

### Assignment 3

COEN210  
Spring 2022

#### Question 1

1.1 Provide the instruction type and assembly language instruction for the following binary value

00000000000100001000000010110011

**answer:**

```
R-type: add x1, x1, x1
```

1.2 Provide the instruction type and hex and binary representation of the following instruction:

sw x5, 32(x30)

**answer:**

```
S-type: 0x25F3023 (0000 0010 0101 1111 0011 0000 0010 0011)
```

#### Question 2

Follow the *factorial()* example in lecture, implement *sum()* function in RISC-C assembly instructions.

For example, *sum(5)* will calculate  $1 + 2 + 3 + 4 + 5$

Use online RISC-V simulator to run your program

Some of the online simulators are:

1. <https://www.cs.cornell.edu/courses/cs3410/2019sp/riscv/interpreter/>
2. <https://riscvasm.lucasteske.dev/>
3. <https://ascslab.org/research/briscv/simulator/simulator.html>

Submit code and running screen shot.