Task 1:

a) 0x6c6c6337 - OK

0110 1100 0110 1100 0110 0011 0**011 0111**

lui x6 0x6c6c6

b) 0x54830313 - OK

0101 0100 1000 0011 0**000** 0011 0**001 0011**

I-format

addi x6, x6, 0x548

c) 0x412033b7 - OK

0100 0001 0010 0000 0011 0011 1**011 0111**

lui x7, 0x41203

d) 0xc6f38393 - Maybe need to convert and write the decimal number

1100 0110 1111 0011 1**000** 0011 1**001 0011**

1100 0110 1110 -> 0011 1001 0001

addi x7, x7, -913

e) 0x00535e37 -

0000 0000 0101 0011 0101 1110 0**011 0111**

lui x28, 0x00535

f) 0xf43e0e13 - Maybe need to convert and write the decimal number

1111 0100 0011 1110 0**000** 1110 0**001 0011**

1111 0100 0010 -> 0000 1011 1101

addi x28, x28, -189

g) 0x10010437 - OK

0001 0000 0000 0001 0000 0100 0**011 0111**

lui x8, 0x10010

h) 0x00040413 - OK

0000 0000 0000 0100 0**000** 0100 0**001 0011**

addi x8, x8, 0

i) 0x00642023 - OK

0000 000**0 0110** 0100 0**010** 0000 0**010 0011**

sw x6, 0(x8)

j) 0x00742223 - OK

0000 000**0 0111** 0100 0**010** 0010 0**010 0011**

sw x7 4(x8)

k) 0x01c42423 - OK

0000 000**1 1100** 0100 0**010** 0100 0**010 0011**

sw x28, 8(x8)

l) 0x00400893 - OK

0000 0000 0100 0000 0**000** 1000 1**001 0011**

addi x17, x0, 0x004

m) 0x00800533 -

0000 000**0 1000** 0000 0**000** 0101 0**011 0011**

add x10, x0, x8

n) 0x00000073 -

0000 0000 0000 0000 0000 0000 0**111 0011**

Ecall

Output is “Hello, ACOS”

Task 2:
0x00500893 3
0000 0000 0101 0000 0**000** 1000 1**001 0011**
addi x17, x0, 0x005

0x00000073 4
ecall

0x00a00333 5 # store "a"
0000 000**0 1010** 0000 0**000** 0011 0**011 0011**
add x6, x0, x10

0x01f55293 6 # store sign of "a"
0000 000**1 1111** 0101 0**101** 0010 1**001 0011**
srli x5, x10, 31

0x00000073 8
ecall

0x00a00eb3 9 # store "b"
0000 000**0 1010** 0000 0**000** 1110 1**011 0011**
add x29, x0, x10

0x01f55e13 10 # store sign of "b"
0000 000**1 1111** 0101 0**101** 1110 0**001 0011**
srli x28, x10, 31

0x06030263 12
0**000 011**0 0000 **0011 0**000 **0010** 0**110 0011**
beq x6, x0, label1

0x060e8063 13
0**000 011**0 0000 **1110 1**000 **0000** 0**110 0011**
beq x29, x0, label1

0x00028663 15 # if "a" < 0 then inverse it

0**000 000**0 0000 **0010 1**000 **0110** 0**110 0011**
beq x5,x0, label3

0xfff34313 16
1111 1111 1111 0011 0**100** 0011 0**001 0011**
xori x6, x6, -1

0x00130313 17
0000 0000 0001 0011 0**000** 0011 0**001 0011**
addi x6, x6, 1

0x000e0663 19 # if "b" < 0 then inverse it
0**000 000**0 0000 **1110 0**000 **0110** 0**110 0011**
beq x28, x0, label4

0xfffece93 20
1111 1111 1111 1110 1**100** 1110 1**001 0011**
xori x29, x29, -1

0x001e8e93 21
0000 0000 0001 1110 1**000** 1110 1**001 0011**
addi x29, x29, 0x001

0x01d35863 24 # if "a" < "b" swap them
0**000 000**1 1101 **0011 0**101 **1000** 0**110 0011**
bge x6, x29, label5

0x006eceb3 25
0000 000**0 0110** 1110 1**100** 1110 1**011 0011**
xor x29, x29, x6

0x006ec333 26
0000 000**0 0110** 1110 1**100** 0011 0**011 0011**
xor x6, x29, x6

0x006eceb3 27
0000 000**0 0110** 1110 1**100** 1110 1**011 0011**
xor x29, x29, x6

0x000003b3 29
0000 000**0 0000** 0000 0**000** 0011 1**011 0011**
add x7, x0, x0

0x006383b3 31
0000 000**0 0110** 0011 1**000** 0011 1**011 0011**
add x7, x7, x6

0xfffe8e93 32
1111 1111 1111 1110 1**000** 1110 1**001 0011**
addi x29, x29, -1

0xffd04ce3 33

1**111 111**1 1101 **0000 0**100 **1100** 1**110 0011**
blt x0, x29, label6

0x01c2cfb3 36
0000 000**1 1100** 0010 1**100** 1111 1**011 0011**
xor x31, x5, x28

0x000f8663 37
0**000 000**0 0000 **1111 1**000 **0110** 0**110 0011**
beq x31, x0, label7

0xfff3c393 38
1111 1111 1111 0011 1**100** 0011 1**001 0011**
xori x7, x7, -1

0x00138393 39 # t2 - result accumulator
0000 0000 0001 0011 1**000** 0011 1**001 0011**
addi x7, x7, 0x001

0x00100893 41
0000 0000 0001 0000 0**000** 1000 1**001 0011**
addi x17, x0, 0x001

0x00700533 42
0000 000**0 0111** 0000 0**000** 0101 0**011 0011**
add x10, x0, x7

0x00000073 43
ecall

0x00a00893 45
0000 0000 1010 0000 0**000** 1000 1**001 0011**
addi x17, x0, 0x00a

0x00000073 46
ecall

0x00100893 49 # if sign of "a" and "b" is different then negate the result
addi x17, x0, 0x001

0x00000533 50
0000 000**0 0000** 0000 0**000** 0101 0**011 0011**
add x10, x0, x0

0x00000073 51
ecall

0x00a00893 52
0000 0000 1010 0000 0**000** 1000 1**001 0011**
addi x17, x0, 0x00a

```
0x00000073  53
ecall
```

```
Addi a7, zero, 5
Ecall
Add t1, zero, a0
Srli t4, a0, 31
Ecall
Add t4, zero, a0
Srli t3, a0, 31
beq t1,zero, label1
beq t4, zero, label1
beq t0, zero, label3
Xori t1,t1 -1
Addi t1,t1, 1

Label3:
Beq t3, zero, label4
Xori t4,t4 -1
Addi t4,t4, 1

Label4:
Bge t1, t4, label5
Xor t4, t4, t1
Xor t1, t4, t1
Xor t4, t4, t1

label 5:
Add t2, zero, zero

Label6:
Add t2,t2,t1
Addi t4,t4,-1
Blt zero, t4, label6
Xor t6, t0, t3
Beq t6, zero, label7
Xori 2,t2,-1
Addi t2,t2 1
Label7:
Addi a7, zero, 1
add a0, zero, t2
Ecall
Addi a7, zero, 1
Add a0, zero, t2
Ecall
Addi a7, a0, 1
Add a0, zero, 10
Ecall
```

```
Label1:
Addi a7, zero, 1
Add a0, 1
Add a0, zero, zero
Ecall
addi  a7,zero, 10
Ecall
```

Multiply function

```
.text :
      addi a7,zero, 0x005
      ecall
      add t1, zero, a0
      srli t0, a0, 31
      ecall
      add t4, zero, a0
      srli t3, a0, 31
      beq t1,zero, label1
      beq t4, zero, label1
      beq t0, zero, label3
      xori t1, t1, -1
      addi t1, t1, 1
label3:
      beq t3, zero, label4
      xori t4, t4, -1
      addi t4, t4, 0x001
label4:
      bge t1, t4, label5
      xor t4, t4, t1
      xor t1, t4, t1
      xor t4, t4, t1
label5:
      add t2, zero, zero
label6:
      add t2, t2, t1
      addi t4, t4, -1
      blt zero, t4, label6
      xor t6, t0, t3
      beq t6, zero, label7
      xori t2, t2, -1
      addi t2, t2, 0x001
label7:
      addi a7, zero, 0x001
      add a0,zero, t2
      ecall
      addi a7, zero, 0x00a
      ecall
label1:
```

```
addi a7, zero, 0x001
add a0, zero, zero
ecall
addi a7, zero, 0x00a
ecall
```