



Quantum circuit diagram with three horizontal lines representing qubits  $|a\rangle$ ,  $|b\rangle$ , and  $|a \oplus b \oplus c\rangle$ .

The circuit consists of two stages of operations:

- Stage 1:** A CNOT gate with control on  $|b\rangle$  and target on  $|c\rangle$ , followed by a CNOT gate with control on  $|a\rangle$  and target on  $|c\rangle$ .
- Stage 2:** A CNOT gate with control on  $|a\rangle$  and target on  $|b\rangle$ , followed by a CNOT gate with control on  $|b\rangle$  and target on  $|c\rangle$ .