$-5 \Rightarrow 0101 \Rightarrow 1010+1$
$= 1011$

Q1 $0xfffffff9 = -7$

$1111 1111 .... 1001_2 \Rightarrow 0000\ 0000.... 0110 +1$ (complement) $= ...0111$

Q2. loop: lw $t0, 0($s0)   1000,1110,0000,1000,0000,..._0 = 0x8e080000

4   addi $t1, $t1, -5   0010,0001,0010,1001, 0000.....1011 = 0x2129fffb

8   sll $t1, $t1, 2   000000 0000 01001,01001,000100000010 = 0x00094882

C   beq $t1, $s5, Exit   000,0001001,0101,0000,0000,00000010 = 0x11350002

10   addi $s0, $s0, 4   0010,0010000 1,0000,0000, 0000,0000 0100, = 0x22100004

14   j loop   0000,1010,1011,1011,11 00,00..._0 = 0xDabbc000

18 Exit: ...

   0x1aef0000

   = 0001 1010 1110 1111 0000 ...

Q3. 0x02108020

   0000 0010 0001 0000 1000 0000 0010 0000

   add $s0, $s0, $s0

Q4:
   addi $s1, $zero, 0   # i=0   → blt $s2, $s4, loop2 # j<6 to loop2

   loop1: addi $s2, $zero, 0 # j=0   j loop1

   blt $s1, $s3, loop2 #i<a to loop2   exit:

   j exit

   loop2: sll $t0, $2, 4 # j×4 address×4

   add $t0, $t0, $s0 #A[j×4]

   add $t1, $s1, $s2 # i+j

   sw $t1, 0($t0) # A(j*4)=i+j

   addi $s1, $s2, 1 #i=i+1

   addi $s2, $2, 1 # j++

Q5

Procedure:

```
        addi $sp, $sp, -8       # a0 = input(a) s0 = a²  t0 = i
        sw $s0, 0($sp)
        sw $t0, 4($sp)
start:  blt $t0, $a0, loop      # for(i=0; i<a; i++)
        j exit                          s0 = s0 + a
loop:   add $s0, $s0, $a0
        addi $t0, $t0, 1
        j start
exit:
        add $v0, $s0, $zero     #result to v0
        lw $s0, 0($sp)
        lw $t0, 4($sp)
        addi $sp, $sp, 8
        jr $ra          #return
```