1. binary number is 1100101011110010

2. 1100101011110010 AND 1010110010101101 ==1000100010100000

1000100010100000 OR 0111001100110011 ==1111101110110011

1111101110110011 XOR 1101110111001110 ==0010011001111101

NOT 0010011001111101 ==1101100110000010

3. CONVERTING 1101100110000010 TO DECIMAL WE GET 55682

55682+123=55805

55805*7=390635

CONVERTING 390635 INTO BINARY WE GET 1011111010111101011

4. COVERING ALL THE BINARY NUMBERS TO DECIMAL

1001 -----9

1100 -----12

1110 -----14

1010 -----10

0111 -----7

0101 -----5

0011 -----3

1111 -----15

1101 -----13

1011 -----11

0110 -----6

0100 -----4

0010 -----2

0001 -----1

The unknown number is 8 (1000)

5. Let 0 represents Left and 1 represents Right

So the path is RIGHT -> LEFT ->RIGHT ->RIGHT ->RIGHT

6. Given 10101011010100101110

1st move 11111111010100101110

2nd move 11111111111110101110

3rd move 11111111111111111111

SO MINIMUM NUMBER OF MOVES=3

7. GIVEN 1011011101

The reverse of the given no: is 1011101101

Given no: is not equal to the reverse of the no: so the binary no: is not palindrome

1st flip 1011001101

The reverse of this no: is 1011001101

Here the no: is equal to the reversed no: so the binary no: is a palindrome

No: of step =1

Binary no:=1011001101

8. binary=int(input("ENTER THE 10-BIT BINARY NUMBER : "))

bi=binary

c=[]

```
for i in range(10):
    rem=bi%10
    c.append(rem)
    bi=bi//10
print(c)
if c.count(1)==4 and len(c)==10:
    decimal=0
    count=0
    while binary>0:
        rem=binary%10
        binary=binary//10
        decimal=decimal+rem*2**count
        count=count+1
    print(decimal)
else:
    print("INVALID BINARY NUMBER")
```

9. 101010 XOR 011011 → 110001

011011 XOR 110100 → 101111

011011 XOR 100110 → 111101

110100 XOR 001101 → 111001

001101 XOR 100110 → 101011

So the two numbers in the array whose XOR gives the maximum result is 111101 and the pair is 011011 and 100110

10. Given binary number =1101010

To check if it is divisible by 7 ,

First convert the binary number into decimal

Decimal number =106

Since 106 is not divisible by 7 ,hence 1101010 is not divisible by 7

The final binary number obtained by completing all the steps from 1 to 3 is 1011111010111101011

Converting 1011111010111101011 to decimal , we get 390635

THE FINAL RESULT IS 390635 * 5 = 1953175