

## Introduction to HDL

### Exam questions

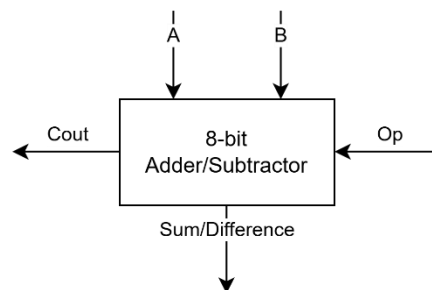
#### 8 Bit Adder / Subtractor

##### Problem

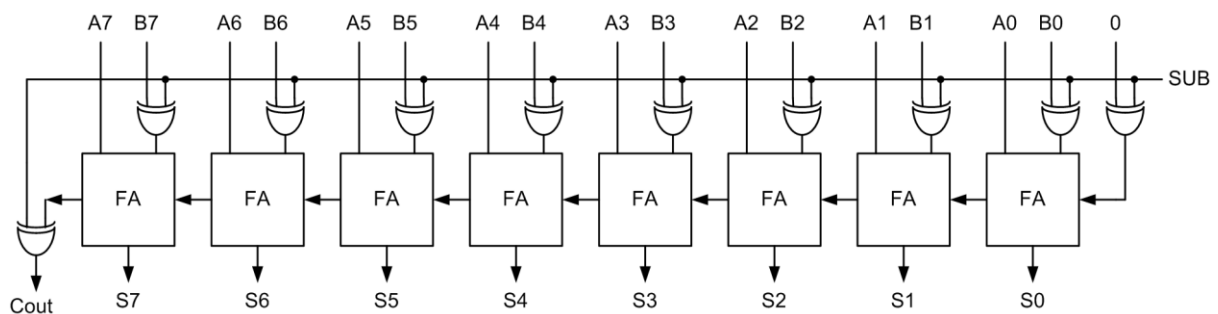
Design an 8-bit adder/subtractor that adds or subtracts two 8-bit binary numbers 'A' and 'B' based on a signal 'Op' (Op = 1 = subtraction), and outputs the result as 'Sum' and 'Cout'.

##### Simplified Diagram

Simplified 8-bit adder / subtractor diagram



Extended 8-bit adder/subtractor diagram



##### Supplemental knowledge

Full Adder Truth Table

A	B	Cin	Sum	Cout
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1