

01. In order to build a 3 bit simultaneous A/D converter, what is the number of comparator circuits required?

- (a) 7 (b) 8 (c) 15 (d) 16

02. Which one of the following D/A converters has the resolution of approximately 0.4% of its full scale range?

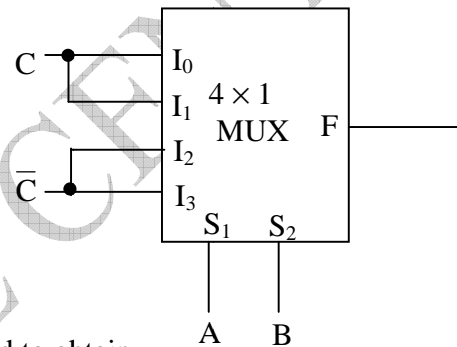
- (a) 8-bit (b) 10-bit (c) 12-bit (d) 16-bit

03. The resolution for n bit system D/A converter is

- (a)  $\frac{1}{2^N}$  (b)  $\frac{1}{2^N - 1}$  (c)  $2^N - 1$  (d)  $2^N$

04. The logic realized by the circuit shown in figure is

- (a)  $F = A \odot C$   
 (b)  $F = A \oplus C$   
 (c)  $F = B \odot C$   
 (d)  $F = B \oplus C$

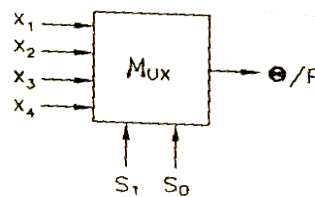


05. Without any additional circuitry, an 8:1 Mux can be used to obtain

- (a) some but not all Boolean Functions of 3 variables  
 (b) all functions of 3 variables but none of 4 variables  
 (c) all functions of 3 variables and some but not all of 4 variables  
 (d) none of the above

06. In the figure shown

- $X_1$  HI  
 $X_2$  HI  
 $X_3$  HI  
 $X_4$  LO



$S_1$  and  $S_0$  are control inputs. This multiplexer is equivalent to

- (a) NAND gate (b) AND gate (c) OR gate (d) EXNOR gate

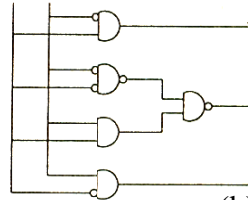
07. A full-adder can be implemented with half-adders AND OR gates. A 4-bit parallel full adder without any initial carry requires

- (a) 8 half-adders, 4-OR gates (b) Three bit parity checker  
 (c) 7 half-adders, 4-OR gates (d) 7 half-adders, 3-OR gates

08. Which one of the following will give the sum of full-adder as output?

- (a) Three input majority circuit (b) Three bit parity checker  
 (c) Three bit comparator (d) Three bit counter

09. The circuits shown in the given figure is



- (a) An adder circuit  
 (b) A subtractor circuit  
 (c) A comparator circuit  
 (d) A parity generator circuit

10. Which one of the following statements correctly defines the full-adder?

- (a) having two inputs used to add two binary digits. It produces their sum and carry as input.  
 (b) having three inputs used to add two binary digits. It produces their sum and carry as outputs.  
 (c) used in the least significant position when adding two binary digits with no carry-in to consider. It produces their sum and carry as outputs.  
 (d) having two inputs and two outputs.

11. When two 16-input multiplexers drive a 2- input MUX, what is the result?

- (a) 2-input MUX  
 (b) 4-input MUX  
 (c) 16-input MUX  
 (d) 32-input MUX.

12. Which one of the following statements is not correct?

- (a) An 8 input MUX can be used to implement any 4 variable function  
 (b) A 3 line to 8 line DEMUX can be used to implement any 4 variable function  
 (c) A 64 input MUX can be built using nine 8 input MUXs.  
 (d) A 6 line to 64 line DEMUX can be built using nine 3 line to 8 line DEMUXs.

13. What is the number of selector lines required in a single input n-output demultiplexer?

- (a) 2  
 (b) n  
 (c)  $2^n$   
 (d)  $\log_2 n$

14. A digital multiplexer can be used for which of the following?

1. Parallel to serial conversion
2. Many-to-one switch
3. To generate memory chip select.
4. For code conversion.

Select the correct answer using the code given below:

- (a) 1, 3 and 4  
 (b) 2, 3 and 4  
 (c) 1 and 2 only  
 (d) 2 and 3 only

15. A bus organized processor consists of 15 registers. The number of selection lines in each multiplexer and in the destination decoder are respectively:

- (a) 2 and 4  
 (b) 4 and 2  
 (c) 4 and 4  
 (d) 4 and 8

16. Which of the following is a D/A converter?  
(a) flash converter (b) weighted resistor  
(c) successive approximation (d) dual slope
17. The ADC having conversion speed is  
(a) Dual slope ADC (b) Successive approximation  
(c) Flash ADC (d) Servo ADC
18. The number of comparator carrier out in a 4 bit flash type A/D converter is  
(a) 16 (b) 15 (c) 64 (d) 4
19. In a dual slope ADC to eliminate 50HZ pick up the minimum period of integration of the input signal is adjusted to be \_\_\_\_\_ms  
(a) 10 (b) 16.67 (c) 24.5 (d) 36
20. A certain 12- bit BCD digital –to – analog converter has a full scale output of 9.99V. The converter step size is  
(a) 1V (b) 0.1V (c) 0.01V (d) 0.001V

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1- A 2-A 3-B 4-B 5-C 6-A 7-D 8-A 9-C 10-B  
11-D 12-B 13-D 14- C 15- C 16- B 17- C 18- B 19- B 20- C

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