Basic Questions

Q. 1. Find ith Bit. (Consider indexing starts with zero)
Random number : 308
i = 3
Binary : 0100110100
mask = 1<<i (0000001000)// finding masking number
result = n & mask (0000000000) //if you get non zero number then that bit is set, else unset.

Q. 2. Set ith Bit

Random number : 309
Binary : 100110101
i = 7
mask = 1<<i (001000000) finding masking number
result = n | mask (101110101) use OR(|) to set bit, use AND(&) to unset bit

Q. 3. Clear ith Bit. (Consider indexing starts with zero)
Random number : 512
Binary : 1000000000
i = 9
mask = ~(1<<i) (0111111111) finding masking number
result = n & mask (0000000000) use AND(&) to clear bit of i

Q. 4. Find count of bits which change while converting a to 0.
Random number A : 13
Binary : 1101
result = n & (n-1) use AND(&) iterate it till it becomes 0
n & n-1
13 & n-1
1101 (binary value of 13)
1100 (binary value of 12(n-1)(13-1))
1100 ans is 12 (calculate it again with (n-1))
1011 binary of 11 (n-1)(12-1)
1000 ans is 8 (calculate it again with (n-1))
0111 binary of 7 (n-1)(8-1)
0000 ans is 0 (here loop will end because we got 0 as answer)