CS & IT ENGINEERING

Digital Logic

DPP - 03 Discussion Notes

Combinational Circuit

By- CHANDAN JHA SIR

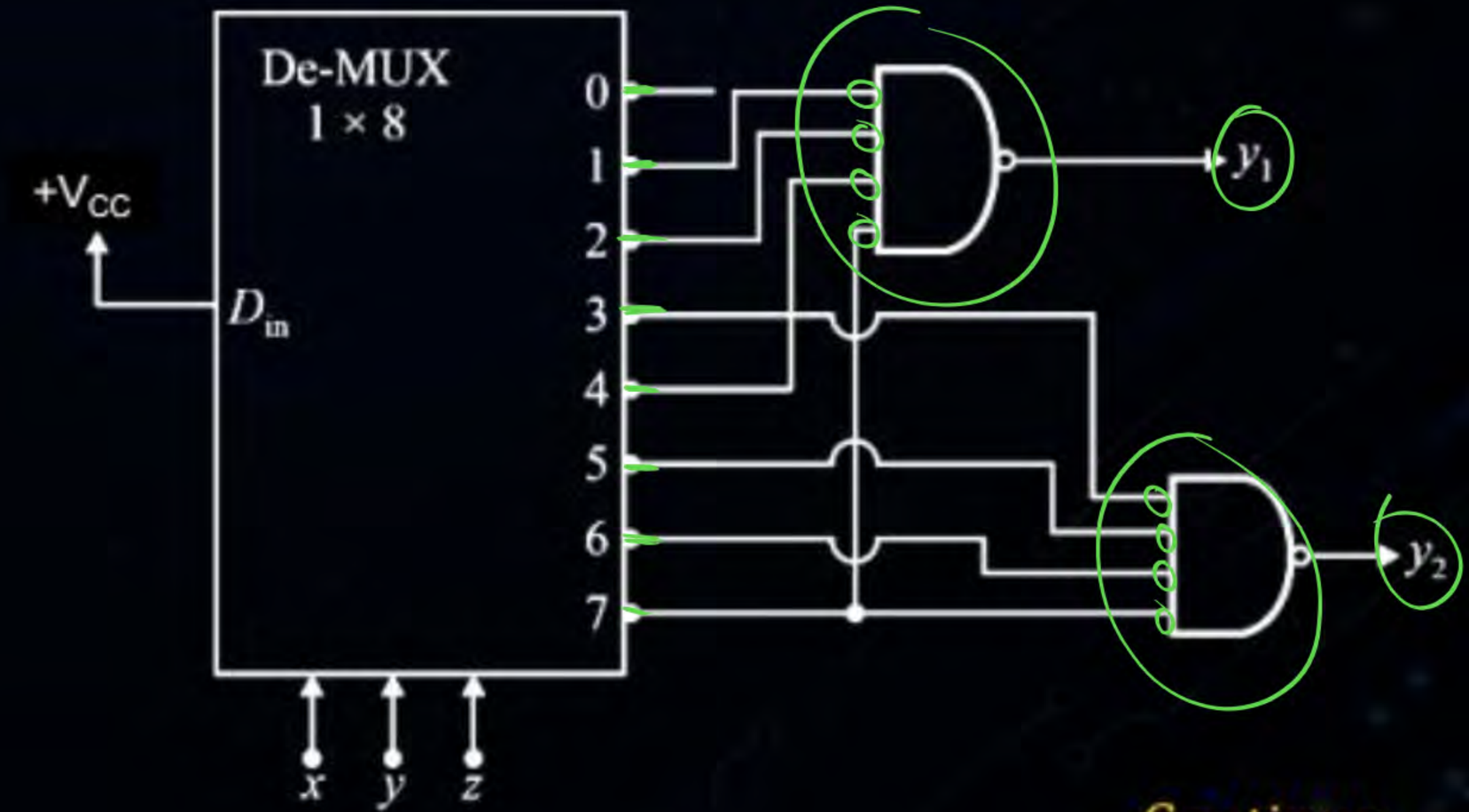
01 Questions

02 Discussion

Question **MCQ**

★★★

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.



Continue...

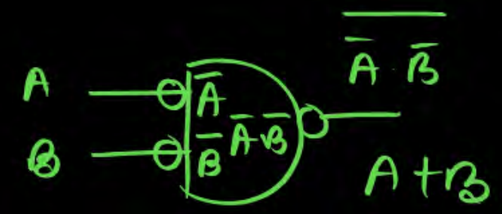
If de-multiplexer has active high output instead of active low outputs, then in order that outputs do not change

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



Bubbled NAND = OR

Question MCQ

★★☆

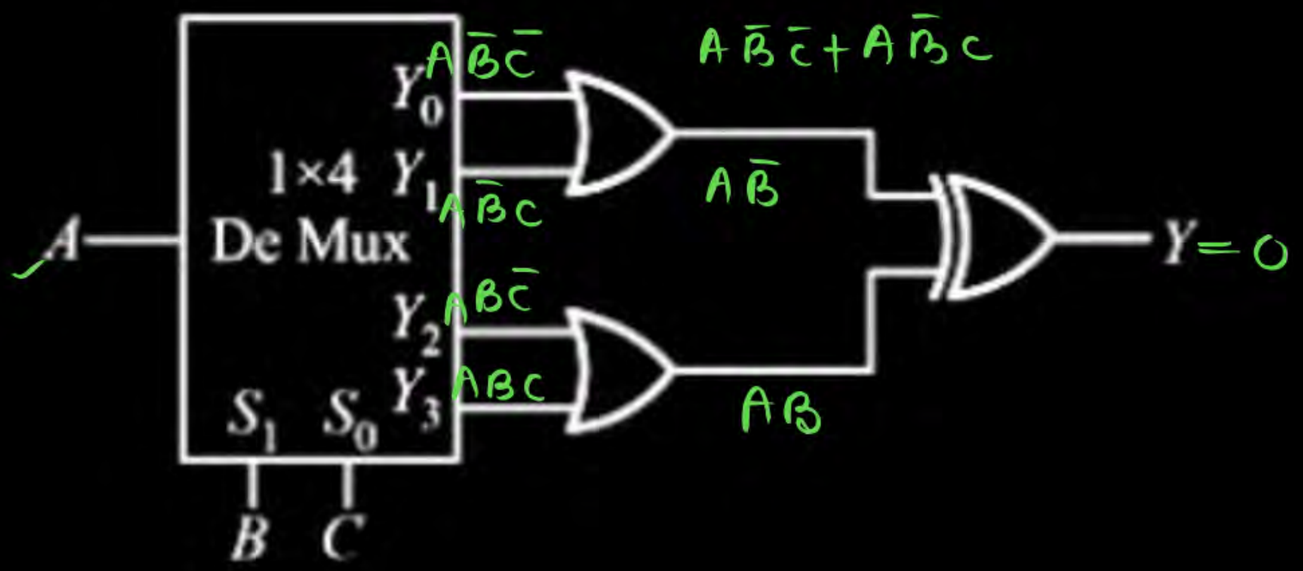
For what values of A, B, C the output (Y) will be 0

A A = 1, B = 0, C = 0

B A = 0, B = 1, C = 1

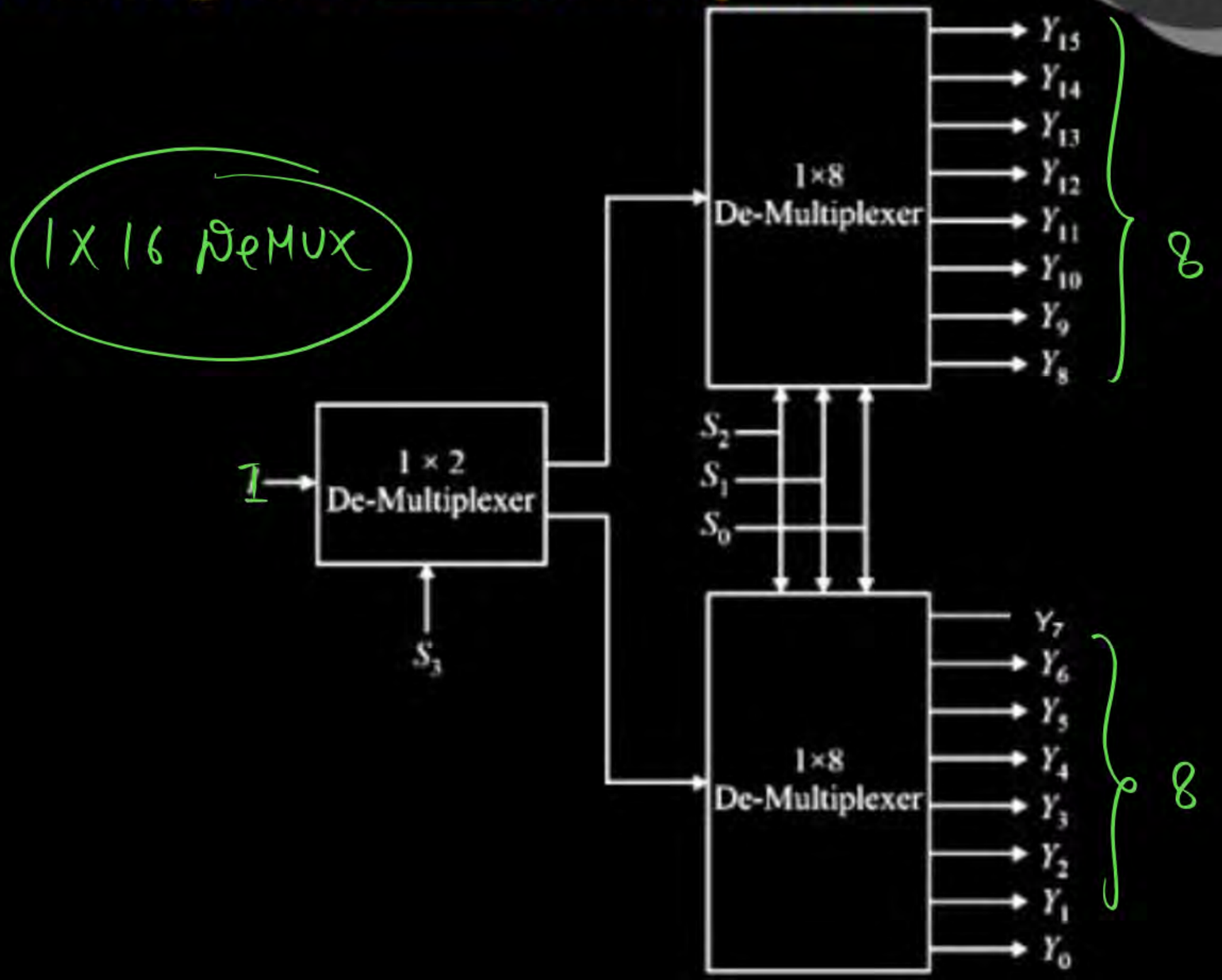
C A = 1, B = 1, C = 0

D A = 1, B = 1, C = 1



Question **MCQ**

The figure shown below is a block diagram of ____ demultiplexer?



1 X 16 DeMUX

A 1 to 4

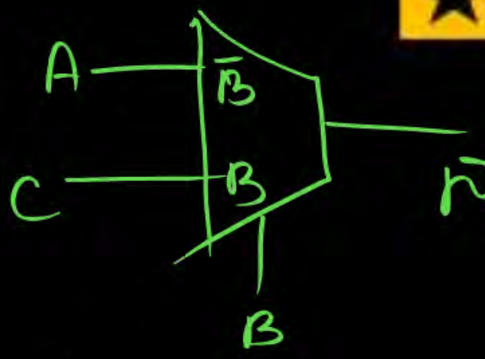
B 1 to 8

C 1 to 16

D None of the above

Question **MCQ**

Identify the circuit shown below?



$Y = \bar{B}A + BC$

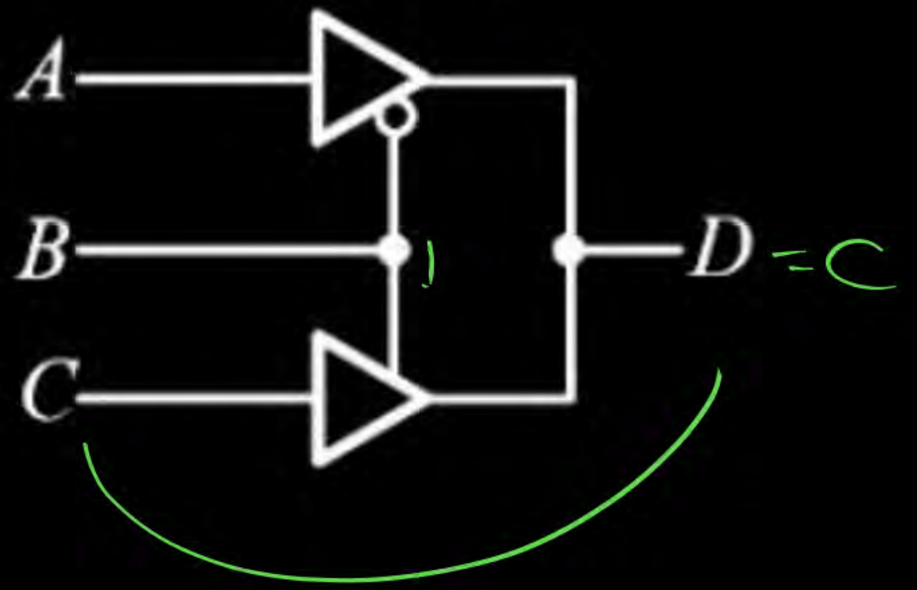
$Y = A\bar{B} + BC$

A. Bidirectional buffer

B. De-multiplexer

C. Multiplexer

D. Encoder



B	O/P (Y)
0	A
1	C

Question **NAT**

How many inputs will a decimal to BCD encoder have? 10

Question MCQ

★☆☆

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

'n' select line No. of o/p = 2^n

$n = \log_2 2^n$

$32 = 2^5$

Question **NAT**

What is the minimum number of 1 × 4 De Mux required to implement 1×2^{10} De Mux. 341

$$1\times 4 \text{ DEMUX} \xrightarrow{\frac{1024}{4}+\frac{256}{4}+\frac{64}{4}+\frac{16}{4}+\frac{4}{4}} 1\times 1024$$

$$256+64+16+4+1$$

$$320+21$$

$$=341$$

Ans

Question MCQ

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?

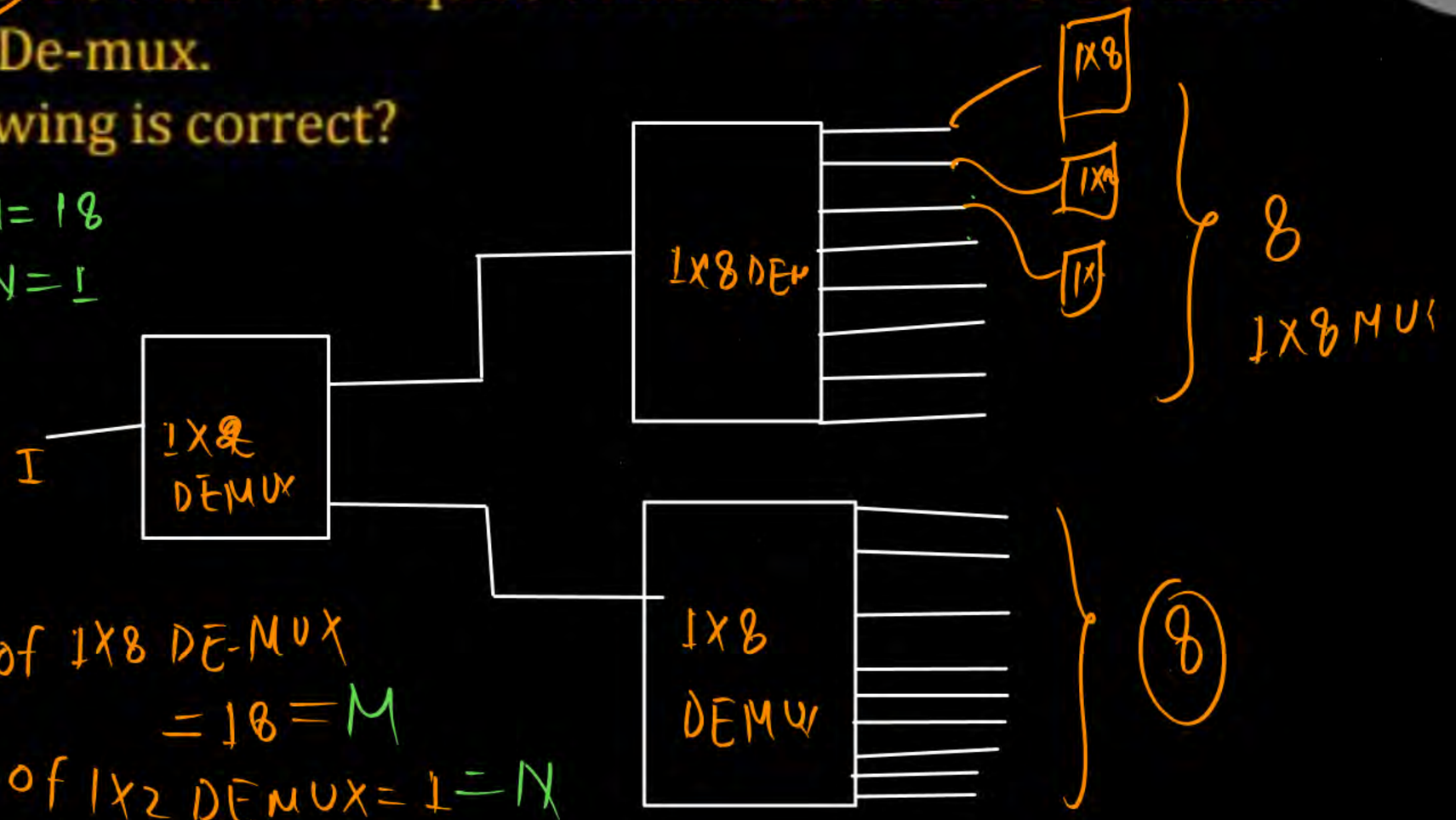
A (M – N)/2 = 9

B M + N = M

C M/N = M

D (M + N)/2

M = 18
N = 1

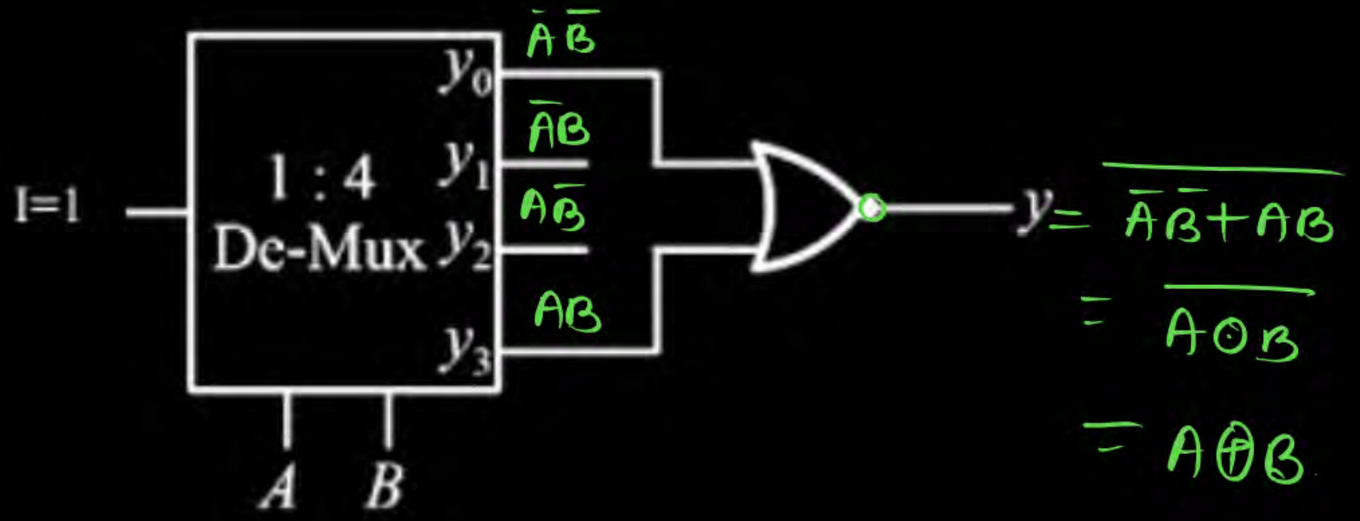


No. of 1X8 DE-MUX = 18 = M

No. of 1X2 DEMUX = 1 = N

Question MCQ

Consider a circuit as shown below:
Output y is?



A $A + B$

B $\overline{A \cdot B}$

C $A \oplus B$

D $A \odot B$

Question **MCQ**

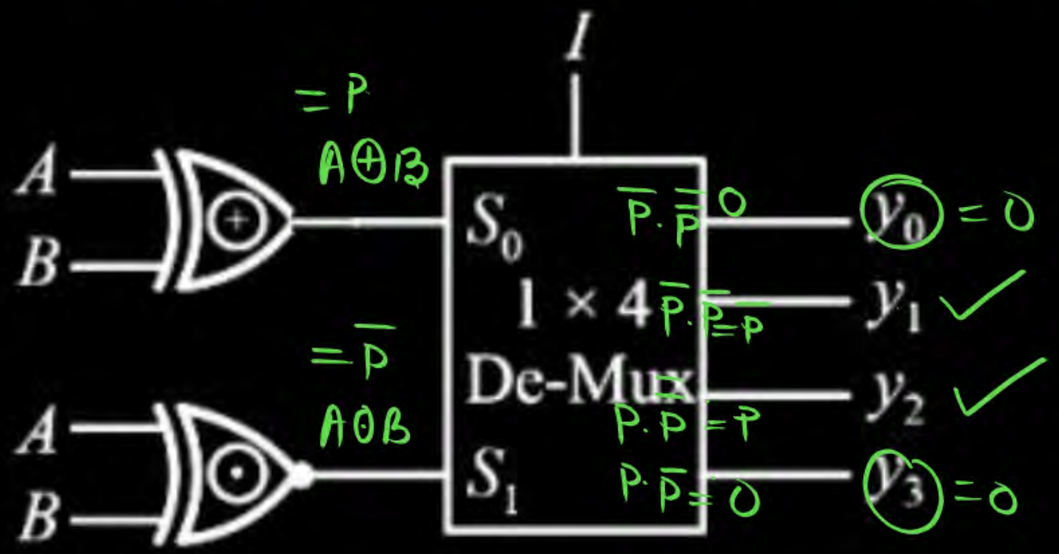
Consider an combinational circuit as shown below.
For any sequence of A,B which of the output pins (y_0 to y_3) can be active

A y_0 and y_3 only

B y_1 and y_2 only

C y_1 only

D all pins can be active



Thank you

GW

Soldiers !