Number System

Q1 Print binary representation. (5)

Ans) ①

2	5	
2	2	1
	1	0

⇒ 101

②

2	10	
2	5	0
2	2	1
	1	0

⇒ 1010.

Q2) using bit manipulation, check whether it is odd or even.

Ans)

```
static public void main(String [] args){
    int num;
    System.out.println("Enter number");

    Scanner s = new Scanner(System.in);
    num = s.nextInt();

if((num & 1) == 1) {
        System.out.println("Odd");
    }
else {
        System.out.println("even");
    }
}
```

Q3) Predict whether ~~9#~~ is a power of 2 or not.

Ans) number = 15.

it's binary is 1111, last digit is 1
not a power of two.

number = 32.

it's binary is 10000, last digit is 0,
∴ it's power of 2.

Q4) Count the no. of set bits in ~~that~~ a number without using extra space.

⇒ 1 is known as set bit.

```
int count = 0;
while (n>0) {
    count += n & 1;
    n >> 1;
}
System.out.println("count");
```

05) Find the odd appearing duplicate, all duplicate are even expect one.

Ans)

```
int xor = 0;
for (int i : arr) {
    xor = xor ^ i;
}
System.out.println("The odd occurring element is" + xor);
```