 2 inputs NOR gate. 3m
13. State & Prove DE Morgan's Theorem. 4m
14. With sketch realize the expression $Y = (A+B)(B+C)$ using 4m
a) NAND gate only
b) NOR gate only
15. Identify the IC'S & Draw their PIN configuration. 4m
a) IC 7486 b) IC 7402 c) IC 7432 d) IC 7408

16. 4m



For the above diagram derive the Boolean Expression. Of Y. Simplify the equation and draw logic diagram using NAND GATE

17. Construct the following Logic Gates construct (any one) 4m
- AND gate & Ex OR gate using NOR gate
 - NOR gate & AND gate using NAND gate

Logic families

18. Explain positive & negative logic in TTL. 3m
19. Give any four characteristics of CMOS, TTL & ECL logic families. (any 2) 4m

CHAPTER 3: COMBINATIONAL LOGIC

20. Convert POS in to Canonical POS format (ANY ONE) 4m
- $Y=(A+B)(\overline{B}+C)$
 - $Y=(A+\overline{B})(B+C)$
 - $Y=(A+B)(A+C)(B+\overline{C})$
21. Convert SOP into Canonical SOP format (ANY ONE) 4m
- $Y=A+B.C+A.B.C$
 - $Y=A.B+\overline{B}.C$
 - $Y=A+B$
22. Convert (ANY ONE) 4m
- SOP into POS $Y=A\overline{C}+AB$
 - POS into SOP $Y=(A+\overline{B})(B+C)$
23. Minimize the following SOP expression(ANY ONE) 3m
- $Y=\sum m(0,3,5,6,9,10,12,15)$
 - $Y=\sum m(0,1,2,3,11,12,14,15)$
 - $Y=\sum m(1,5,6,7,11,12,13,15)$

- d) $Y = \sum m(0,1,4,5,7,8,9,12,13,15)$
24. Simplify following (ANY ONE) 4m
- a) $Y = \sum m(1, 3, 7, 11, 15) + d(0, 2, 5)$
- b) $Y = \sum m(1, 4, 8, 12, 13, 15) + d(3, 14)$
25. Give the expression of the following using K-MAP & draw logic diagram. 4m
- a) FULL ADDER

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Name of subject: PDT

Unit Test II

Subject code:

Semester: V

Chapter 3

Combinational Logic Ckt

1. What is Decoder? How Demux act as a Decoder. (4m)
2. Implement the following using MUX (3m)
 $Y = \sum m(2, 3, 5, 6)$
3. Give advantage of MUX. (3m)
4. Draw ckt dig of 1:4 Demux using logic gate. (4m)
5. Draw functional diagram & logic diagram of half adder with truth table (4m)
6. Differentiate between MUX & DEMUX (3m)
7. What is Tristate buffer? Draw its symbol & IC NO. (3m)

Chapter.4

Sequential Logic Ckt

8. Differentiate between Sequential Logic & Combinational Logic. (4m)
9. Write the excitation table for D & T F/F (3m)
10. Draw 3 bit Asynchronous down counter write truth table. (4m)
11. Draw RS latch using NAND gate & write truth table. (3m)
12. Explain the use of Preset & Clear terminal of F/F. (3m)

13. What is Race around condition & how it is eliminated? (4m)
14. Draw & explain SISO shift register. (4m)
15. Draw block diagram of IC 7490. (3m)
16. Explain with diagram 3 bit ring counter using D F/F (4m)

Chapter.5

Data Converter

17. What is the necessity of Data converter? Write the types of data converter. 3m
18. Draw ckt for 3 bit binary weighted DAC . (4m)
19. Compare R-2R & binary weighted register (Any 3 points). (3m)
20. Define.
- I) Accuracy
 - II) Resolution
 - III) Conversion time (3m)
21. Draw & Explain Successive approximation ADC. (4m)
22. Calculate Analog o/p of 4 bit DAC & digital i/p is 1011 Assume $V_{fs}=5v$. 4m

Chapter.6

Memory

23. Define memory? Write down types of memory. (3m)
24. Draw static RAM cell (TTL) . Explain its operation .(4m)
25. Write difference between EPROM & Flash Memory.(4m)