

XI – COMPUTER SCIENCE

SUGGESTED C++ RECORD PROGRAMS

2017-18

1) Write a program to generate telephone bill using if else if ladder. Rent is Rs.100/-

(i)First 50 calls–Free(ii)Next100calls–0.70

(iii)Next150calls–1.0(iv) Remaining calls – 1.20

```
#include<iostream.h>
#include<conio.h>
void main()
{ int calls;
float bill;
clrscr();
cout<<"\nEnter the number of calls: ";
cin>>calls;
if(calls<=50)
bill=100.0;
else if (calls<=150)
bill=(calls-50)*0.70+100.0;
else if (calls<=300)
bill=100*0.70+(calls-150)*1.00+100.0;
else
bill=100*0.70+150*1.00+(calls-300)*1.20+100.0;
cout<<"\nThe bill amount to pay = "<<bill;
getch();
}
```

Sample Output:

Enter the number of calls: 49
The bill amount to pay=100.0

Enter the number of calls:72
The bill amount to pay=115.40

Enter the number of calls: 122
The bill amount to pay=150.39

Enter the number of calls: 567
The bill amount to pay=640.40

2) Write a program to accept the month number (as integer) and to display its full name and number of days using switch statement.

```
#include<iostream.h>
#include<conio.h>
void main()
{ int month;
clrscr();
cout<<"\nEnter the month number: ";
cin>>month;
switch(month)
{ case 1: cout<<"\n January = 31 Days "; break;
case 2: cout<<"\n February = 28or29Days";break;
case 3: cout<<"\n March = 31 Days"; break;
case 4: cout<<"\n April = 30 Days"; break;
case 5: cout<<"\n May = 31 Days"; break;
```

```
case 6: cout<<"\n June = 30 Days"; break;
case 7: cout<<"\n July = 31 Days"; break;
case 8: cout<<"\n August = 31 Days"; break;
case 9: cout<<"\n September = 30 Days"; break;
case 10: cout<<"\n October = 31 Days"; break;
case 11: cout<<"\n November = 30 Days"; break;
case 12: cout<<"\n December = 31 Days"; break;
default: cout<<"\nYou did not enter proper choice: ";
break;
```

```
}
getch();
}
```

Sample Output:

Enter the month number : 3
March = 31 Days

3) Write a program to process 4 function calculator using switch and do-while.

```
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main()
{
int choice;
float a,b;
do
{clrscr();
cout<<"\n Enter any two numbers: ";
cin>>a>>b;
cout<<"\n1.Addition";
cout<<"\n2. Subtraction";
cout<<"\n3. Multiplication";
cout<<"\n4. Division";
cout<<"\n5. Exit";
cout<<"\n\n Enter your choice: ";
cin>>choice;
switch(choice)
{case 1: cout<<"\nThe addition of two
numbers:"<<a+b; break;
case 2: cout<<"\nThe subtraction: "<<a-b;
break;
case 3: cout<<"\nThe multiplication of two numbers:
"<<a*b; break;
case 4: cout<<"\nThe division: "<<a/b; break;
case 5: exit(0); break;
default: cout<<"\nYou have to enter proper choice";
} //End of switch
getch();
}while(choice!=5);
}
```

Sample Output:

Enter any two numbers : 10 20
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Exit
Enter your choice : 1
The addition of two numbers : 30

4. Write a program to generate Fibonacci series.

```
#include<iostream.h>
#include<conio.h>
void main()
{
int n,a,b,c;
clrscr();
cout<<"\nUpto which number you want to generate
        fibonacci series: ";
cin>>n;
a=0;
b=1;
cout<<a<<"\t"<<b<<"\t";
c=a+b;
while(c<=n)
{ cout<<c<<"\t";
  a=b;
  b=c;
  c=a+b;
}
getch();
}
```

Sample Output:

Upto which number you want to generate
fibonacci series: 35
0 1 1 2 3 5 8 13 21 34

5. Write a program to generate Prime numbers upto n.

```
#include<iostream.h>
#include<conio.h>
void main()
{
int i,j,mul,n;
i=1;mul=0;
clrscr();
cout<<"\n Upto which number you want to
        check for prime: ";
cin>>n;
for(i=1;i<=n;i++)
{ j=1;
while(j<=i)
{ if(i%j==0)
    mul++;
  j++;
}
if(mul==2)
    cout<<i<<"\t";
mul=0;
}
getch();
}
```

Sample Output:

Upto which number you want to check for prime:10
2 3 5 7

6. Write a program to find perfect numbers upto n.

```
#include<iostream.h>
```

```
#include<conio.h>
void main()
{
int n,i=1,j,sum=0;
clrscr();
cout<<"Upto which number you want to
        check for perfect: ";
cin>>n;
for(i=1;i<=n;i++)
{ j=1;
while(j<i)
{
if(i%j==0)
    sum=sum+j;
j++;
}
if(sum==i)
    cout<<i<<"\t";
sum=0;
}
getch();
}
```

Sample Data:

Upto which number you want to check for perfect: 15000
6 28 496 8128

7. Write a program to generate following type of output (for any odd no input), ex, If input is 5, it should display the following output (Z shape).

```
#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int n,i,j;
cout<<"\nHow many lines to show Z shape: ";
cin>>n;
for(i=0;i<n;i++)
{
for(j=0;j<n;j++)
if((i==0)||i==(n-1)||((i+j)==(n-1)))
    cout<<" * ";
else
    cout<<" ";
cout<<endl;
}
getch();
}
```

Sample Data: How many lines to
show Z shape: 5

8. Write a program to swap two numbers using call by value.

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

```

void swap(int, int);
void main()
{ int a,b;
clrscr();
cout<<"\nEnter any two numbers:";
cin>>a>>b;
cout<<"\nThe values of a = "<<a<<" and b = "<<b
<<" before swapping\n";
swap(a,b);
cout<<"\nThe values of a = "<<a<<" and b = "<<b
<<" after swapping\n" ;
getch();
}
void swap(int x,int y)
{ int t;
t=x;
x=y;
y=t;
cout<<"\nThe values of x = "<<x<<" after swapping in
swap function";
cout<<"\nThe values of y = "<<y<<" after swapping in
swap function\n";
}

```

Sample Data:

```

Enter any two numbers:10
20

The values of a = 10 and b = 20 before swapping

The values of x = 20 after swapping in swap function
The values of y = 10 after swapping in swap function

The values of a = 10 and b = 20 after swapping

```

9. Write a program to swap two numbers using call by reference.

```

#include<iostream.h>
#include<conio.h>
void swap(int&, int&);
void main()
{ int a,b;
clrscr();
cout<<"\nEnter any two numbers:";
cin>>a>>b;
cout<<"\nThe values of a = "<<a<<" and b = "
<<b<<" before swapping\n";
swap(a,b);
cout<<"\nThe values of a = "<<a<<" and b = "
<<b<<" after swapping\n" ;
getch();
}
void swap(int &x,int &y)
{ int t;
t=x;
x=y;
y=t;
cout<<"\nThe values of x = "<<x<<" after
swapping in swap function";
cout<<"\nThe values of y = "<<y<<" after
swapping in swap function\n";
}

```

Sample Data:

```

Enter any two numbers:10
20

The values of a = 10 and b = 20 before swapping

The values of x = 20 after swapping in swap function
The values of y = 10 after swapping in swap function

The values of a = 20 and b = 10 after swapping

```

10) Write a program to find roots of a quadratic equation using functions.

```

#include<iostream.h>
#include<math.h>
#include<conio.h>
void roots(float,float,float);
void main()
{
float f,s,t;
clrscr();
cout << "Enter coefficients a, b and c: ";
cin>>f>>s>>t;
roots(f,s,t);
getch();
}
void roots(float a,float b,float c)
{ float x1,x2,d,rp,ip;
d=b*b-4*a*c;
if(d>0)
{ x1=(-b+sqrt(d))/(2*a);
x2=(-b-sqrt(d))/(2*a);
cout << "Roots are real and different." << endl;
cout << "x1 = " << x1 << endl;
cout << "x2 = " << x2 << endl;
}
else if(d==0)
{ cout << "Roots are real and same." << endl;
x1 = (-b+sqrt(d))/(2*a);
cout<<"x1 = x2 = " <<x1<< endl;
}
else
{ rp=-b/(2*a);
ip=sqrt(-d)/(2*a);
cout<<"Roots are complex and different." <<endl;
cout<<"x1 = "<<rp<<" + "<<ip<<"i"<<endl;
cout<<"x2 = "<<rp<<" - "<<ip<<"i"<<endl;
}
}
}

```

Sample Data:

```

Enter coefficients a, b and c
1
8
2
Roots are real and different.
x1 = -0.258343
x2 = -7.741657

```

```
Enter coefficients a, b and c:
3
1
5
Roots are complex and different.
x1 = -0.166667 + 1.280191i
x2 = -0.166667 - 1.280191i
```

11) Write a program to calculate factorial of a number using recursion.

```
#include<iostream.h>
#include<conio.h>
int factorial(int n);
void main()
{ int n;
  clrscr();
  cout << "\n\nEnter a positive integer: ";
  cin>>n;
  cout<< "Factorial of " << n << " = " << factorial(n);
  getch();
}
int factorial(int n)
{ if(n > 1)
  return n * factorial(n - 1);
  else
  return 1;
}
```

Sample Data:

```
Enter a positive integer: 7
Factorial of 7 = 5040_
```

12) Write a program to check entered character is alphabet, digit or special character.

```
#include<iostream.h>
#include<ctype.h>
#include<conio.h>
void main()
{ char ch;
  clrscr();
  cout<< "\n\nEnter any character :";
  cin>>ch;
  if(isalpha(ch))
    cout<< "Alphabet";
  else if(isdigit(ch))
    cout<< "Number";
  else
    cout<< "Special Character";
  getch();
}
```

Sample Data:

```
Enter any character :*
Special Character
```

13) Program to find number of vowels in a given line of text.

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
void main()
{ char text[80];
  int vowels=0,i;
  clrscr();
  cout<< "\n\nEnter any line of text: ";
  gets(text);
  for(i=0;text[i]!='\0';i++)
  { switch(text[i])
    { case 'a':
      case 'A':
      case 'e':
      case 'E':
      case 'i':
      case 'I':
      case 'o':
      case 'O':
      case 'u':
      case 'U': vowels++;
    }
  }
  cout<< "\n\nTotal number of vowels: " << vowels;
  getch();
}
```

Sample Data:

```
Enter any line of text: The moment which is lost is lost for ever
Total number of vowels: 11_
```

14) Write a program to find total words in the given text.

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
void main()
{ clrscr();
  char text[80];
  int i,total=1;
  cout<< "\n\nEnter any string: ";
  gets(text);
  for(i=0;text[i]!='\0';i++)
  if(text[i] == ' ')
    total++;
  cout<< "\n\nTotal words in the given text = " << total;
  getch();
}
```

Sample Data:

```
Enter any string: We are studying in JNU Pedavegi
Total words in the given text = 6
```

15) Write a program to check whether the entered string is palindrome or not.

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
void main()
{ char string[80];
  int i,j,len,flag=1;
  clrscr();
  cout<<"\nEnter string (Max 79 characters) : ";
  gets(string);
  for(len=0;string[len]!='\0';len++);
  for(i=0,j=len-1;i<len/2;i++,j--)
  { if(string[i]!=string[j])
    { flag=0;
      break;
    }
  }
  if(flag==1)
    cout<<"\nIt is a palindrome.\n";
  else
    cout<<"\nIt is not a palindrome\n";
  getch();
}
```

Sample Data:

```
Enter string (Max 79 characters) : welcome
It is not a palindrome
```

```
Enter string (Max 79 characters) : malayalam
It is a palindrome.
```

16. Write a program to search an element in an array using linear search method.

```
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main( )
{ int elements,i,n,A[10];
  clrscr();
  cout<<"\nHow many elements do you want to insert in
  Array? ";
  cin>>elements;
  cout<<"\nEnter the elements in to the array: ";
  for(i=0;i<elements;i++)
    cin>>A[i];
  cout<<"\nEnter the search element: ";
  cin>>n;
  for(i=0;i<=9;i++)
  { if (A[i]==n)
    { cout<<"\nThe search element is found";
      getch();
      exit(0);
    }
  }
  cout<<"\nSearch element not found";
  getch();
}
```

Sample Data:

```
How many elements do you want to insert in Array? 7
Enter the elements in to the array: 10 20 30 25 -10 15 2345
Enter the search element: 32
```

```
How many elements do you want to insert in Array? 5
Enter the elements in to the array: 22 -34 98 67 45
Enter the search element: -34
```

17) Write a program for matrix addition.

```
#include<iostream.h>
#include<conio.h>
void main()
{
  int A[4][3],B[4][3],C[4][3],i,j;
  clrscr();
  cout<<"\nEnter any 12 elements into Matrix A: ";
  for(i=0;i<=3;i++)
    for(j=0;j<=2;j++)
      cin>>A[i][j];
  cout<<"\nEnter any 12 elements into Matrix B: ";
  for(i=0;i<=3;i++)
    for(j=0;j<=2;j++)
      cin>>B[i][j];
  for(i=0;i<=3;i++)
    for(j=0;j<=2;j++)
      C[i][j]=A[i][j]+B[i][j];
  cout<<"\nAddition of two matrices output....\n";
  for(i=0;i<=3;i++)
  {
    for(j=0;j<=2;j++)
      cout<<C[i][j]<<"\t";
    cout<<endl;
  }
  getch();
}
```

Sample Data:

```
Enter any 12 elements into Matrix A: 1 2 3 4 5 6 22 33 44 55 11 423
Enter any 12 elements into Matrix B: 33 44 55 66 77 88 1 2 3 88 66 44
Addition of two matrices output....
34 46 58
70 82 94
23 35 47
143 77 467
```

18) Write a program for matrix transpose.

```
#include<iostream.h>
#include<conio.h>
void main()
{
  int i,j,A[3][4],B[4][3];
```

```

clrscr();
cout<<"\nEnter any 12 elements into Matrix A: ";
for(i=0;i<=2;i++)
    for(j=0;j<=3;j++)
        {
            cin>>A[i][j];
            B[j][i]=A[i][j];
        }
cout<<"\nThe elements in entered matrix A: \n";
for(i=0;i<=2;i++)
    {
        for(j=0;j<=3;j++)
            cout<<A[i][j]<<"\t";
        cout<<endl;
    }
cout<<"\nThe elements in transpose matrix : \n";
for(i=0;i<=3;i++)
    {
        for(j=0;j<=2;j++)
            cout<<B[i][j]<<"\t";
        cout<<endl;
    }
getch();
}

```

Sample Data:

```

Enter any 12 elements into Matrix A: 1 2 3 4 5 6 7 8 9 10 11 12
The elements in entered matrix A:
1      2      3      4
5      6      7      8
9      10     11     12
The elements in transpose matrix :
1      5      9
2      6      10
3      7      11
4      8      12

```

19. Program to read 2 heights in feet and inch and display total height in feet and height.

```

#include<iostream.h>
#include<stdio.h>
#include<conio.h>
struct Height
{ int feet,inch;
};
void main( )
{ Height H1,H2,H3;
clrscr();
cout<<"\nEnter the Height1 in feet and inches: ";
cin>>H1.feet>>H1.inch;
cout<<"Enter the Height2 in feet and inches: ";
cin>>H2.feet>>H2.inch;
H3.feet=H1.feet+H2.feet+(H1.inch+H2.inch)/12;
H3.inch=(H1.inch+H2.inch)% 12;
cout<<"\n Total Height in Feet : "<<H3.feet;
cout<<"\n Total Height in Inches: "<<H3.inch;
getch();
}

```

Sample Data:

```

Enter the Height1 in feet and inches: 5
7
Enter the Height2 in feet and inches: 4
11
Total Height in Feet : 10
Total Height in Inches: 6

```

20. Program to read name and population of five cities and display the name of the city, whose population is more using structures.

```

#include<iostream.h>
#include<stdio.h>
#include<conio.h>
struct City
{ char name[20];
  long pop;
};
void main( )
{ City C[5];
  int i,index;
  long largepop=0;
  clrscr();
  for(i=0;i<=4;i++)
    { cout<<"\nEnter the name and population of City "
      <<i+1<<"\n";
      gets(C[i].name);
      cin>>C[i].pop;
    }
  for(i=0;i<=4;i++)
    {
      if(C[i].pop>largepop)
        { largepop=C[i].pop;
          index=i;
        }
    }
  cout<<"\nThe Details of the more population
    City:\n";
  cout<<C[index].name<<"\t"<<C[index].pop;
  getch();
}

```

Sample Data:

```

Enter the name and population of City 1
Guntur
250000
Enter the name and population of City 2
Ujjayawada
300000
Enter the name and population of City 3
Hyderabad
700000
Enter the name and population of City 4
Uisakhapatnam
800000
Enter the name and population of City 5
Bangalore
553423
The Details of the more population City:
Uisakhapatnam 800000

```

****ALL THE BEST****