

- 1> The inverter OR gate and AND gate are called decision making elements because they can recognize some input ..... while disregarding others. A gate recognizes a word when its output is.....
- |                |                      |
|----------------|----------------------|
| A> Words, high | D> Character, low    |
| B> Bytes, low  | E> None of the above |
| C> Bytes, high |                      |
- 2> An OR gate has 6 inputs. What is the only input word that produces the 0 output?
- |           |           |           |           |
|-----------|-----------|-----------|-----------|
| A> 000000 | B> 000111 | C> 111000 | D> 111111 |
|-----------|-----------|-----------|-----------|
- 3> Demorgan’s first theorem states that a NOR gate is equivalent to a bubbled ..... gate
- |        |         |        |        |
|--------|---------|--------|--------|
| A> AND | B> NAND | C> XOR | D> NOR |
|--------|---------|--------|--------|
- 4> The 2 input XOR gate has a high output only when the input bits are .....
- |              |         |
|--------------|---------|
| A> even      | C> low  |
| B> different | D> High |
- 5> What is the 1’s complement of 0000 1111 0010 1101?
- |                        |                        |
|------------------------|------------------------|
| A> 1111 0000 0010 1101 | D> 1001 0010 1010 1100 |
| B> 1111 0000 1101 0010 | E> None of the above   |
| C> 1111 1100 1010 1100 |                        |
- 6> ..... is the fastest logic family; it’s used in high speed application
- |        |                      |
|--------|----------------------|
| A> DTL | D> MOS               |
| B> TTL | E> None of the above |
| C> ECL |                      |
- 7> The 7400 series device are guaranteed to work reliably over a temperature range of 0 to ..... and over a voltage range of 4.75 to 5.25V
- |                          |                         |
|--------------------------|-------------------------|
| A> 80 degree centigrade  | D> 90 degree centigrade |
| B> 70 degree centigrade  | E> None of the above    |
| C> 100 degree centigrade |                         |
- 8> A preliminary guide for comparing the simplicity of logic circuits is to count the number of input ..... leads
- |         |                      |
|---------|----------------------|
| A> Wire | D> All of the above  |
| B> Lens | E> None of the above |
| C> Gate |                      |
- 9> The ALU carries out the arithmetic and logic operations. It processes ..... numbers rather than decimal numbers
- |                |                      |
|----------------|----------------------|
| A> Decimal     | D> All of the above  |
| B> Hexadecimal | E> None of the above |
| C> Binary      |                      |

- 10> The leading bit stands for the ..... and the remaining bits for the ..... is known as the signed binary numbers.  
 A> Sign, remainder D> Variable, value  
 B> Sign, magnitude E> None of the above  
 C> Value, sign
- 11> The number of two input NAND gates required to produce the two input OR function is  
 A> 1 B> 2 C> 3 D> 4
- 12> What logic function is produced by adding an inverter to the output of an AND gate?  
 A> NAND D> OR  
 B> NOR E> None of the above  
 C> XOR
- 13> For what logic gate the outputs are the complement of the input?  
 A> NOT D> XOR  
 B> AND E> None of the above  
 C> OR
- 14> The 2's complement of the binary number 010111.1100 is  
 A> 101001.1100 D> 101000.0011  
 B> 101000.0100 E> None of the above  
 C> 010111.0011
- 15> Where an odd number is converted into a binary number, the least significant digit (LSD) is  
 A> 0 D> 90.987  
 B> 1 E> None of the above  
 C> 0 or 1
- 16> The functional capacity of SSI devices is  
 A> 1 to 11 gates D> More than 10,000 gates  
 B> 12 to 99 gates E> None of the above  
 C> 100 to 10,000 gates
- 17> Which sub-family has maximum speed ?  
 A> Standard TTL D> Low power TTL  
 B> Schottky-clamped TTL E> None of the above  
 C> High speed TTL
- 18> The fan out capability of a digital building block can be defined as  
 A> The number of inputs that one output can transmit to  
 B> The amount of cooling required for fanning the heat out  
 C> The number of inputs that can transmit to one output  
 D> The maximum power dissipation (heat generation) that the unit can stand
- 19> A p-channel enhancement type MOSFET performs much the same function as a PNP transistor, except that  
 A> It operates much faster  
 B> It is considerably larger

C> It is controlled by voltage rather than by current, so that it requires very little current at the control terminal

D> It is controlled by current rather than by voltage like a bipolar transistor

20>  $A'+B'+C' = D$  represents a

A> NAND gate

B> OR gate

C> XOR gate

D> AND gate

E> None of the above

21> A half adder is also known as

A> AND circuit

B> NAND circuit

C> NOR circuit

D> XOR circuit

E> None of the above

22> Which of the following is not functionally a complete set?

A> AND, OR

B> NAND

C> NOR

D> AND, OR, NOT

E> None of the above

23> Which function positive logic is equivalent to OR function in negative logic?

A> NOT

B> AND

C> OR

D> NOR

E> None of the above

24> A shift register can be used for

A> Parallel to serial conversion

B> Serial to parallel conversion

C> Digital delay line

D> All of the above

E> None of the above

25> A logic circuit which is used to change a BCD number into an equivalent decimal number is

A> Decoder

B> Encoder

C> Multiplexer

D> Code converter

E> None of the above

26> A multiplexer is also known as

A> Coder

B> Decoder

C> Data selector

D> Multivibrator

E> None of the above

27> The clock signals are use to a sequential logic circuits

A> To tell the time of the day

B> To tell how much time has elapsed since the system was turned on

C> To carry serial data signals

D> To synchronize events in various parts of a system

E> None of the above

28> The highest decimal number that can be represented by 10 bits is

A> 1023

B> 1024

C> 512

D> all of the above

E> None of the above

29> Express 7 as 16 bit signed binary numbers

A> 0000 0000 0000 0111

B> 1000 0000 0000 0111

C> 0111 0000 0000 0001

D> 0111 0000 0000 0000

E> None of the above

30> A flip-flop is a ..... element that stores a binary digit as a low or high voltage

A> Chip

B> Bus

C> I/O

D> Memory

E> None of the above

31> Which +ve clocking the clock signal must be ..... for the flip-flop to respond

A> High

B> Low

C> Set

D> Race

E> None of the above

32> One flip-flop divides the clock frequency by a factor of ..... . In general, n flip-flop divides by .....

A> Two, n+1

B> Four, n+4

C> 12, n+12

D> Two,  $2^n$

E> None of the above

33> How many memory locations can 14 address bits access?

A> 16,384

B> 8,192

C> 4096

D> 14

E> None of the above

34> What is the highest address in a 48K memory? Express in hexadecimal and decimal form

A> 7FFFH, 64,387

B> BFFFH, 49,151

C> BFFFH, 49,152

D> 7FFFH, 64,386

E> None of the above

35> Consider S-R flip flop with both inputs set to 0 . If a momentary '1' is applied at the input S, then the output

A> Q will flip from 0 to 1

B> Q will flip from 0 to 1 and then back to 0

C> Q' will flip from 0 to 1

D> Q' will flip from 0 to 1 and then back to 0

E> None of the above

36> Which of the following flip-flop is free from race around problem

A> T flip-flop

B> S-R flip-flop

C> Master slave J-K flip-flop

D> All of the above

E> None of the above

37> CMOS supply voltage ( $V_{DD}$ ) is in the range of .....

A> 5-10 V

B> 3-10 V

C> 7-12 V

D> 6-12 V

38> A real voltage source has

- (A) Zero internal resistance  
(B) Infinite internal resistance  
(C) A small internal resistance
- (D) A large internal resistance  
(E) None of the above
- 39> The Thevenin resistance is equal in value to the  
(A) Load resistance  
(B) Half of the load resistance  
(C) Internal resistance of a Norton circuit  
(D) Open load resistance  
(E) None of the above
- 40> The maximum no of TTL loads that a TTL device can drive reliably over the specified temperature range is  
(A) Fan out  
(B) Bipolar  
(C) Chip  
(D) Universal logic circuit
- 41> In which code the successive code characters differ in only one bit position?  
(A) Gray code  
(B) Excess 3-code  
(C) 8421 code  
(D) Algebraic code  
(E) None of the above
- 42> Which of the following logic families has the highest noise immunity?  
(A) RTL  
(B) DTL  
(C) TTL  
(D) HTL
- 43> A ROM is used to store the table for Multiplication of 8 bit unsigned integers. The size of the ROM required is  
(A) 256 x 16  
(B) 64K x 8  
(C) 4K x 16  
(D) 64K x 16
- 44> Bipolar RAM makes use of  
(A) TTL high speed circuit  
(B) DTL circuit  
(C) RTL high speed circuits  
(D) Any of them  
(E) None of the above
- 45> Which of the following operations is commutative but not associative  
(A) AND  
(B) OR  
(C) NAND  
(D) XOR
- 46> To convert a Flip-Flop to an edge triggered Flip-Flop, we use  
(A) Integrated circuit  
(B) Differentiating circuit  
(C) TTL circuit  
(D) None of the above
- 47>  $\Sigma m (1,2,4,6)$  is equivalent to  
(A)  $\Pi M (0,3,5,4,7)$   
(B)  $\Pi M (0,3,4,7)$   
(C)  $\Pi M (0,3,6,7)$   
(D)  $\Pi M (0,3,5,7)$
- 48> The condition of undefined not comes in .....  
(A) R-S Flip-Flop  
(B) J-K Flip-Flop  
(C) D Flip-Flop  
(D) R-S Edge triggered Flip-Flop

- 49> A ..... Circuit is a system whose behavior can be defined from the knowledge of its signal at discrete instants of time.
- (A) Serial sequential
  - (B) Synchronous sequential
  - (C) Asynchronous sequential
  - (D) None of the above
- 50> In ring counter we use .....
- (A) S-R Flip-Flop
  - (B) T Flip-Flop
  - (C) J-K Flip-Flop
  - (D) D Flip-Flop

**Answer Sheet for question no. TOTSOL-DIGI-01**

<b>1. A</b>	<b>6. C</b>	<b>11. C</b>	<b>16. A</b>	<b>21. D</b>	<b>26. C</b>	<b>31. A</b>	<b>36. E</b>	<b>41. A</b>	<b>46. B</b>
<b>2. A</b>	<b>7. B</b>	<b>12. A</b>	<b>17. B</b>	<b>22. A</b>	<b>27. D</b>	<b>32. D</b>	<b>37. B</b>	<b>42. D</b>	<b>47. D</b>
<b>3. A</b>	<b>8. C</b>	<b>13. A</b>	<b>18. A</b>	<b>23. D</b>	<b>28. A</b>	<b>33. A</b>	<b>38. C</b>	<b>43. D</b>	<b>48. C</b>
<b>4. B</b>	<b>9. C</b>	<b>14. B</b>	<b>19. C</b>	<b>24. D</b>	<b>29. A</b>	<b>34. B</b>	<b>39. E</b>	<b>44. A</b>	<b>49. B</b>
<b>5. B</b>	<b>10. B</b>	<b>15. B</b>	<b>20. A</b>	<b>25. A</b>	<b>30. D</b>	<b>35. A</b>	<b>40. A</b>	<b>45. C</b>	<b>50. D</b>