UNIT 5

CONTROL STRUCTURE

1. WAP to check whether entered number is negative.

```
#include<stdio.h>
int main(){
	int n;
	printf("Enter a number to be tested:");
	scanf("%d",&n);
	if(n<0){
		printf("The number %d is negative.",n);
	}
	return 0;
}
```

2. WAP to determine whether the entered number is even or odd.

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

```
        else{
                printf("The number %d is odd.",n);
        }
        return 0;
}
```

3. WAP to read the marks of four subjects of a student from the user and compute percentage and grade of the student using the following conditions:

percentage>=80 grade = A

percentage<80 and per>=60 grade = B

percentage<60 and per>=50 grade = C

percentage<50 and per>=40 grade = D

percentage<40 grade = F

```
#include<stdio.h>
int main(){
        float m1,m2,m3,m4,percentage;
        char grade;
        printf("Enter marks of 4 subjects:");
        scanf("%f%f%f%f",&m1,&m2,&m3,&m4);
        percentage=(m1+m2+m3+m4)/4;
        if(percentage>=80)
                grade = 'A';
        else if(percentage>=60)
                grade = 'B';
        else if(percentage>=50)
                grade = 'C';
```

```
        else if(percentage>=40)
                grade = 'D';
        else
                grade = 'F';
        printf("Percentage is %.2f. \nGrade is %c.",percentage,grade);
        return 0;
}
```

4. WAP that finds the largest among three numbers using logical operator and else if statement.

```
#include<stdio.h>
int main(){
        int a,b,c;
        printf("Enter three numbers:");
        scanf("%d%d%d",&a,&b,&c);
        if(a>b && a>c){
                printf("%d is the largest number.",a);
        }
        else if(b>a && b>c){
                printf("%d is the largest number.",b);
        }
        else{
                printf("%d is the largest number.",c);
        }
        return 0;
}
```

5. WAP that performs the arithmetic operation using switch statement.

```
#include<stdio.h>
int main(){
	int a,b;
	char c;
	printf("Enter two numbers:");
	scanf("%d%d",&a,&b);
	printf("Select + to add, - to subtract, * to multiply and / to divide.");
	printf("Enter your choice:");
	scanf(" %c",&c);
	switch(c){
		case '+':
			printf("Sum of two numbers=%d",a+b);
			break;
		case '-':
			printf("Difference of two numbers=%d",a-b);
			break;
		case '*':
			printf("Product of two numbers=%d",a*b);
			break;
		case '/':
			printf("Division of two numbers=%d",a/b);
			break;
		default:
```

```
                printf("Invalid choice.");


        }
        return 0;
}
```

6. WAP to calculate the factorial of a positive number read from user using for loop.

```
#include<stdio.h>
int main(){
        int i,num;
        long fac=1;
        printf("Enter a number:");
        scanf("%d",&num);
        for(i=1;i<=num;i++){
                fac=fac*i;
        }
        printf("Factorial of %d is %d.",num,fac);
        return 0;
}
```

7. WAP to sum all integers from 1 to 100 using for loop.

```
#include<stdio.h>
int main(){
	int i,sum=0;
	for(i=1;i<=100;i++){
		sum=sum+i;
	}
	printf("Sum is %d.",sum);
	return 0;
}
```

8. WAP to find the sum and average of the marks of five subjects using for loop.

```
#include<stdio.h>
int main(){
	float marks,total=0,average;
	for(int i=1;i<=5;i++){
		printf("Enter marks in %d th subject:",i);
		scanf("%f",&marks);
		total+=marks;
	}
	printf("Total marks = %.2f",total);
	printf("\nAverage marks = %.2f",total/5);
	return 0;
}
```

9. WAP to find the sum of digits of any number supplied by the user using while loop.

```
#include<stdio.h>
int main(){
	int num,rem,sum=0;
	printf("Enter a number:");
	scanf("%d",&num);
	while(num!=0){
		rem=num%10;
		sum+=rem;
		num/=10;
	}
	printf("Sum of digits = %d",sum);
	return 0;
}
```

10. WAP that check whether the entered number is Armstrong Number.

```
#include<stdio.h>
int main(){
	int num,rem,sum=0,check;
	printf("Enter a number:");
	scanf("%d",&num);
	check=num;
	while(num!=0){
		rem=num%10;
		sum+=rem*rem*rem;
		num/=10;
	}
	if(check==sum){
		printf("%d is Armstrong Number.",check);
	}
	else{
		printf("%d is not Armstrong Number.",check);
	}
	return 0;
}
```

11. WAP to read a number from keyboard and check whether it is a palindrome or not.

```
#include<stdio.h>
int main(){
	int num,rem,rev=0,check;
	printf("Enter a number:");
	scanf("%d",&num);
	check=num;
	while(num!=0){
		rem=num%10;
		rev=rev*10+rem;
		num/=10;
	}
	if(check==rev){
		printf("%d is a palindrome number.",check);
	}
	else{
		printf("%d is not a palindrome number.",check);
	}
	return 0;
}
```

12. WAP to find the Fibonacci sequence: 1,1,2,3,5,8,13,…..

```
#include<stdio.h>
int main(){
	int a=1,b=1,c,num;
	printf("Enter number upto which you want Fibonacci sequence:");
	scanf("%d",&num);
	printf("%d",a);
	do{
		printf(",%d",b);
		c=a+b;
		a=b;
		b=c;
	}while(num>b);
	return 0;}
```

13. WAP to illustrate the use of break within loop.

```
#include<stdio.h>
int main(){
	for(int i=1;i<=10;i++){
		if(i==4){
			break;
		}
		printf("%d\t",i);
	}
	return 0;
}
```

14. WAP to illustrate the use of continue statement.

```
#include<stdio.h>
int main(){
	for(int i=1;i<=10;i++){
		if(i==2){
			continue;
		}
		printf("%d\t",i);
	}
	return 0;
}
```

15. WAP to display the following menu

1. To find area of circle

2. To check the given number is odd or even

3. To find the sum of N numbers

4. Exit

```
#include<stdio.h>
#include<stdlib.h>
#define TRUE 1
#define PI 3.14
int main(){
    int choice,n,N,sum;
    float r;
    printf("1. Find area of circle.");
    printf("\n2. Check the given number is odd or even.");
    printf("\n3. Find the sum of N numbers.");
    printf("\n4. Exit.");
    while(TRUE){
        printf("\nEnter a choice:");
        scanf("%d",&choice);
        switch(choice){
            case 1:
                printf("\nEnter a radius:");
                scanf("%f",&r);
                printf("Area of circle = %.2f",PI*r*r);
```

```
        break;
case 2:
        printf("\nEnter a number to check even or odd:");
        scanf("%d",&n);
        if(n%2==0)
                printf("%d is even number.",n);
        else
                printf("%d is odd number.",n);
        break;
case 3:
        sum=0;
        printf("\nHow many numbers do you want to add?");
        scanf("%d",&N);
        printf("Enter %d numbers:",N);
        for(int i=1;i<=N;i++){
                scanf("%d",&n);
                sum+=n;
        }
        printf("Sum = %d",sum);
        break;
case 4:
        exit(0);
default:
        printf("\nInvalid choice. Please try again.");
```

```
            }
        }
        return 0;
}
```

16. WAP to input an integer number and check whether it is prime number or not.

```
#include<stdio.h>
int main(){
        int num,i;
        printf("Enter a number:");
        scanf("%d",&num);
        for(i=2;i<num;i++){
            if(num%i==0){
                printf("%d is not a prime number.",num);
                break;
            }
        }
        if(num==i){
            printf("%d is a prime number.",num);
        }
        return 0;
}
```