

1. An AND gate gives output 1 when:
 - ☐ at least one input is 1
 - ☐ the inputs are different
 - ☐ both inputs are 1
 - ☐ both inputs are 0
2. The expression '(A AND B) OR (NOT C)' means:
 - ☐ do A AND B, do NOT C, then OR the two results
 - ☐ do A AND B AND C, ignoring the OR and NOT
 - ☐ invert A, B and C first, then AND them together
 - ☐ do A OR B only, then ignore the NOT C part
3. An OR gate gives output 0 only when:
 - ☐ both inputs are 0
 - ☐ one input is 1
 - ☐ both inputs are 1
 - ☐ the inputs are different
4. How many rows does a truth table have for a circuit with 3 inputs?

5. A XOR gate gives output 1 when:
 - ☐ both inputs are 0 at the same time
 - ☐ both inputs are 1 at the same time
 - ☐ at all times, whatever the inputs are
 - ☐ the two inputs are different
6. When drawing a circuit from a problem statement, you should:
 - ☐ always reduce it to as few gates as possible, ideally one
 - ☐ ignore the NOT operations, since they only invert a signal
 - ☐ add extra gates so that every input is checked twice
 - ☐ draw it exactly as the statement says, without simplifying

7. A NOR gate with both inputs 0 gives what output (0 or 1)?

8. For $X = (A \text{ AND } B) \text{ OR } C$ with $A=1$, $B=0$, $C=1$, what is X ?

☐ 0

☐ 1

☐ 2

☐ cannot tell

IGCSE Computer Science

1. **both inputs are 1**

AND outputs 1 only when every input is 1.

2. **do A AND B, do NOT C, then OR the two results**

Work out each part – (A AND B) and (NOT C) – then OR them together.

3. **both inputs are 0**

OR is 1 if at least one input is 1, so it is 0 only when both are 0.

4. **8**

Each input doubles the combinations: $2^3 = 8$ rows (000 to 111).

5. **the two inputs are different**

XOR (exclusive OR) is 1 when the inputs differ.

6. **draw it exactly as the statement says, without simplifying**

At IGCSE you draw the circuit as described – simplification is not required.

7. **1**

NOR = NOT OR. OR of (0,0) is 0, so NOR is 1. NOR is 1 only when both inputs are 0.

8. **1**

A AND B = 0; 0 OR C(=1) = 1, so X = 1.