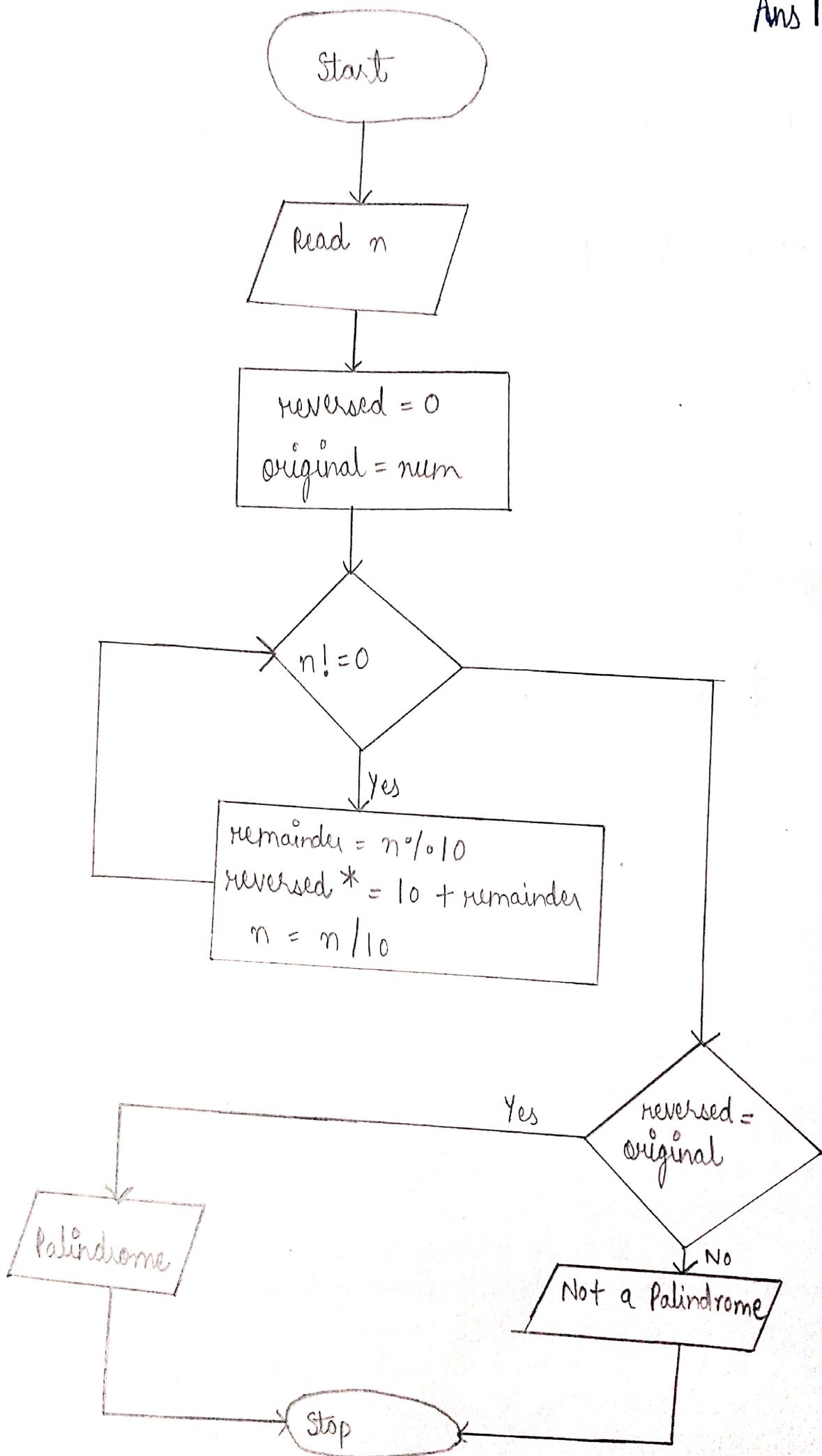


①

Ans 1



(2)

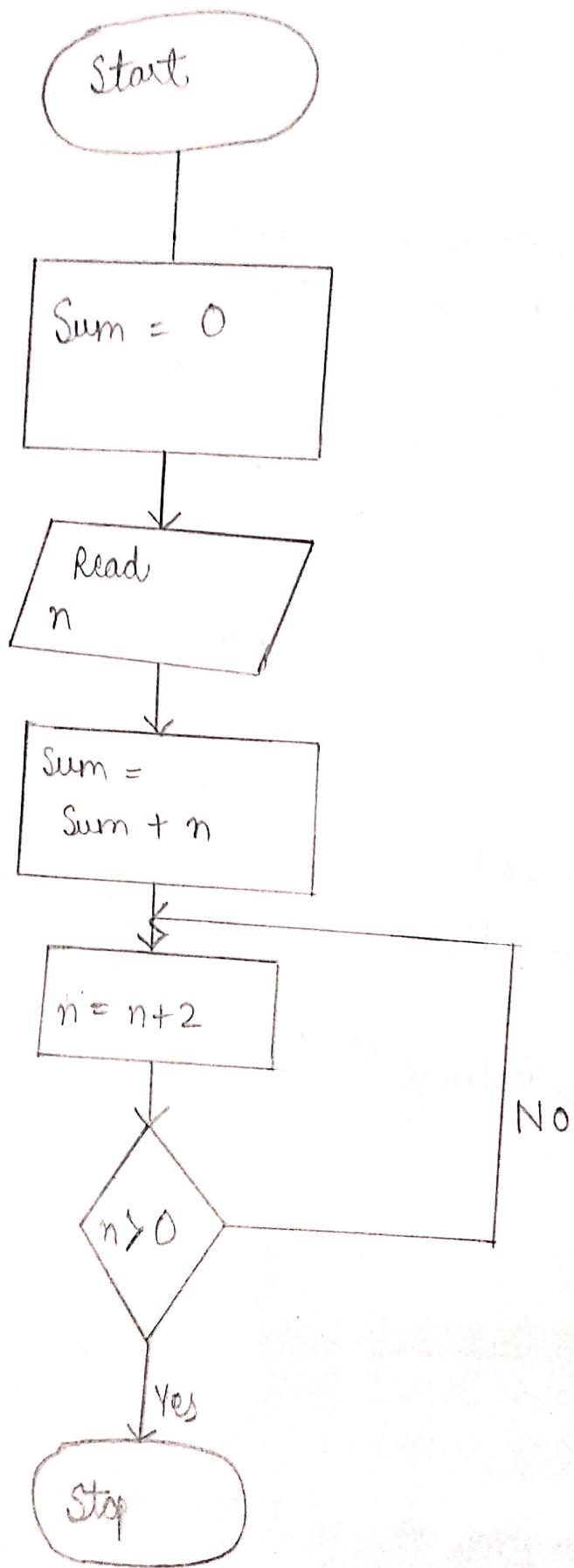
Ques1- WAP to check whether a number is palindrome or not.

Ans1-

```
#include <stdio.h>
int main() {
    int n, reversed = 0, remainder, original;
    printf("Enter a number:\n");
    scanf("%d", &n);
    original = n;
    while (n != 0) {
        remainder = n % 10;
        reversed = reversed * 10 + remainder;
        n /= 10;
    }
    if (original == reversed)
        printf("%d is a palindrome", original);
    else
        printf("Not a palindrome");
    return 0;
}
```

Ans 2

3



Ques2-WAP to find sum of all even numbers between 1 to n.

Ans 2-

(4)

```
#include <stdio.h>
```

```
int main () {
```

```
    int i, n, sum = 0;
```

```
    printf ("Enter any number: \n");
```

```
    scanf ("%d", &n);
```

```
    for (i = 2; i <= n; i += 2) {
```

```
        sum += i;
```

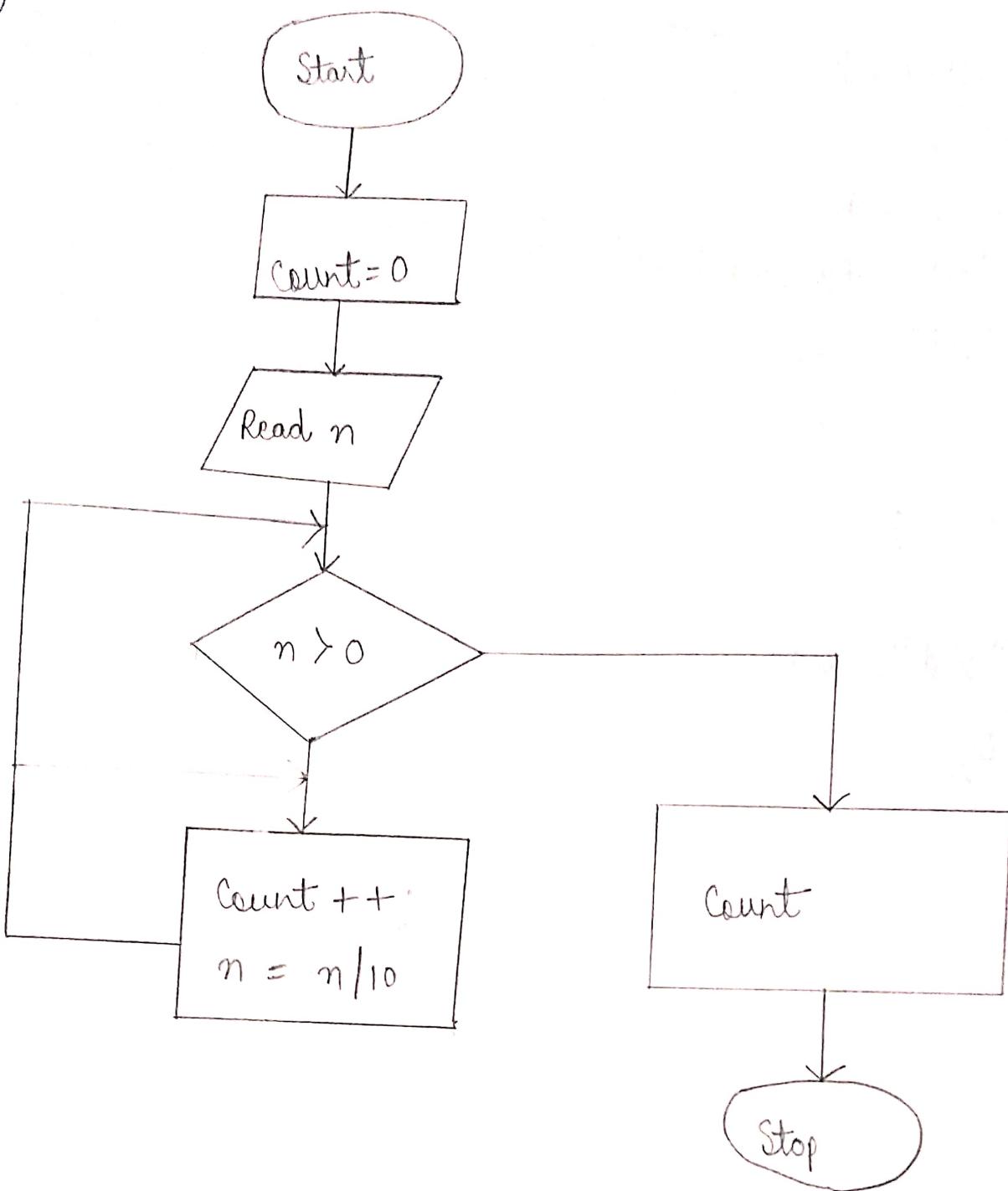
```
}
```

```
    printf ("%d", sum);
```

```
    return 0;
```

```
}
```

Ans 3



(6)

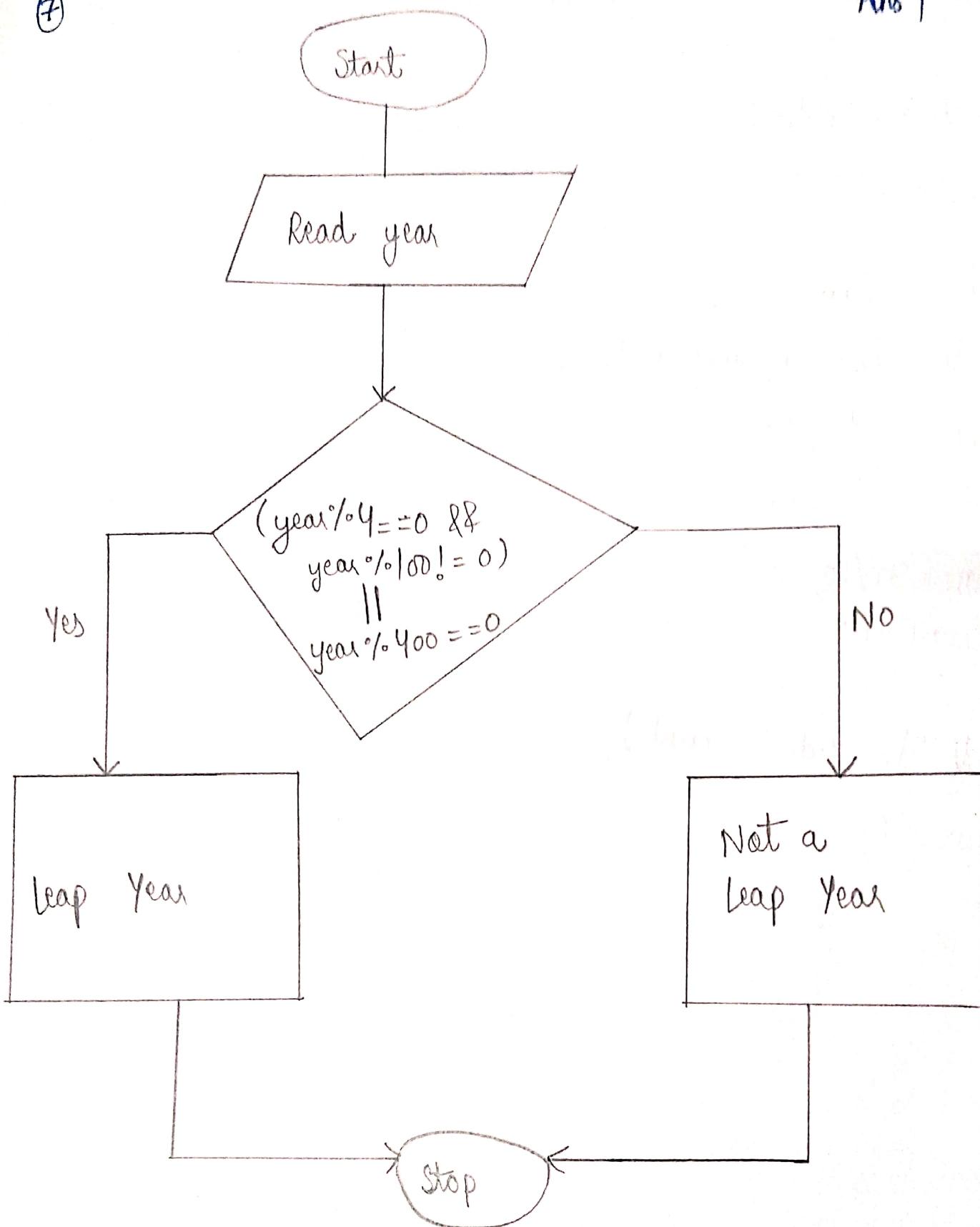
Ques3-WAP to count number of digits in a number.

Ans3-

```
#include <stdio.h>
int main()
{
    int n, count = 0;
    printf("Enter a number");
    scanf("%d", &n);
    while (n != 0)
    {
        n = n / 10;
        count++;
    }
    printf("\n %d", count);
    return 0;
}
```

7

Ans 4



Ques 4- WAP to check whether year is leap year or not using ⑧
conditional operator.

Ans 4-

```
#include <stdio.h>
int main () {
    int year;
    printf ("Enter year\n");
    scanf ("%d", &year);
    (year % 4 == 0 && year % 100 != 0) ? printf ("Leap Year") :
    (year % 400 == 0) ? printf ("Leap Year") : printf ("Not a Leap Year");
}
```

(10)

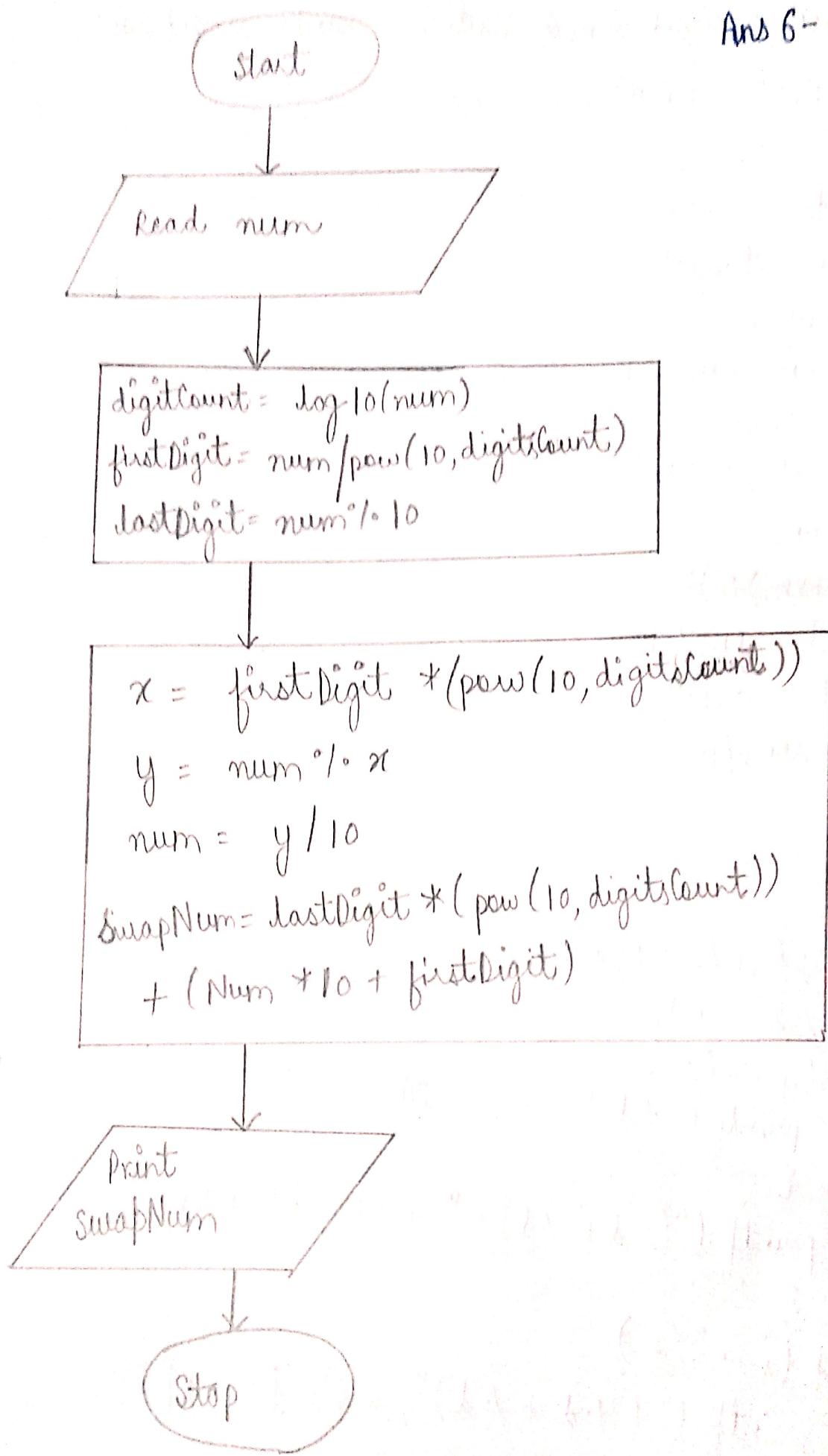
Ques 5- WAP to find sum of digits of a number as follows?

$$1234 = (1+4) + (2+3) = 10$$

Ans 5-

```
#include <stdio.h>
#include <string.h>
int main(){
    int num, rem, sum, i = 0, j
    int arr[20];
    scanf ("%d", &num);
    rem = num;
    while (rem > 0){
        arr[i] = rem % 10;
        sum += arr[i];
        rem = rem / 10;
        i++;
    }
    j = i - 1;
    for (j = 0; j < i / 2 + 1; j++){
        if (i * 1.2 == 0){
            if (j == i / 2)
                printf ("%d", arr[i - j]);
            else
                printf ("%d + %d", arr[i - j], arr[j]);
        }
        else {
            if (j == i / 2)
                printf ("%d + %d", arr[i - j], arr[j]);
            else
                printf ("%d + %d", arr[i - j], arr[j]);
        }
    }
}
```

Ans 6



(12)

y

Ans 5-

}

printf ("%d", sum);

return 0;

}

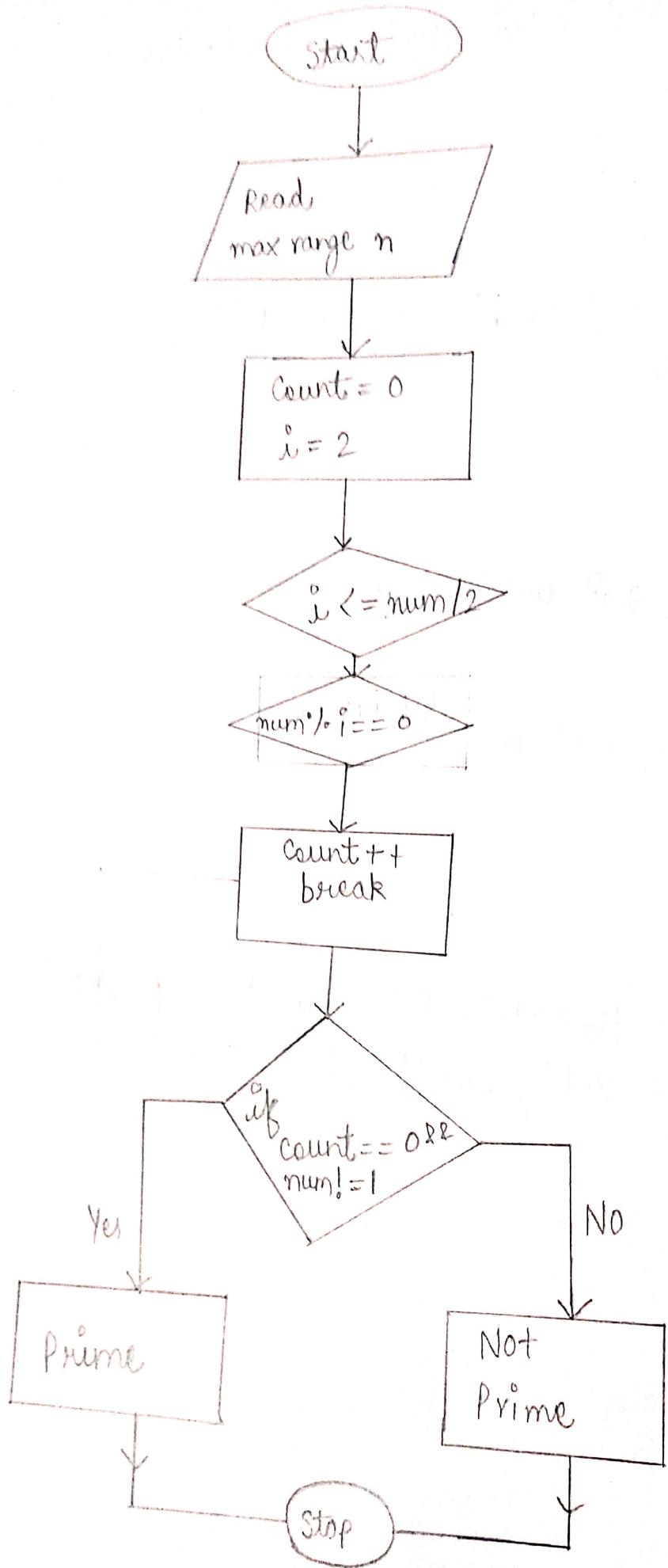
Ques 6 - WAP to swap first & last digits of a number

(13)

Ans 6 -

```
#include <stdio.h>
#include <math.h>
int main() {
    int num, firstDigit, digitsCount, lastDigit, x, y, swapNum;
    printf("Enter the number\n");
    scanf("%d", &num);
    digitsCount = log10(num);
    firstDigit = num / pow(10, digitsCount);
    lastDigit = num % 10;
    x = firstDigit * (pow(10, digitsCount));
    y = num % 10;
    num = y / 10;
    swapNum = lastDigit * (pow(10, digitsCount)) + (num * 10 + firstDigit);
    printf("Swapped Number = %d", swapNum);
    return 0;
}
```

Ans 7



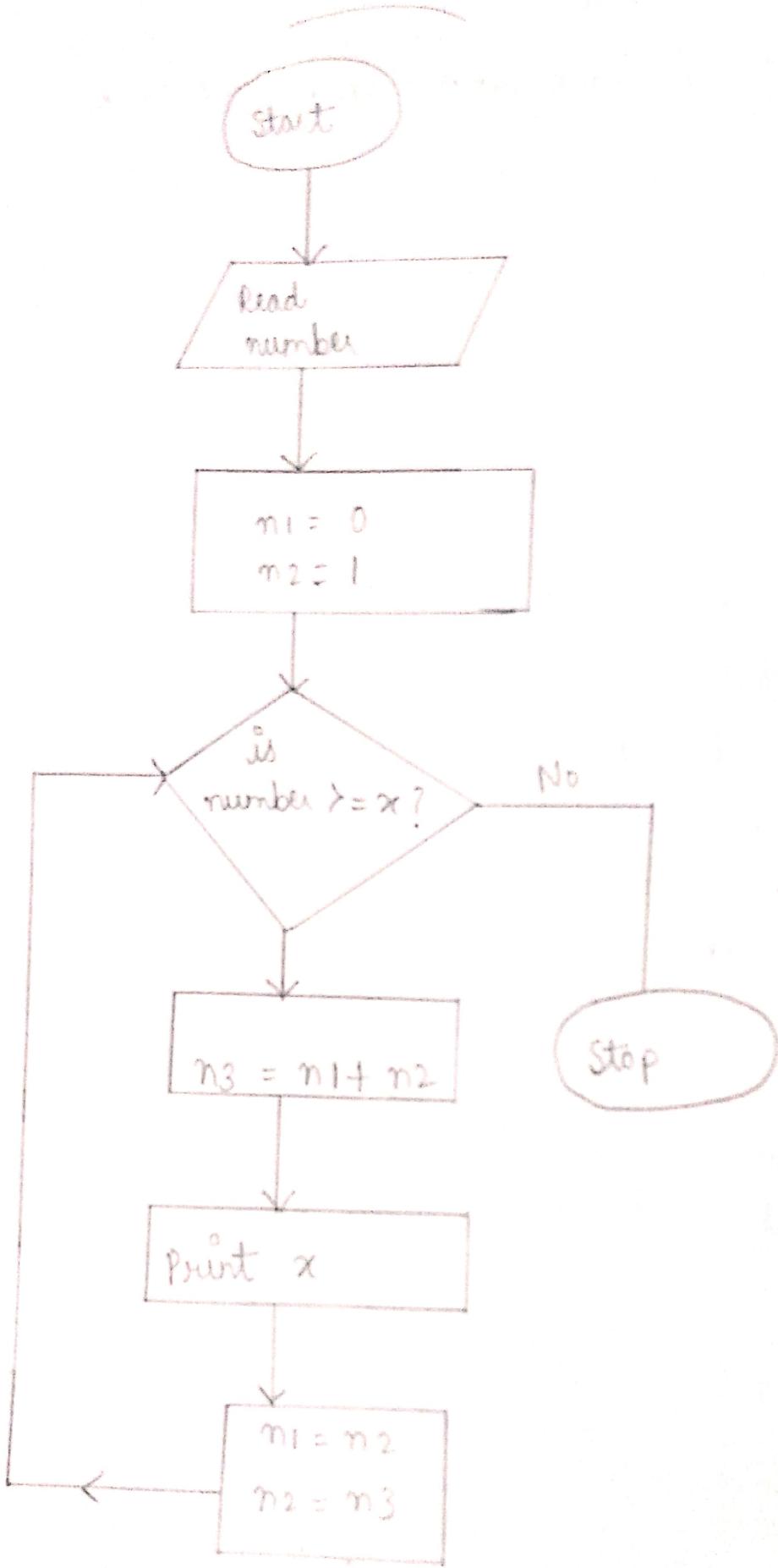
Ques 7 - WAP to print all prime numbers between 1 to n.

Ans 7 -

```
#include <stdio.h>
int main(){
    int num, i, count, n;
    printf("Enter max range ");
    scanf("%d", &n);
    for(num = 1; num <= n; num++){
        count = 0;
        for(i = 2; i <= num/2; i++){
            if((num % i) == 0){
                count++;
                break;
            }
        }
        if(count == 0 && num != 1)
            printf("%d", num);
    }
    return 0;
}
```

⑯

Ans - 8



(17)

Ques 8 - WAP to print fibonacci series upto n terms.

Ans 8 -

```
#include <stdio.h>
int main() {
    int n1=0, n2=1, n3, i, number;
    printf ("Enter number of elements");
    scanf ("%d", &number);
    printf ("%d %d", n1, n2);
    for (i=2; i<number; ++i)
    {
        n3 = n1 + n2;
        printf ("%d", n3);
        n1 = n2;
        n2 = n3;
    }
    return 0;
}
```

Quesg- WAP to find sum of series : $nx/1! + (n(n-1)x^2)/2! + \dots$
N terms .

(19)

Ans g -

```
#include <stdio.h>
#include <math.h>
int fact(int x){
    int i, fact=1;
    for(i=1; i<=x; i++){
        fact = fact * i;
    }
    return (fact);
}

int main(){
    int k=1, n, num, f, i, x;
    float prod;
    printf("Enter value of n:");
    scanf("./d", &n);
    printf("Enter value of x:");
    scanf("./d", &x);
    for(i=0; i<n; i++, k++){
        num = fact(i);
    }
}
```

```
#include <iostream>
using namespace std;
```

f = fact(k);

```
prod = prod + (float)(num * pow(x,k)) / f;
```

}

```
printf("%.2f", prod);
```

```
return 0;
```

}

(21)

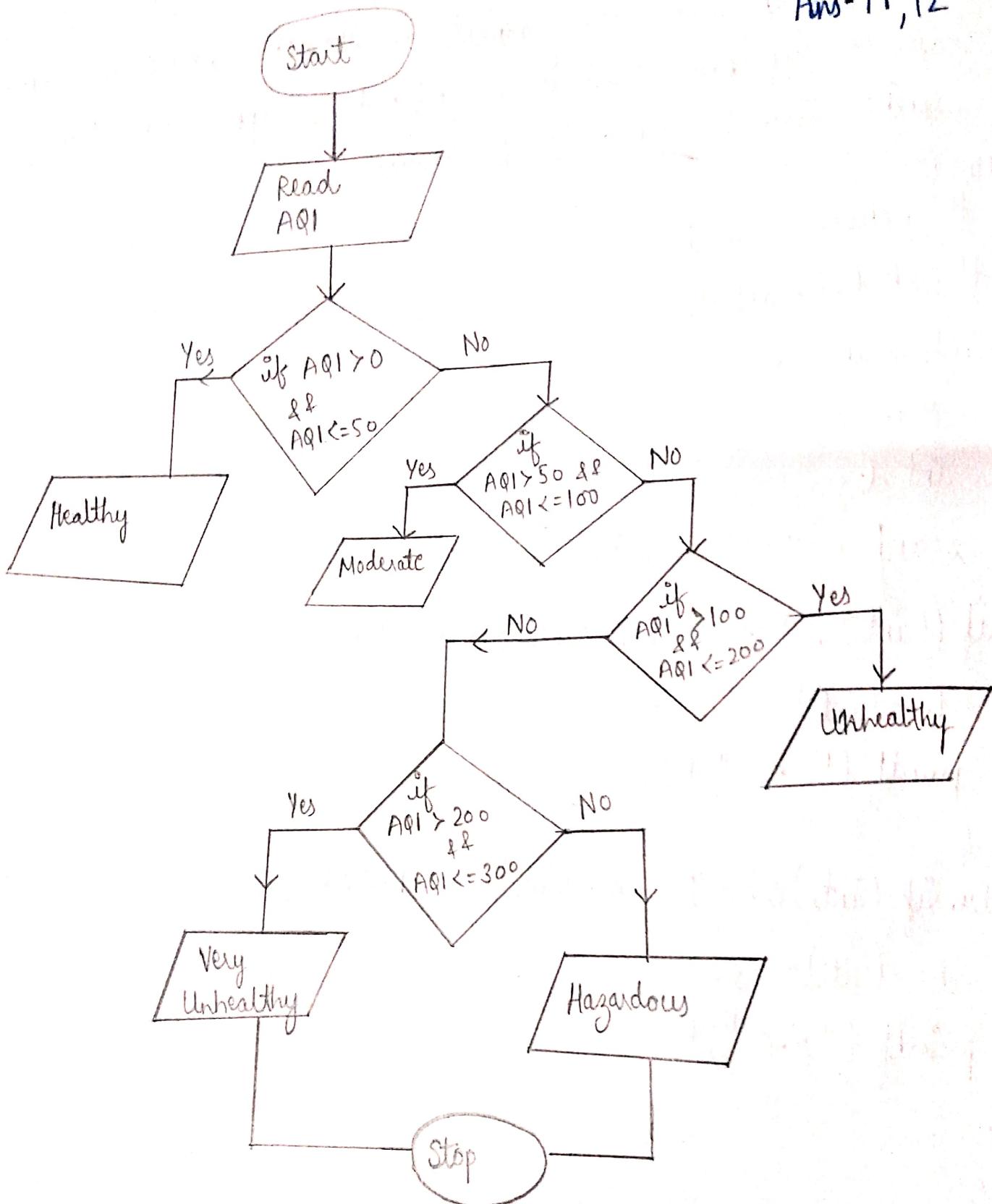
Ques 10 - Deepak wants to convert a character entered in lower case to uppercase & if it is entered in upper case then he would like to convert it to lowercase.

Ans 10 -

```
#include <stdio.h>
#include <math.h>
int main(){
    char c;
    int d;
    scanf ("%c", &c);
    if ((int)c >= 65 && (int)c <= 90) {
        d = (int)c + 32;
        printf ("%c", d);
    }
    else if ((int)c >= 97 && (int)c <= 122) {
        d = (int)c - 32;
        printf ("%c", d);
    }
    else {
        printf ("not an alphabet");
    }
    return 0;
}
```

Ans-11, 12

(2)



Ques 11 - The AQI shows the level of health concerns for a particular area. The level of air quality for given AQI is mentioned: (23)

AQI	Level of Air Quality
$>0 \text{ & } \leq 50$	Healthy
$>50 \text{ & } \leq 100$	Moderate
$>100 \text{ & } \leq 200$	Unhealthy
$>200 \text{ & } \leq 300$	Very Unhealthy
$>300 \text{ & } \leq 500$	Hazardous

12 - Draw a flow chart of wAP to help Shyam find out what is the level of air quality in his area depending upon the AQI level.

Ans 11 -

```
#include <stdio.h>
int main()
{
    int AQI;
    printf("Enter the value of AQI\n");
    scanf("%d", &AQI);
    if (AQI > 0 && AQI <= 50)
        printf("Healthy");
    }
    else if (AQI > 50 && AQI <= 100)
        printf("Un Moderate");
    }
}
```

```
else if (AQI > 100 & AQI <= 200) {  
    printf ("Unhealthy");  
}  
else if (AQI > 200 & AQI <= 300) {  
    printf ("Very Unhealthy"); }  
else {  
    printf ("Hazardous");  
}  
return 0;  
}
```

Ques 13 - WAP to take a value from the user as electricity bill unit 25
 Charges & calculate total electricity bill acc. to the given condition:
 for the first 50 units ₹ 0.50/unit. for the next 100 units ₹ 0.75/unit.
 for the next 100 units ₹ 1.20/unit. for unit above units ₹ 1.50/unit
 An additional surcharge of 20% is added to the bill, using
 switch statement.

Ans 13 -

```
#include <stdio.h>
#include <math.h>
int main()
{
    int a;
    float bill;
    scanf ("%f", &a);
    switch (a / 50)
    {
        case 0:
            bill = (float) a * 0.5;
            printf ("case 0 \n");
            break;
        case 1:
            bill = 50 * 0.5 + ((float)a - 50) * 0.75;
            printf ("case 1 \n");
            break;
        case 2:
            bill = 50 * 0.5 + 100 * 0.75 + ((float)a - 150) * 1.20;
            printf ("case 2 \n");
            break;
    }
}
```

(26)

default:

$$\text{bill} = 50 * 0.5 + 100 * 0.75 + 100 * 1.20 + ((\text{float})a - 250) * 1.5;$$

$$\text{bill_t} = \text{bill} * 0.2;$$

```
printf ("case def\n");
```

```
break;
```

{

```
printf ("% .2f ", bill);
```

```
return 0;
```

{

Ques 15- Print the following patterns.

Ans 15-

```

1-      *
      *
      * *
      * * *
      * * * *
  
```

Ans 1-

```

#include <stdio.h>
int main () {
    int i, j, rows;
    printf ("Enter the number of rows: ");
    scanf ("%d", &rows);
    for (i = 1; i <= rows; ++i) {
        for (j = 1; j <= i; ++j) {
            printf ("* ");
        }
        printf ("\n");
    }
    return 0;
}
  
```

3- 2. 1

1 2

1 2 3

1 2 3 4 \$

1 2 3 4 5

3-

\$

Ans 2 -

```
#include <stdio.h>
int main () {
    int i, j, rows;
    printf ("Enter the number of rows\n");
    scanf ("%d", &rows);
    for (i = 1; i <= rows; ++i) {
        for (j = 1; j <= i; ++j) {
            printf ("%d", j);
        }
        printf ("\n");
    }
    return 0;
}
```

3-

1

1 2 3

1 2 3 4 5

1 2 3 4 5 6 7

3-

```
#include <stdio.h>
int main(){
    int i, j, n, m;
    scanf ("%d %d", &n, &m);
    printf ("\n");
    for (i=0; i<n; i++){
        int k=1;
        for (j=0; j<m; j++){
            if ((i+j) == n-1 && j == (m+i)/2){
                printf ("%d", k);
                k++;
            }
        }
        printf ("\n");
    }
    return 0;
}
```

4-

```

        A
      B B B
    C C C C C
  D D D D D D D
E E E E E E E
  F F F
      (n)

```

Ans 4-

```

#include <stdio.h>
int main()
{
    int n, c, k, space = 1;
    printf("Enter the number of rows \n");
    scanf("%d", &n);
    space = n - 1;
    for (k = 1; k <= n; k++)
    {
        for (c = 1; c <= space; c++)
            printf(" ");
        space--;
        for (c = 1; c <= 2 * k - 1; c++)
            printf("*");
        printf("\n");
    }
    space = 1;
    for (k = 1; k <= n - 1; k++)
    {
        for (c = 1; c <= space; c++)
            printf(" ");
    }
}

```

printf ("\n");

}

return 0;

}

5- * * * * *
* * * * *
* * * * *
* * * * *
* * * * *

(38)

Ans 5-

```
#include<stdio.h>
int main(){
    int i, j, n;
    printf("Enter number of rows\n");
    scanf("%d", &n);
    for(i=1; i<=n; i++){
        for(j=1; j<=n; j++){
            if(i==1 || i==n || j==1 || j==n){
                printf("*");
            }
            else{
                printf(" ");
            }
            printf("\n");
        }
        return 0;
    }
}
```

Ques16- WAP to convert decimal to binary of a number by using
bitwise operator.

(39)

Ans16-

```
#include <stdio.h>
void decToBinary (int n) {
    int binaryNum[32];
    int i = 0;
    while (n > 0) {
        binaryNum[i] = n % 2;
        n = n / 2;
        i++;
    }
    for (int j = i - 1; j >= 0; j--)
        printf ("%d", binaryNum[j]);
}

int main() {
    int n;
    printf ("Enter the decimal number \n");
    scanf ("%d", &n);
    decToBinary(n);
    return 0;
}
```

Ques17-WAP to turn off OR ON a bit at a given position. (40)

Ans 17-

```
#include <stdio.h>
int main toggleBit (int n, int k) {
    return (n ^ (1 << (k-1)));
}

int main () {
    int n, k;
    printf ("Enter the value of n & k\n");
    scanf ("%d %d", &n, &k);
    printf ("%d with %d-th bit toggled : %d\n", n, k,
            toggleBit(n,k));
    return 0;
}
```

Ques 18 - WAP to check an integer is a power of 2.

Ans 18 -

```
#include <stdio.h>
#include <math.h>

int isPowerOfTwo (int n)
{
    return (ceil (log2 (n)) == floor (log2 (n)));
}

int main ()
{
    int number;
    printf ("Enter the number \n");
    scanf ("%d", &number);
    if (isPowerOfTwo (number))
        printf ("Yes");
    else
        printf ("No");
    return 0;
}
```

Ques 19-WAP to find the max. & min. elements in an array.

Ans 19-

```
#include <stdio.h>
int main(){
    int a[1000], i, n, min, max;
    printf ("Enter size of the array: \n");
    scanf ("%d", &n);
    printf ("Enter elements in array : ");
    for (i=0; i<n; i++) {
        scanf ("%d", &a[i]);
    }
    min = max = a[0];
    for (i=1; i<n; i++) {
        if (min > a[i])
            min = a[i];
        if (max < a[i])
            max = a[i];
    }
    printf ("min %d, max %d", min, max);
    return 0;
}
```

Ques 20 - WAP to delete an element at desired position in array. (43)

Ans 20 -

```
#include <stdio.h>
void main(){
    int arr[50], i, pos, n;
    printf("Delete an element from desired position");
    printf("Enter size of array");
    scanf("%d", &n);
    printf("Input %d elements", n);
    for(i=0; i<n; i++){
        printf("elements - %d", i);
        scanf("%d", &arr[i]);
    }
    printf("Input the position");
    scanf("%d", &pos);
    i = 0;
    while(i != pos-1)
        i++;
    while(i < n){
        arr[i] = arr[i+1];
        i++;
    }
    n--;
}
```

(44)

```
printf ("In The new list is : ");
for (i=0; i<n ; i++) {
    printf (" %d", arr[i]);
}
printf ("In In");
```

}

Ques 21 - WAP to find the frequency of characters in a string.

(45)

Ans 21 -

```
#include <stdio.h>
#include <string.h>
int main() {
    int char s[1000];
    int i, j, k, count=0, n;
    printf ("Enter the string");
    gets(s);
    for (j=0; s[j]; j++);
        n = j;
    printf ("frequency count \n");
    for (i=0; i<n; i++) {
        count = 1;
        if (s[i]) {
            for (j=i+1; j<n; j++) {
                if (s[i] == s[j]) {
                    count++;
                    s[j] = '\0';
                }
            }
            printf ("%c = %d \n", s[i], count);
        }
    }
    return 0;
}
```