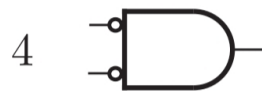
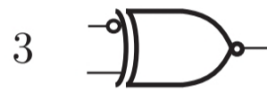
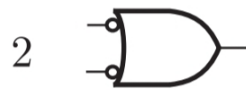
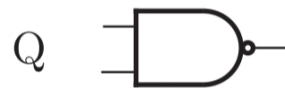


GATE QUESTION ECE 2010 Q11

Q11) Match the logic gates in **column A** with their equivalent in **column B**

Column A

Column B



- (A) P-2, Q-4, R-1, S-3 (B) P-4, Q-2, R-1, S-3
(C) P-2, Q-4, R-3, S-1 (D) P-4, Q-2, R-3, S-1

sol:

Hence Correct Option is (D)

$$\begin{array}{c} X \\ Y \end{array} \text{---} \text{NAND} \text{---} \overline{X+Y} = \overline{X} \overline{Y} \quad \equiv \quad \begin{array}{c} X \\ Y \end{array} \text{---} \text{NAND} \text{---} \overline{\overline{X} \overline{Y}}$$

$$\begin{array}{c} X \\ Y \end{array} \text{---} \text{NAND} \text{---} \overline{X \overline{Y}} = \overline{X} + \overline{\overline{Y}} \quad \equiv \quad \begin{array}{c} X \\ Y \end{array} \text{---} \text{NAND} \text{---} \overline{\overline{X} + \overline{Y}}$$

$$\begin{array}{c} X \\ Y \end{array} \text{---} \text{NAND} \text{---} X \oplus Y = \overline{X} Y + X \overline{Y} \quad \equiv \quad \begin{array}{c} X \\ Y \end{array} \text{---} \text{NAND} \text{---} \overline{\overline{X} \otimes Y} = \overline{X} Y + X \overline{Y}$$

$$\begin{array}{c} X \\ Y \end{array} \text{---} \text{NAND} \text{---} X \otimes \overline{Y} = XY + \overline{X} \overline{Y} \quad \equiv \quad \begin{array}{c} X \\ Y \end{array} \text{---} \text{NAND} \text{---} X \oplus \overline{Y} = XY + \overline{X} \overline{Y}$$