



- A) 0  
C) 11
- B) 1  
D) 1001

(XIII) Full subtractor is used to perform subtraction of \_\_\_\_\_.

- A) 4 bits  
C) 2 bits
- B) 3 bits  
D) 8 bits

(XIV) A 4-bit shift register that receives 4 bits of parallel data will shift to the \_\_\_\_\_ by \_\_\_\_\_ position for each clock pulse.

- A) Right, one  
C) Left, one
- B) Right, two  
D) Left, three

(XV) Which is an incorrect rule of binary subtraction from the following?

- A)  $0 - 0 = 0$   
C)  $1 - 0 = 1$
- B)  $0 - 1 = -1$   
D)  $0 - 1 = 1$  with borrow '1'

(XVI) The NOR gate output will be high if the two inputs are \_\_\_\_\_.

- A) 0 0  
C) 1 0
- B) 0 1  
D) 1 1

(XVII) To add two m-bit numbers, the required number of half adders is

- A)  $2m - 1$   
C)  $2m + 1$
- B)  $m - 1$   
D)  $2m$

(XVIII) Which of the following flip-flop is used as a latch?

- A) J-K flip-flop  
C) T flip-flop
- B) R-S flip-flop  
D) D flip-flop

(XIX) The expression  $Y = (A+B)(B+C)(C+A)$  shows the \_\_\_\_\_ operation.

- A) AND  
C) SOP
- B) POS  
D) NAND

(XX) In a combinational circuit, the output at any time depends only on the \_\_\_\_\_ at that time.

- A) Voltage  
C) Input values
- B) Intermediate values  
D) Clock pulses

(XXI) In which of the following base systems is 123 not a valid number?

- A) Base16  
C) Base10
- B) Base3  
D) Base8

(XXII) Which logic is the fastest of all the logic families?

- A) TTL  
C) HTL
- B) ECL  
D) DTL

(XXIII) The selector inputs to an arithmetic/logic unit (ALU) determine the

- A) Selection of the IC  
C) Data word selection
- B) Arithmetic or logic function  
D) Clock frequency to be used

(XXIV) When an input signal  $A = 11001$  is applied to a NOT gate serially, its output signal is

- A) 111  
C) 10101
- B) 00110  
D) 11001

(XXV) Divide the binary numbers:  $111101 \div 1001$  and find the remainder

- A) 10  
C) 1100
- B) 1010  
D) 0011

(XXVI) All logic operations can be obtained by means of \_\_\_\_\_.

- A) AND and NAND operations  
C) OR and NOT operations
- B) OR and NOR operations  
D) NAND and NOR operations

(XXVII) How many NAND circuits are contained in a 7400 NAND IC?

- A) 1  
C) 4
- B) 2  
D) 8

(XXVIII) Convert  $(0.345)_{10}$  into an octal number:



- (XLIV) In a multiplexer the output depends on its \_\_\_\_\_.
- A) Data inputs  
B) Select inputs  
C) Select outputs  
D) None of these
- (XLV) Ripple counters are also called \_\_\_\_\_.
- A) SSI counters  
B) Asynchronous counters  
C) Synchronous counters  
D) VLSI counters
- (XLVI) The full form of TCTL is \_\_\_\_\_.
- A) Transistor-coupled transistor logic  
B) Transistor-capacitor transistor logic  
C) Transistor-complemented transistor logic  
D) Transistor-complementary transistor logic
- (XLVII) Which of the following describes the operation of a positive edge-triggered D flip-flop?
- A) If both inputs are HIGH, the output will toggle  
B) The output will follow the input on the leading edge of the clock  
C) When both inputs are LOW, an invalid state exists  
D) The input is toggled into the flip-flop on the leading edge of the clock and is passed to the output on the trailing edge of the clock
- (XLVIII) Which of the following is the Universal Flip-flop?
- A) S-R flip-flop  
B) J-K flip-flop  
C) Master slave flip-flop  
D) D Flip-flop
- (XLIX) Which of the following circuits come under the class of sequential logic circuits? 1. Full adder 2. Full subtractor 3. Half adder 4. J-K flip 5. Counter
- A) 1 and 2  
B) 2 and 3  
C) 3 and 4  
D) 4 and 5
- (L) The full subtractor can be implemented using \_\_\_\_\_.
- A) Two XOR and an OR gates  
B) Two half subtractors and an OR gate  
C) Two multiplexers and an AND gate  
D) Two comparators and an AND gate
- (LI) Convert the hexadecimal number  $(1E2)_{16}$  to decimal:
- A) 480  
B) 498  
C) 482  
D) 484
- (LII) How many AND gates are required for a 8-to-1 multiplexer?
- A) 5  
B) 7  
C) 8  
D) 6
- (LIII) What does minuend and subtrahend denotes in a subtractor?
- A) Their corresponding bits of input  
B) Its outputs  
C) Its inputs  
D) Borrow bits
- (LIV) What is one disadvantage of an S-R flip-flop?
- A) It has no Enable input  
B) It has a RACE condition  
C) It has no clock input  
D) Invalid State
- (LV) To increase fan-out of the gate in DTL
- A) An additional capacitor may be used  
B) An additional transistor and diode may be used  
C) An additional resistor may be used  
D) Only an additional diode may be used
- (LVI) TTL is called transistor-transistor logic because both the logic gating function and the amplifying function are performed by \_\_\_\_\_.
- A) Resistors  
B) Bipolar junction transistors  
C) One transistor  
D) Resistors and transistors respectively
- (LVII) How many stages a DTL consist of?
- A) 2  
B) 3  
C) 4  
D) 5
- (LVIII) A combinational circuit is one in which the output depends on the
- A) Input combination at the time  
B) Input combination and the previous output  
C) Input combination at that time and the previous input combination  
D) Present output and the previous output

(LIX) In which operation carry is obtained?

A) Subtraction

B) Addition

C) Multiplication

D) Both addition and subtraction

(LX) If A, B and C are the inputs of a full adder then the carry is given by \_\_\_\_\_

A) A AND B OR (A OR B) AND C

B) A OR B OR (A AND B) C

C) (A AND B) OR (A AND B)C

D) A XOR B XOR (A XOR B) AND C