**Experiment: 5**

PART A

(PART A: TO BE REFFERED BY STUDENTS)

**Aim:** **To study nested loops in C++ programming**

**Learning Outcomes: Learner would be able to**

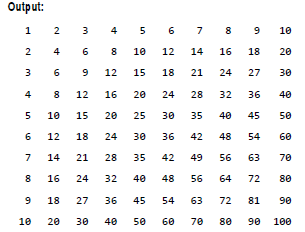
1. Interpret the scenario to decide on repetitive blocks.
2. Explain using algorithm and flowchart conditional constructs as per scenario.

**Task 1: Identify output for below blocks of code without using Codeblocks. Give justification.**

|  |  |
| --- | --- |
| 1. #include<iostream>   void main()  {  int c=1;  while(1)  {  if(c==5)  break;  cout<<c;  c++;  }  } | 1. #include<iostream>   void main()  {  int c=0;  while(c<=5)  {  c++;  if(c==3)  continue;  cout<<c;  }  } |
| 1. void main()   { int i,j,x=0;  for(i=0;i<5;++i)  {  for(j=0;j<i;++j)  x+=(i+j-1);  cout<<x;  break;  }  cout<<x;  } | 1. void main() {   int i,j,k;  for (i = 1; i <= 5; i++) {  for (j = 1; j <= (5 - i) ;j++) cout<<" ";  for (k = 1; k <= i; k++)  cout<<i;  cout<<“\n”;}  } |

**Task2:** Write a C++ program to print multiplication table for 1 to 10.

Expected Output:

****

**Task 3:** Write a C++ program to print below patterns.

1 1

1 2 2 3

1 2 3 4 5 6

1 2 3 4 7 8 9 10

#include<iostream>

int main()

{

int i,j,spc,rows,k,t=1;

cout<<"Input number of rows : ";

cin>>rows;

spc=rows+4-1;

for(i=1;i<=rows;i++)

{

for(k=spc;k>=1;k--)

{

cout" ";

}

for(j=1;j<=i;j++)

cout<<t++;

cout<<"\n";

spc--;

}

}

**Task 4:** Write a C++ program to print all the prime numbers from 1 to 100.

**Theory:**

A loop inside another loop is known as nested loop. We can write any loop inside any loop in c++ i.e. we can write for loop inside the loop or while loop or do while loop etc.

|  |  |  |
| --- | --- | --- |
| while(condition) {  while(condition) {  statement(s);  }  statement(s);  } | do {  statement(s);  do {  statement(s);  }while( condition );  }while( condition ); | for(initialization; condition; increment/decrement) {  for(initialization; condition; increment/decrement){  statement(s);  }  statement(s);  } |
|  |  |  |

PART B

(PART B: TO BE COMPLETED BY STUDENTS)

Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the portal at the end of the practical. The filename should be **PPS\_batch\_rollno\_experimentno Example: PPS\_B2\_B001\_Exp1**

|  |  |
| --- | --- |
| **Roll No.:** | **Name:** |
| **Prog/Yr/Sem:** | **Batch:** |
| **Date of Experiment:** | **Date of Submission:** |

**Task 1:**

**Task 2:**

**Task 3:**

**Task 4:**

**Conclusion (Learning Outcomes):** Reflect on the questions answered by you jot down your learnings about the Topic: Loops.

**Home Work Questions:**

1. Write a C++ program to print the following pattern till n lines.

123456789

23456789

3456789

456789

56789

6789

789

89

9

1. Write a C++ program to print the Alphabet Triangle.

A

ABA

ABCBA

ABCDCBA

ABCDEDCBA