

Exercise 1

Q1- Comment the code.

```
.text
    add x0, zero, zero    #comment
    add t0, a0, zero
    addi t1, zero, 8
loop:
    lw t2, 0(t0)
    sub x0, x0, t2
    addi t0, t0, 4
    addi t1, t1, -1
    bne t1, zero, loop
exit:
    addi a0, x0, 10
    add a1, x0, x0
    ecall
```

Q2- Complete the missing parts.

```
.data
A: .word 5
B: .word 4
C: .word 0
.text
    .globl main
main:
    la t0, A
    ___ t0, 0(t0) # Read the value of "A" from memory
    la t1, B
    lw t1, 0(t1) # _____
    ___ t3, 1 # i = 0 (to keep track of the value "B")
    li t4, 0 # C = 0 (initialize the result to 0)
loop:
    ___ t3, t1, done # while (i is not equal to b) continue adding
A to C.
    add t4, ___, t0 # C= C + A;
    addi t3 t3, 1 # i = i + 1
    j loop
done:
    la t3, C # _____
    ___ t4, 0(t3)
```

Q3- Convert this C code into RISC-V assembly.

```
int source[] = {3, 1, 4, 1, 5, 9, 0};
int dest[10];

int k;
for (k=0; source[k]!=0; k++) {
    dest[k] = source[k];}
```

Q4- Write a RISC-V assembly code to determine if the given year is a leap year (1996, 1997, 1998, 1900, 1800, 2400, 2000), Hint a leap year is a year whose number is perfectly divisible by four, except for years which are both divisible by 100 and not divisible by 400.

Q5-Convert the following recursive implementation of Fibonacci to RISC-V. Do not convert it to an iterative solution.

```
int fib(int n) {  
    if (n == 0) {  
        return 0;  
    }  
    else if (n == 1) {  
        return 1;  
    }  
    return fib(n-1) + fib(n-2);  
}
```