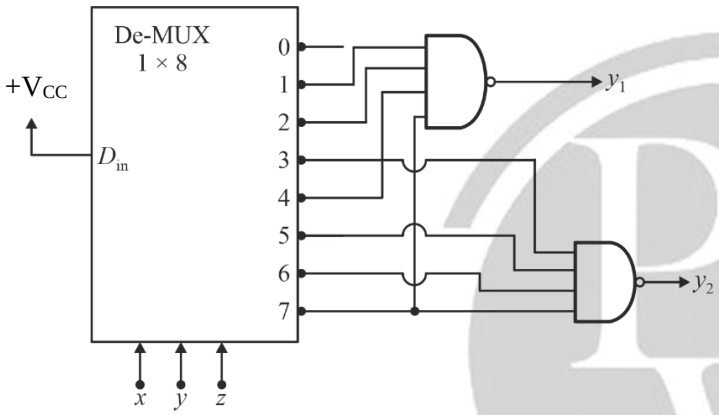
CS & IT Batch: English

Digital Logic
Combinational Circuits

DPP-03

[MCQ] ★★★

1. A demultiplexer of size 1 × 8 with active low outputs, is programmed as shown below. The circuit has three inputs *x*, *y*, *z* and generates two outputs y_1, y_2.

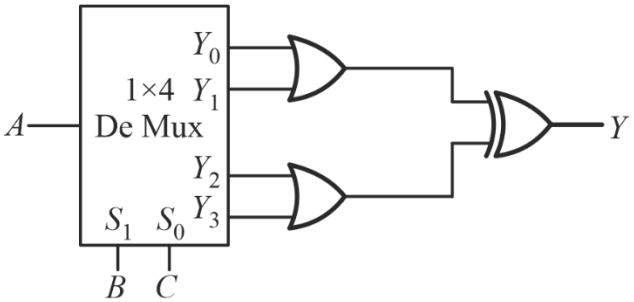


If *de*-multiplexer has active high output instead of active low outputs, then in order that outputs do not change

(a) NAND gates should be replaced by NOR gates
(b) NAND gates should be replaced by OR gates
(c) NAND gates should be replaced by AND gates
(d) the inputs *x*, *y*, *z* should be inverted

[MCQ] ★★☆

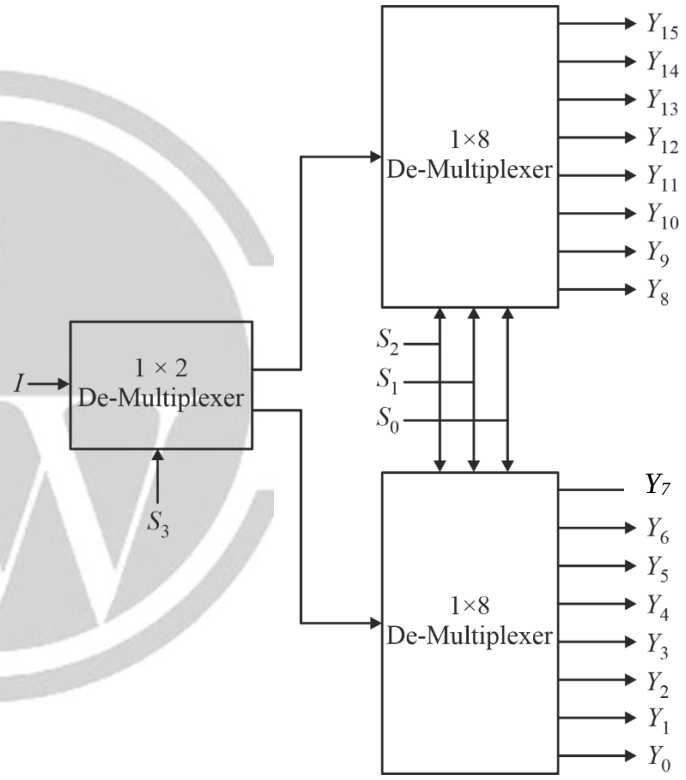
2. For what values of *A*, *B*, *C* the output (*Y*) will be 0



(a) *A* = 1, *B* = 0, *C* = 0
(b) *A* = 0, *B* = 1, *C* = 1
(c) *A* = 1, *B* = 1, *C* = 0
(d) *A* = 1, *B* = 1, *C* = 1

[MCQ] ★☆☆

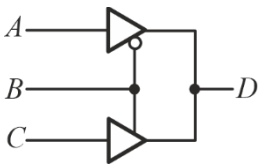
3. The figure shown below is a block diagram of _____ demultiplexer?



(a) 1 to 4
(b) 1 to 8
(c) 1 to 16
(d) None of the above

[MCQ] ★★☆

4. Identify the circuit shown below?



(a) Bidirectional buffer
(b) De-multiplexer
(c) Multiplexer
(d) Encoder

[NAT] ★☆☆

5. How many inputs will a decimal to BCD encoder have?_____

[MCQ] ★☆☆

6. Which one of the following de multiplexer requires only five select lines?

(a) 1 × 2 de Mux

(b) 1 × 4 De Mux

(c) 1 × 8 De Mux

(d) 1 × 32 De Mux

[NAT] ★★☆

7. What is the minimum number of 1 × 4 De Mux required to implement 1×2^{10} De Mux._____

[MCQ] ★★☆

8. To implement a 1 : 128 De-Mux we require M number of 1 : 8 De-mux and N numbers of 1 : 2 De-mux.

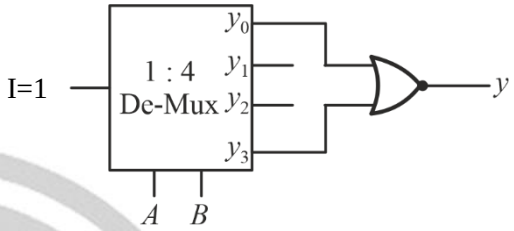
Then which of the following is correct

(a) $(M - N)/2 = 9$ (b) $M + N = M$

(c) $M/N = M$ (d) $(M + N)/2=9$

[MCQ] ★★☆

9. Consider a circuit as shown below:



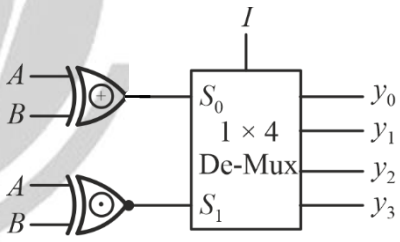
Output y is

(a) $A + B$ (b) $\overline{A \cdot B}$

(c) $A \oplus B$ (d) $A \odot B$

[MCQ] ★★☆

10. Consider a combinational circuit as shown below.



For any sequence A, B which of the output pins (y_0 to y_3) can be active

(a) y_0 and y_3 only

(b) y_1 and y_2 only

(c) y_1 only

(d) all pins can be active

Answer Key

1. **(b)**
2. **(b)**
3. **(c)**
4. **(c)**
5. **(10)**
6. **(d)**
7. **(341)**
8. **(c)**
9. **(c)**
10. **(b)**