▶Solution◀

Analysis of Logic Instructions

Question 1:   (10 points)
(V06) Explain what the following sequence of RISC-V assembly does. This question is
<u>not</u> asking you to explain what each individual instruction does. Rather, it asks you to
follow the logic in the sequence and state, in an English statement, what is the effect of
executing these instructions in the values stored in any register that is changed by the
execution of the sequence.

```
addi    s0, zero, 1
slli    s0, s0, 31
srai    s0, s0, 15
srli    s0, s0, 8
xori    s0, s0, -1
and     s1, s0, s1
```

The sequence of instructions changes the value in `s0` to become 0xFF00 00FF and then
uses this value as a mask to make the bits 8-23 of `s1` equal zero while preserving the
value of the other bits in `s1`.