Digital Systems Solved MCQs

Part 2

MCQs

Multiple Choice Questions

Digital Systems Solved MCQs - Part 2

The gray code equivalent of (1011)2 is

- 1101.
- 1010.
- 1110.
- 1111

Which of the following decimal numbers has an exact representation in binary notation?

- 0.1
- 0.3
- 0.5
- .07

How many different Boolean functions of degree 4 are there ?

- 2^4
- 2^8
- 2^{12}
- 2^{16}

Add the two binary numbers 01101010, 00001000,10000001 and 11111111

- 10111
- 111110010
- 0101
- None of Above

(2FAOC)16 is equivalent to

- $(195\ 084)_{10}$
- $(001011111010\ 0000\ 1100)_2$
- Both (A) and (B)
- None of these

Which one of the following is decimal value of a signed binary number 1101010, if it is in 2 complement form ?

- – 42
- -22
- – 21
- -106

- A
- B
- C
- D

In order to implement a n variable switching function, a MUX must have

- 2^n inputs
- 2^n+1 inputs
- 2^{n-1} inputs
- 2^n-1 inputs

The smallest integer than can be represented by an 8-bit number in 2's complement form is

- -256
- -128

- -127
- 0

If F and G are Boolean functions of degree n. Then, which of the following is true ?

- A
- B
- C
- D

A latch is constructed using two cross-coupled

- AND and OR gates
- AND gates
- NAND and NOR gates
- NAND gates

The answer of the operation (10111)2*(1110)2 in hex equivalence is

- 150
- 241
- 142
- 101011110

Logic gates with a set of input and outputs is arrangement of

- Combinational circuit
- Logic circuit
- Design circuits
- Register

How many 1's are present in the binary representation of
3 × 512 + 7 × 64 + 5 × 8 + 3

- 8
- 9
- 10
- 11

The Gray code for decimal number 6 is equivalent to

- 1100
- 1001
- 0101
- 0110

Binary number represented by the 0.1 decimal number is

- 11010.01
- 1011.11
- .00011001
- None of Above

How many flip-flops are required to produce a divide-by-32 device?

- 2
- 5
- 6
- 4

Match the following identities/laws to their corresponding name :
(a) x + x = x
x . x = x i. Dominance
(b) x + 0 = x
x . 1 = x ii. Absorption
(c) x + 1 = 1

x . 0 = 0 iii. Idempotent
(d) x . (x + y) = x iv. Identity

a	b	c	d
iii	iv	i	ii
iv	iii	i	ii
iv	iii	ii	i
iii	iv	ii	i

The logic expression for the output of the circuit shown in the figure is

- A'C'+B'C'+CD
- AC'+BC'+C'D
- ABC+C'D'
- A'B'+B'C'+C'D'

The digital logic family which has the lowest propagation delay time is

- ECL
- TTL
- CMOS
- PMOS

12-bit 2's complement of –73.75 is

- 01001001.1100
- 11001001.1100
- 10110110.0100
- 10110110.1100

A binary ripple counter is required to count up to 16383. How many

flipflops are required ?

- 16382
- 8191
- 512
- 14

What is decimal equivalent of BCD 11011.1100 ?

- 22.0
- 22.2
- 20.2
- 21.2

A nonpipeline syatem takes 50 ns process a task. The same task can be processed in a six segment pipeline with a clock cycle of 10ns. Speedup ratio of the pipeline for 100 tasks, is

- 2.76
- 3.76
- 4.76
- 5.76

8-bit 1's complement form of –77.25 is

- 01001101.0100
- 01001101.0010
- 10110010.1011
- 10110010.1101

Decimal Number represented by the .11100 binary number is

- 13.1875
- 10.625

- 0.875
- 0.03125

The output of a logic gate is 1 when all its inputs are at logic 0. the gate is either

- A NAND or an XOR
- An OR or an XNOR
- An AND or XOR
- A NOR or an XNOR

Floating point representation is used to store

- Boolean values
- Whole numbers
- Real integers
- Integers

Perform Subtraction on binary numbers 1011 and 0110

- 10111
- 111110010
- 0101
- None of Above

The primary quality of good working program in the earlier days of software development in the 1950s and 1960s were

- Maintainable
- Readable
- Fast
- On budget and within time

The 2's complement of the number 1101101 is

- 0101110
- 0111110
- 0110010
- 0010011

AB+(A+B)' is equivalent to

- A?B
- A+B
- (A+B)A
- (A+B)B

The 2s compliment form (Use 6 bit word) of the number 1010 is

- 111100
- 110110
- 110111
- 1011

Page Shift Keying (PSK) Method is used to modulate digital signal at 9600 bps using 16 level. Find the line signals and speed (i.e. modulation rate).

- 2400 bauds
- 1200 bauds
- 4800 bauds
- 9600 bauds

The branch logic that provides making capabilities in the control unit is known as

- Controlled transfer
- Conditional transfer
- Unconditional transfer

- None of the above

The absorption law in Boolean algebra say that

- X + X = X
- X . X = X
- x + x . y = x
- None of the above

Advantage of synchronous sequential circuits over asynchronous ones is

- faster operation
- ease of avoiding problems due to hazard
- lower hardware requirement
- better noise immunity

The minimum number of D flip-flops needed to design a mod-258 counter is

- 8
- 9
- 256
- 512

A computer with a 32 bit word size uses 2 complement to represent numbers. The range of intergers that can be represented by this computer

- -2^{32} to 2^{32}
- -2^{31} to 2^{32}
- -2^{31} to $2^{31}+1$
- -2^{32} to 2^{31}

In a positive logic system, logic state 1 corresponds to

- Positive voltage
- Higher voltage level
- Zero voltage level
- Lower voltage level

Data can be changed from special code to temporal code by using

- Shift registers
- Counters
- Combinational circuits
- A/D converters

Binary number represented by the 255 decimal number is

- 100101
- 11111111
- 1111
- 101010101

The highest noise margin is offered by

- BICMOS
- TTL
- ECL
- CMOS

The power dissipation of a flip-flop is 3 mW. The power dissipation of a digital system with 4 flip-flops is given by

- 3^4 mW
- 4^3 mW
- 4/3 mW

- 12 mW

Which logic family dissipates the minimum power ?

- DTL
- TTL
- ECL
- CMOS

What is the binary equivalent of the decimal number 368

- 101110000
- 110110000
- 111010000
- 111100000

Binary number represented by the 37 decimal number is

- 100101
- 11111111
- 1111
- 101010101

Logic X-OR operation of $(4ACO)_H$ & $(B53F)_H$ results

- AACB
- 0000
- FFFF
- ABCD

What is the transitive voltage for the voltage input of a CMOS operating from 10V supply ?

- 1V

- 5V
- 10V
- 20V

Which one of the following set of gates is best suited for parity checking and parity generation ?

- AND, OR, NOT
- NAND, NOR
- EX-OR, EX-NOR
- None of the above