Binary to Gray Code Conversion

Consider b_1, b_2, b_3, b_4 and b_5 is the Binary Number and it is need be converted into Gray Code.

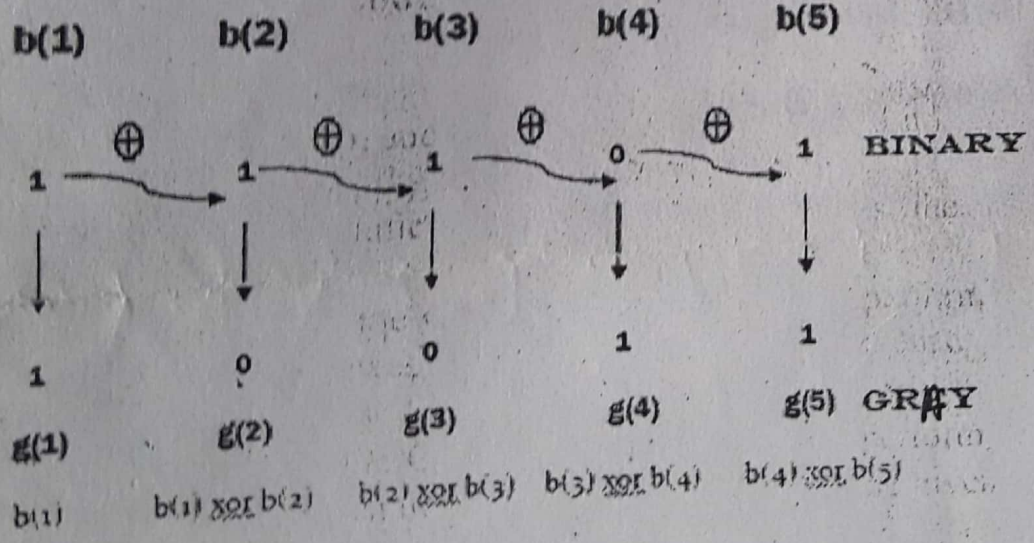
1. Write Most Significant Bit (MSB) is same as the MSB in Binary Number.

2. The second bit of the Gray code can be found by performing the Exclusive-OR (EX-OR) operation between the First and second bits of the Binary Number.

3. The Third bit of the Gray code can be found by performing the Exclusive-OR (EX-OR) operation between the Third and Second bits of the given Binary Number; and so on

EX-OR Operation: 1. Both the bits are 0 or 1 then the output of EX-OR gate will be 0.
2. Any one of the bit in two bits is 1 then the output of EX-OR gate will be 1.

Refer the below image for Binary to Gray Code Conversion



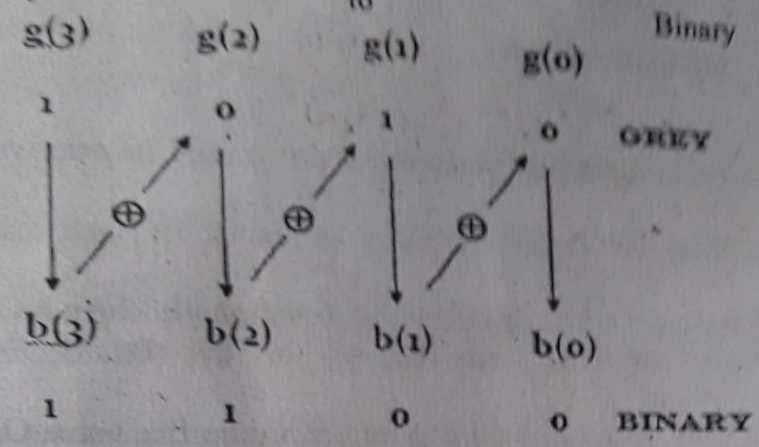
Gray Code to Binary Conversion

Consider g_0, g_1, g_2 and g_3 is the Gray Code and it is need be converted into Binary Number. The steps for Binary to Gray Code Conversion need to be reversed to find out the equivalent Binary Number

1. The Most Significant Bit (MSB) of the Binary is same as the First MSB of the Gray Code.

2. If the second Grey Bit is 0 then the second bit of the Binary is bit will be same as that of the First Binary bit; if the Second Gray Bit is 1 then the Second Bit of the Binary will be inverse of its previous binary bit. Refer the below image for easy understanding of

Gray to Binary Conversion



i.e $b(3) = g(3)$

$b(2) = b(3) \oplus g(3)$

$b(1) = b(2) \oplus g(1)$

$b(0) = b(1) \oplus g(0)$