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Q8.

Output :

Enter your name: Sanjana

Enter your roll number: 24

Enter your percentage: 89.34

Enter your phone number: 8976543210

Your name is: Sanjana

Your roll number is: 24

Your percentage is: 89.34

Your phone number is: 8976543210

PRACTICAL - 1

Aim: Program to understand basic datatypes and I/O

Source Code:

```
#include <conio.h>
#include <stdio.h>
void main()
{
    int roll;
    char name[50];
    float per;
    long int num;
    printf("\n Enter your name: ");
    gets(name);
    printf("\n Enter your roll number: ");
    scanf("%d", &roll);
    printf("\n Enter your percentage: ");
    scanf("%f", &per);
    printf("\n Enter your phone number: ");
    scanf("%ld", &num);

    printf("\n Your name is : ", name);
    printf("\n Your roll number is : %d ", roll);
    printf("\n Your percentage is : %f ", per);
    printf("\n Your phone number is : %ld ", num);
```

Write a program to find average of 3 numbers

Algorithm:

Step 1: Start

Step 2: Take 3 numbers as input from the user
Suppose a, b, c.

Step 3: Calculate the average and store it in a variable.

Step 4: Print the result

Step 5: End

Source Code:

```
#include <conio.h>
#include <stdio.h>
void main()
{
    int a, b, c;
    float avg;
    clrscr();
    printf(" Enter 3 integer values : ");
    scanf("%d %d %d", &a, &b, &c);
    avg = (a+b+c)/3.0;
    printf(" The average is : %f ", avg);
    getch();
}
```

Output:

Enter 3 integer values: 5 8 6

The average is: 6.333333

88:

Output :

Enter the temperature in celcius : 24.6
The temperature in Fahrenheit is : 76.279999

Algorithm:

- Step 1 : Start
- Step 2 : Take input from the user and store it in a variable.
- Step 3 : calculate the Fahrenheit with the help of input from the user.
- Step 4 : Print the converted temperature as result.

Step 5 : End.

Source Code:

```
#include <conio.h>
#include <stdio.h>
void main()
{
    float c, f;
    clrscr();
    printf("Enter the temperature in celsius :: ");
    scanf("%f", &c);
    f = (c * 9 / 5) + 32;
    printf("The temperature in Fahrenheit is: %f ", f);
    getch();
}
```

PRACTICAL - 2

Aim: Programs on operators and expression.

Algorithm:

Step 1: Start

Step 2: Read two inputs as integers from the user.

Step 3: Display the menu of the calculator like Addition, subtraction, multiplication and Division

Step 4: Take input from the user as choice.

Step 5: Use switch case and write the cases according to the menu.

Step 6: Break statement should be used after every case

Step 7: Default statement should also be displayed if the choice is invalid.

Step 8: End

Source code:

```
#include <conio.h>
#include <stdio.h>
void main()
{
    float n1, n2, m;
    int c;
```

Output:

Enter two values : 5 10

- 1. Addition
- 2. Subtraction
- 3. Multiplication
- 4. Division
- 5. Exit

Multiplication is : 50.00000

```

class();
printf("Enter two values: ");
scanf("%f %f", &n1, &n2);
printf("\n 1. Addition \n 2. Subtraction
       \n 3. Multiplication \n 4. Division
       \n 5. Exit ");
printf("\nEnter your choice: ");
scanf("%d", &c);
switch(c)
{
    case 1: R=n1+n2;
               printf("\n Addition is: %.f ", R);
               break;
    case 2: R=n1-n2;
               printf("\n Subtraction is: %.f ", R);
               break;
    case 3: R=n1*n2;
               printf("\n Multiplication is: %.f ", R);
               break;
    case 4: R=n1/n2;
               printf("\n Division is: %.f ", R);
               break;
    case 5: return;
    default: printf("\n Invalid option ");
}
getch();

```

Ternary operator

Algorithm:

Step 1: Start with "main".

Step 2: Initialize (3 variables) suppose a, b, c with integers.

Step 3: Check a number with other two numbers using OR operator.

Step 4: Use ternary operator to check between two numbers.

Step 5: Store the result in a variable.

Step 6: Display the result

Step 7: End

Source code:

```
#include <iostream.h>
#include <stdio.h>
void main()
{
    int a=100, b=20, c=50, big;
    clrscr();
    big = a>b || a>c ? a : b;
    printf("The biggest number is: %d", big);
    getch();
}
```

Output:

The biggest number is : 100

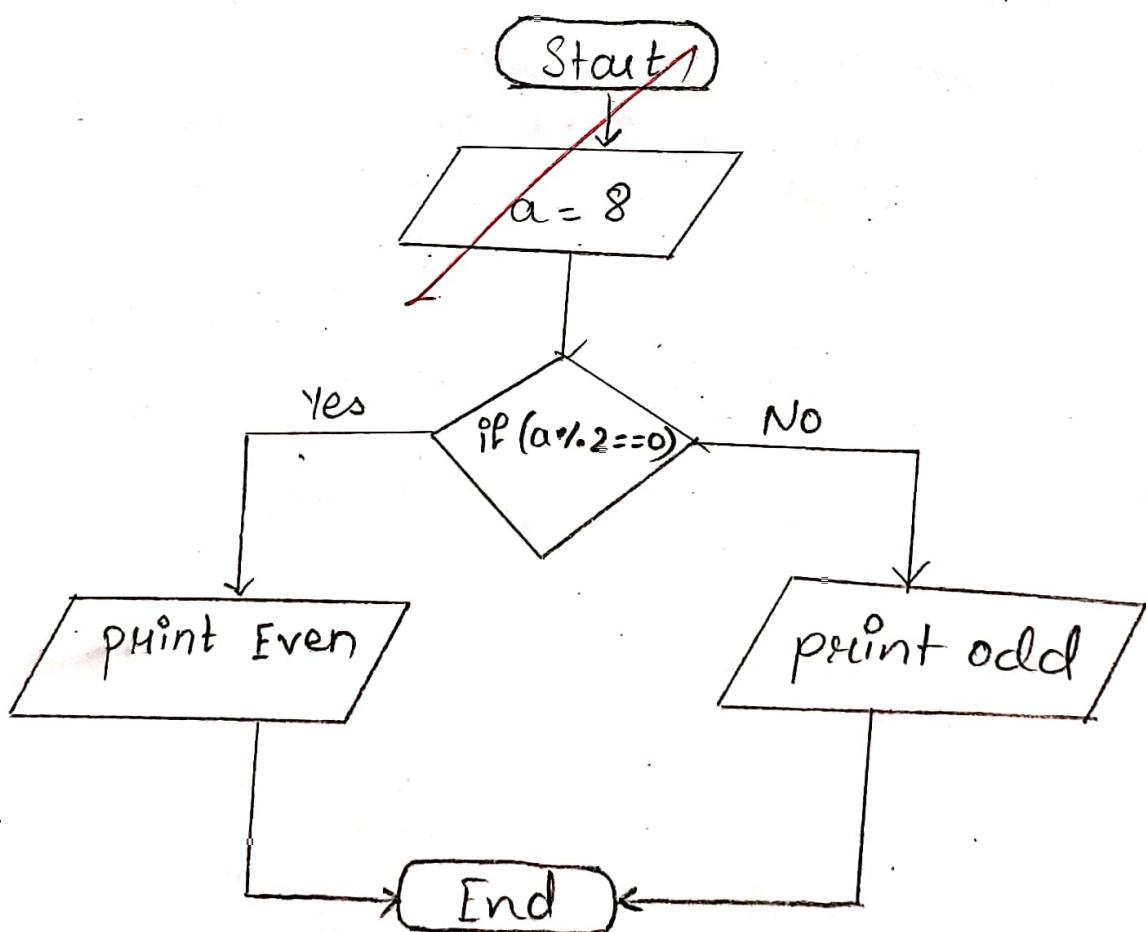
Jawwad
19/01/2020

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Output:

Enter a number: 8
8 is an even number.

Flowchart:



PRACTICAL - 3

Aim: Programs on decision making statements

1. Write a program to find the odd and even numbers.

Algorithm:

Step 1: Start

Step 2: Read an integer as input from the user.

Step 3: Use if decision statement to check the input is even or odd.

Step 4: Display the result

Step 5: End.

Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a
    clrscr();
    printf("Enter a number : ");
    scanf("%d", &a);
    if (a % 2 == 0)
    }
```

Q.8.

```
    printf("%d is an even number", a);  
}  
else  
{  
    printf("%d is an odd number", a);  
}  
getch();  
}
```

2. Write a program to check whether entered character is a vowel or not.

Algorithm:

- Step 1: Start
- Step 2: Read a character
- Step 3: Compare the character with vowels both upper case and lowercase
- Step 4: Display the result
- Step 5: End

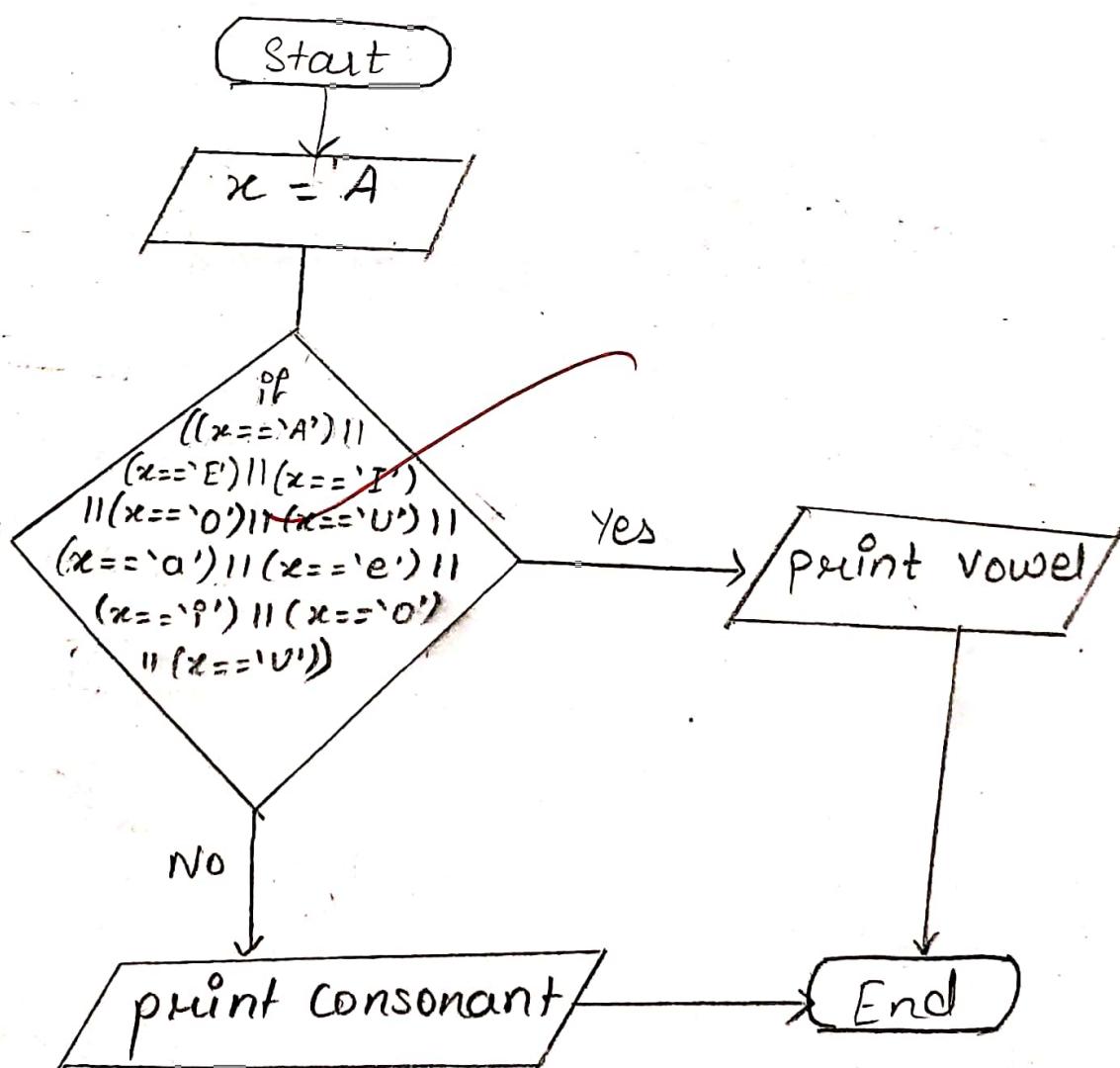
Source Code:

```
#include <conio.h>  
#include <stdio.h>  
void main()  
{  
    char x;
```

Output:

Enter an alphabet: A
A is a vowel

Enter an ~~vow~~ alphabet: H
H is a consonant

Flowchart:

```

clrscr();
printf("Enter an alphabet : ");
scanf("%s", &x);
if((x == 'i') || (x == 'e') || (x == 'a') || (x == 'o') ||
   (x == 'u') || (x == 'A') || (x == 'E') || (x == 'I') ||
   (x == 'O') || (x == 'U'))
{
    printf("%s is a vowel", x);
}
else
{
    printf("%s is a consonant", x);
}
getch();

```

- Q. Write a program to take a single digit number and display in words.

Algorithm:

Step 1: Start

Step 2: Read an integer

Step 3: Use switch case to convert the digit in words

Step 4: Display the result according to the cases.

Step 5: End.

Source Codes

```
/*include contacts
```

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

```
void main()
```

```
{
```

```
int n;
```

```
clrscr();
```

```
printf("Enter a digit: ");
```

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

```
switch(n)
```

```
{
```

```
case 0:
```

```
printf("Zero");
```

```
break;
```

```
case 1:
```

```
printf("One");
```

```
break;
```

```
case 2:
```

```
printf("Two");
```

```
break;
```

```
case 3:
```

```
printf("Three");
```

```
case break;
```

```
case 4:
```

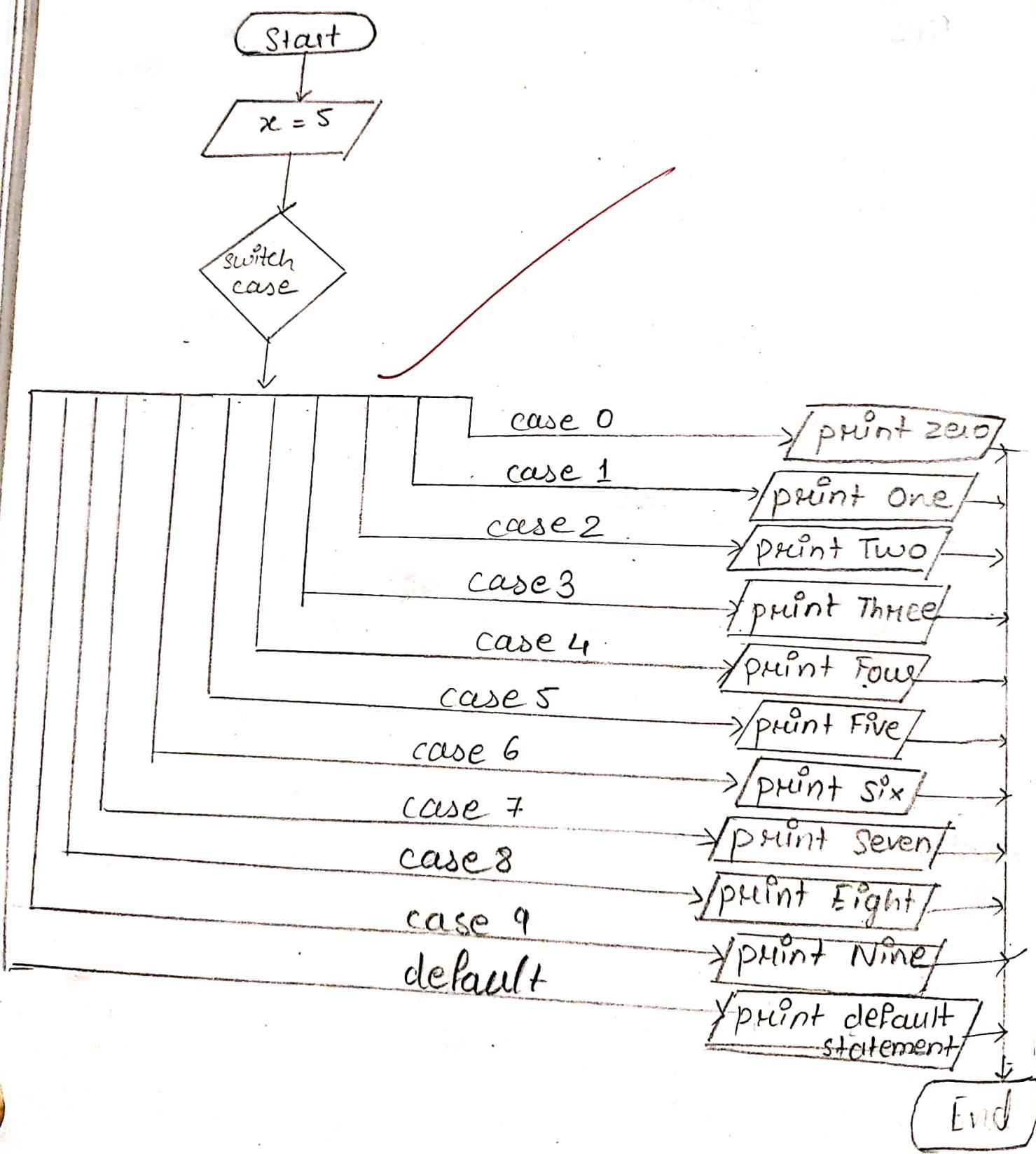
```
printf("Four");
```

```
break;
```

Output:

Enter a digit : 5
Five

Flowchart:



case 5:

printf("Five")

break;

case 6:

printf("Six")

break;

case 7:

printf("Seven")

break;

case 8:

printf("Eight")

break;

case 9:

printf("Nine")

break;

default:

printf("Invalid Number");

}
getch();

~~Sumit
24/01/2020~~

PRACTICAL-4

Aim: Programs on looping.

1. Write a program to display even numbers from 1 to 50 using while loop

Algorithm:

Step 1: Start

Step 2: Initialize $i = 2$

Step 3: Use while loop to print list of even numbers

Step 4: Display the output

Step 5: Stop

Source code:

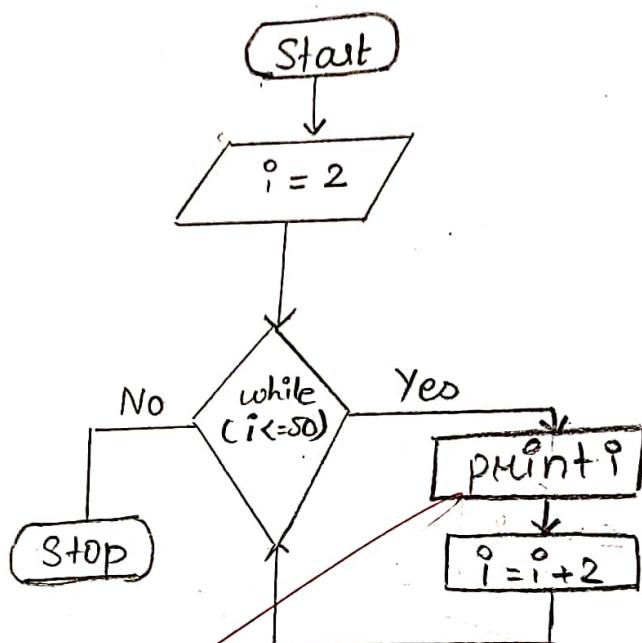
```
#include <conio.h>
#include <stdio.h>
void main()
{
    int i=2;
    clrscr();
    while(i<=50)
    {
        printf("%d \n", i);
        i=i+2;
    }
}
```

Output:

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50

88

Flowchart:



Output

1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31

}

getch();

2. Write a program to print odd numbers from 1 to 50 using do while loop.

Algorithm:

- Step 1 : Start
- Step 2 : Initialize $i=1$.
- Step 3 : Use do while loop to print the list of odd numbers
- Step 4 : Increment i by 1
- Step 5 : Display the output
- Step 6 : Stop

Source Code:

```
#include <conio.h>
#include <stdio.h>
void main()
{
    int i=1;
    clrscr();
    do
    {
        printf("%d\n", i);
        i = i+2;
    }
}
```

```

    }
    while (i <= 50);
    getch();
}

```

3. Write a program to find factorial

Algorithm:

Step 1: Start

Step 2: Initialize i, f=1, n

Step 3: Read range from the user.

Step 4: Use for loop and f=f+i

Step 5: Display the output

Step 6: Stop

Source code:

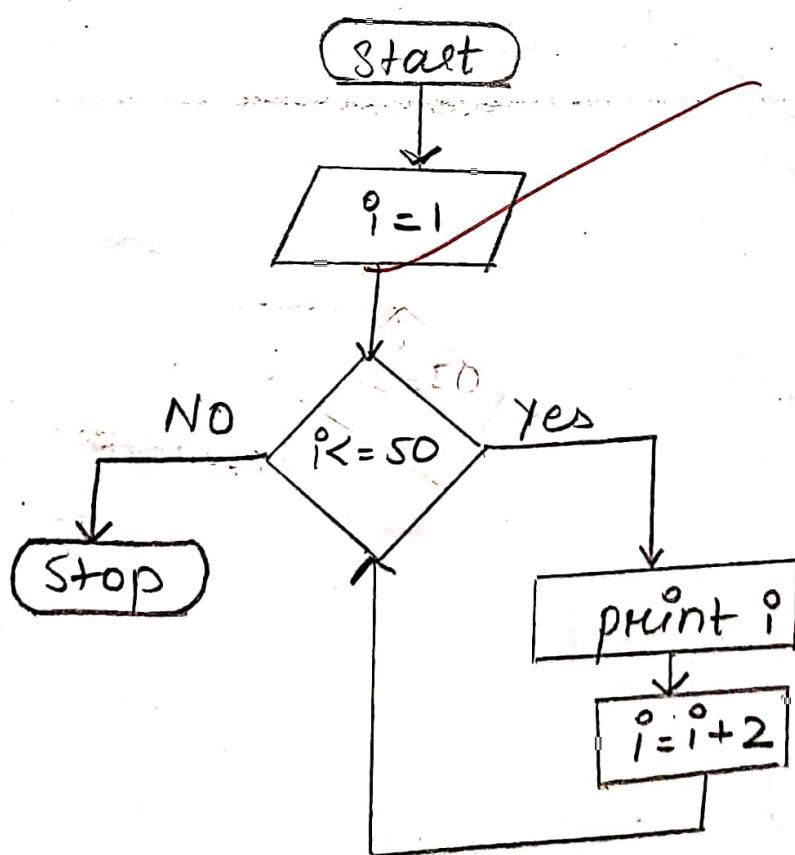
```

#include <stdio.h>
#include <conio.h>
void main()
{
    int i, f=1, n
    clrscr();
    printf(" Enter : ");
    scanf("%d", &n);
}

```

33
35
37
39
41
43
45
47
49

Flowchart

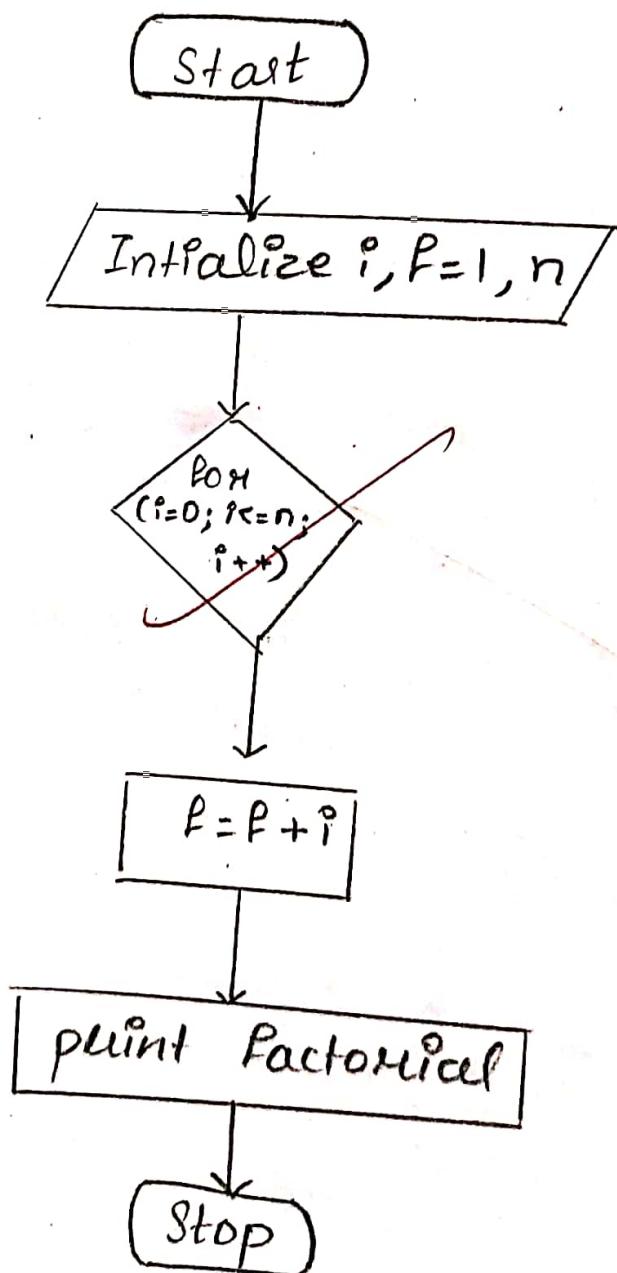


Output:

Enter : 5

The Factorial is : 120

Flowchart:



~~p FOR(i=0; i<=n; i++)~~

$$\rho = \rho_1 + \rho_2$$

```
printf("The factorial is.: %d", f);  
getch();
```

[Signature]
07/02/2020

PRACTICAL - 5

Aim: Programs on arrays.

1. Write a C program to print the input array elements

Algorithm:

Step 1: Start

Step 2: Initialize a[20], s, i

Step 3: Read size of the array from user

Step 4: Use a for loop to take elements in the array.

Step 5: Use another for loop to print the elements of the array

Step 6: Stop

Source code:

```
#include <conio.h>
```

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

```
void main()
```

```
{
```

```
    int a[20], s, i;
```

```
    clrscr();
```

```
    printf("Enter size of the array: ");
```

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

```
    for (i=0; i<s; i++)
```

```
{
```

Output:

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Enter size of the array : 3

Enter the a[0] number element : 4

Enter the a[1] number element : 3

Enter the a[2] number element : 3

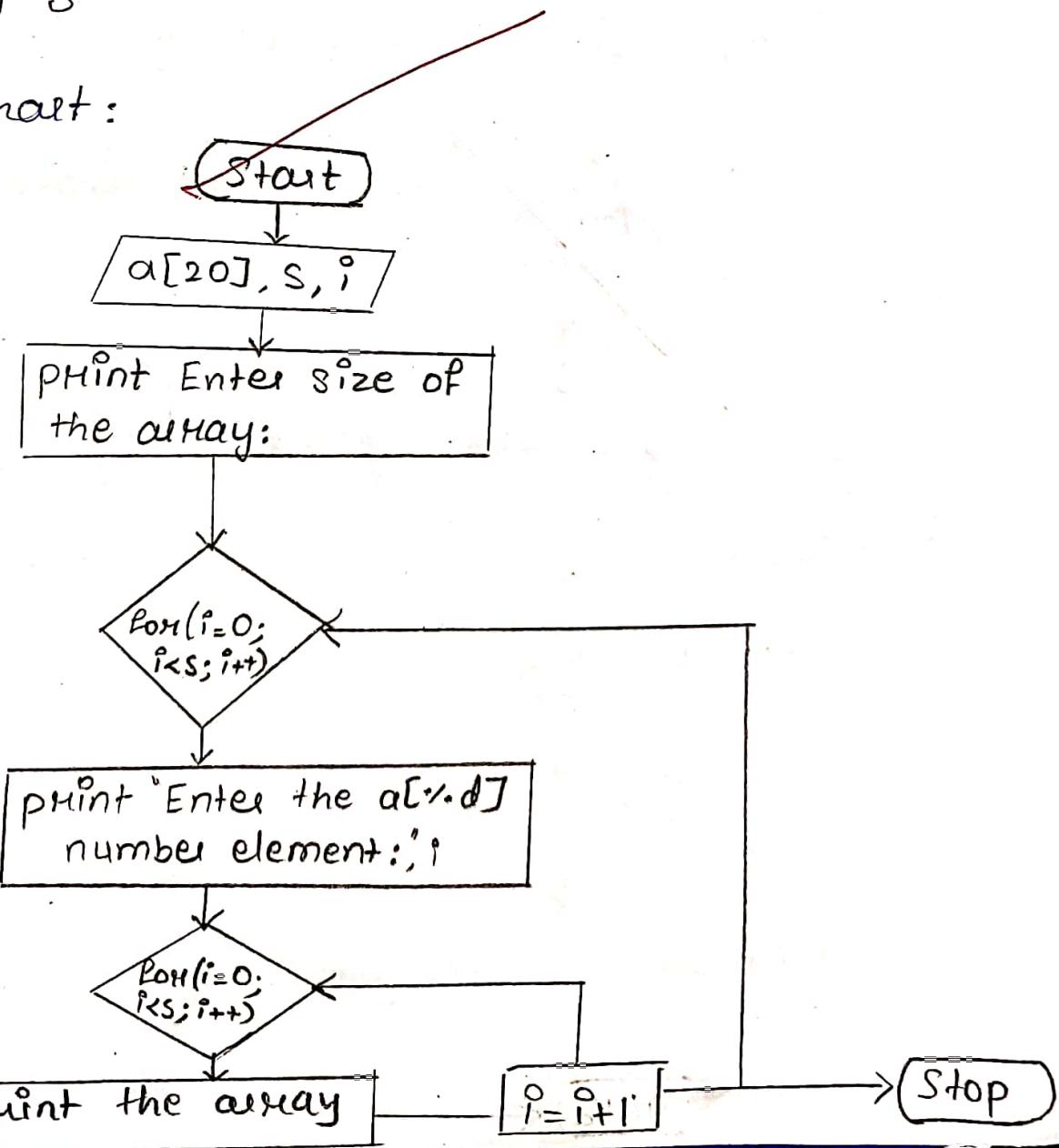
The displayed array :

a[0] 4

a[1] 3

a[2] 3

Flowchart :



Q8

Output:

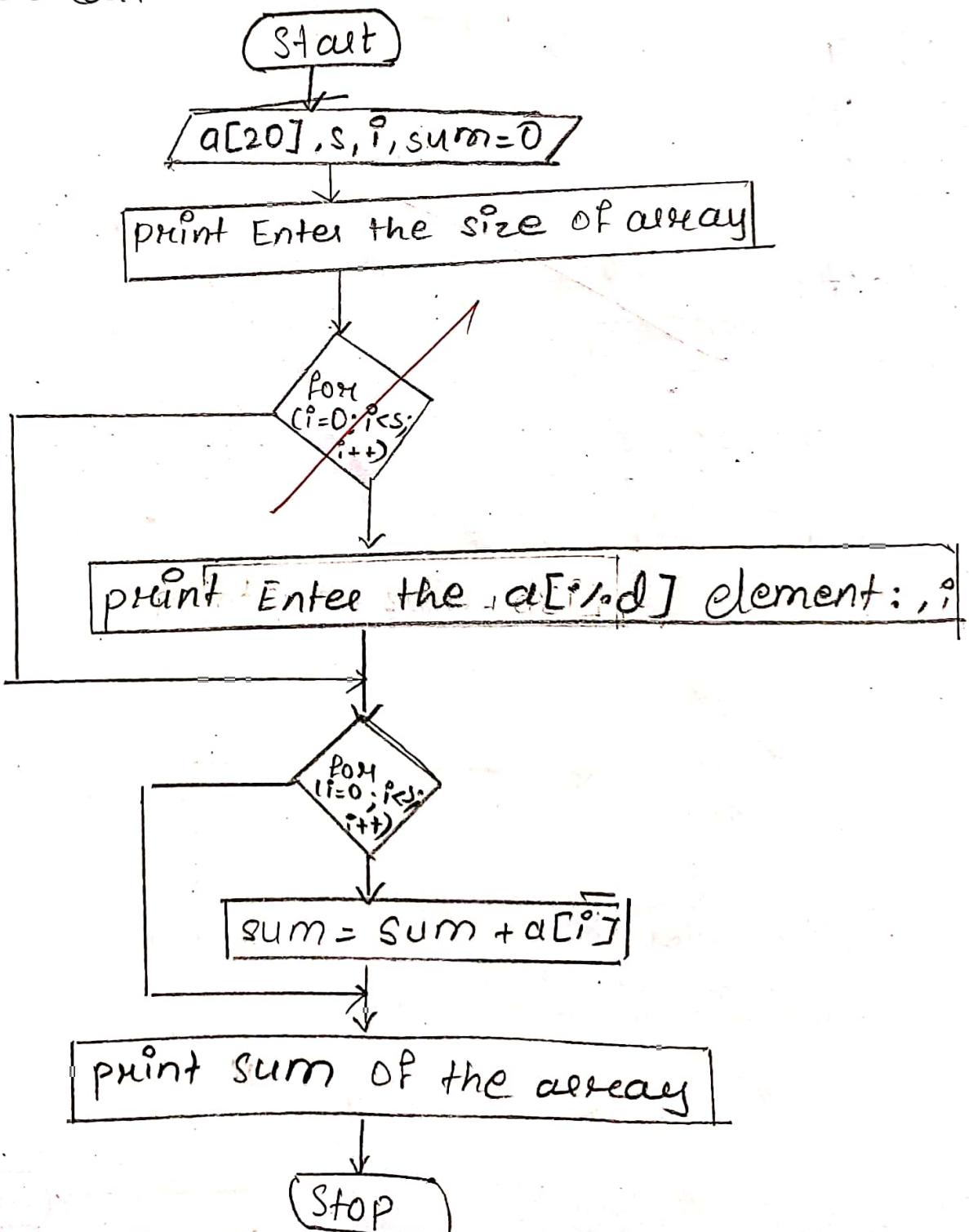
Enter the size of the array: 2

Enter the a[0] element: 2

Enter the a[1] element: 6

Sum of the array is [8]

Flowchart:



```

printf("Enter the a[ ].d ] number
      element: ", i);
scanf("%d", &a[i]);
}

printf("\n The displayed array : \n");
for (i=0; i<s; i++)
{
    printf(" a[ ].d ] %d ", i);
}
getch();
}

```

2. Write a program to find sum of elements of the arrays.

Algorithm:

Step 1: Start

Step 2: Initialize. a[20], sum=0, s, i

Step 3: Read size of the array from user.

Step 4: Use for loop to take elements of the array

Step 5: Use another for loop to calculate the sum of the array.

Step 6: Display the result.

Step 7: Stop

Source Code:

```
#include <conio.h>
#include <stdio.h>
void main()
{
    int a[20], sum=0, s, i;
    clrscr();
    printf("Enter the size of the array:");
    scanf("%d", &s);
    for (i=0; i<s; i++)
    {
        printf("Enter the a[%d].d element:", i);
        scanf("%d", &a[i]);
    }
    for (i=0; i<s; i++)
    {
        sum = sum + a[i];
    }
    printf("Sum of the array is %d:", sum);
    getch();
}
```

1. A

Output:

Enter no. of rows and columns: 2 2

Enter the $a[0][0]$ no element: 4

Enter the $a[0][1]$ no element: 7

Enter the $a[1][0]$ no element: 9

Enter the $a[1][1]$ no element: 2

Matrix:

4	7
9	2



3. Write a program to represent an array in matrix form

Algorithm:

Step 1 : Start

Step 2 : Initialize a[20][20], r, c, i, j

Step 3 : Read from the user the number of rows and columns.

Step 4 : Use for loop for accessing the array elements.

Step 5 : Use another for loop for displaying the array values.

Step 6 : Stop.

Source code:

```
#include <conio.h>
#include <stdio.h>
void main()
{
    int a[20][20], r, c, i, j;
    clrscr();
    printf(" Enter no. of rows and columns: ");
    scanf("%d %d", &r, &c);
    for (i=0 ; i<r ; i++)
    {
```

```
for(j=0; j<c; j++)
{
    printf("Enter the a[%d][%d]
no. element: ", i, j);
    scanf("%d", &a[i][j]);
}

printf("Matrix: \n \n");
for(i=0; i<4; i++)
{
    for(j=0; j<c; j++)
        printf("\t %d", a[i][j]);
    printf("\n");
}
getch();
```

Flowchart:

