**(LAB – 1 : Digital Circuit)**

Write a program to print the truth table of Negation.

**Source Code:**

#include<stdio.h>
int main()
{
 printf("P \t ~P");
 printf("\n");
 int p,negp;
 for(p=0;p<=1;p++)
 {
 if(p==0)
 negp=1;
 else
 negp=0;
 printf("%d \t %d",p,negp);
 printf("\n");
 }
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



Write a program to print the truth table of conjunction.

**Source Code:**

#include<stdio.h>
int main()
{
 printf("P \t Q \t P∧Q");
 printf("\n");
 int p,q,conjunction;
 for(p=0;p<=1;p++)
 {
 for(q=0;q<=1;q++)
 {
 conjunction=p\*q;
 printf("%d \t %d \t %d",p,q,conjunction);
 printf("\n");
 }
 }
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



Write a program to print the truth table of disjunction.

**Source Code:**

#include<stdio.h>
int main()
{
 printf("P \t Q \t P∨Q");
 printf("\n");
 int p,q,disjunction;
 for(p=0;p<=1;p++)
 {
 for(q=0;q<=1;q++)
 {
 if(p==0 && q==0)
 disjunction=0;
 else
 disjunction=1;
 printf("%d \t %d \t %d",p,q,disjunction);
 printf("\n");
 }
 }
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**

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Write a program to print truth table of Exclusive OR.

**Source Code:**

#include<stdio.h>
int main()
{
 printf("P \t Q \t P⊕Q");
 printf("\n");
 int p,q,exclusiveor;
 for(p=0;p<=1;p++)
 {
 for(q=0;q<=1;q++)
 {
 if(p==1&&q==1 || p==0 && q==0)
 exclusiveor=0;
 else
 exclusiveor=1;
 printf("%d \t %d \t %d",p,q,exclusiveor);
 printf("\n");
 }
 }
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



Write a program to print truth table of Conditional.

**Source Code:**

#include<stdio.h>
int main()
{
 printf("P \t Q \t P → Q ");
 printf("\n");
 int p,q,conditional;
 for(p=0;p<=1;p++)
 {
 for(q=0;q<=1;q++)
 {
 if(p==1 && q==0)
 conditional=0;
 else
 conditional=1;
 printf("%d \t %d \t %d",p,q,conditional);
 printf("\n");
 }
 }
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



Write a program to print truth table of Bi - Conditional.

**Source Code:**

#include<stdio.h>
int main()
{
 printf("P \t Q \t P ↔ Q");
 printf("\n");
 int p,q,biconditional;
 for(p=0;p<=1;p++)
 {
 for(q=0;q<=1;q++)
 {
 if(p==1 && q==1 || p==0 && q==0)
 biconditional=1;
 else
 biconditional=0;
 printf("%d \t %d \t %d",p,q,biconditional);
 printf("\n");
 }
 }
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



**(LAB – 2 : Finding GCD by using Euclidian Algorithm)**

Write a program to find GCD by using Euclidian Algorithm.

**Source Code:**

#include<stdio.h>
int GCD(int a,int b)
{
 while (b!=0)
 {
 int temp=b;
 b=a%b;
 a=temp;
 }
 return a;
}
int main()
{
 int num1, num2, gcd;
 printf("Enter two numbers to find GCD: ");
 scanf("%d %d",&num1,&num2);
 gcd = GCD(num1,num2);
 printf("GCD of %d and %d is: %d\n",num1,num2,gcd);
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**

****

**(LAB – 3)**

Write a program to calculate addition, subtraction, multiplication and division of the two integer number.

**Source Code:**

#include<stdio.h>
int main()
{
 int a,b;
 printf("Enter any two numbers:");
 scanf("%d%d",&a,&b);
 printf("Addition is:%d\n",a+b);
 printf("Subtraction is:%d\n",a-b);
 printf("Multiplication is:%d\n",a\*b);
 printf("Division is:%d\n",a/b);
 printf("\n");
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



**(LAB – 4)**

Write a program to print the ceiling value and flooring value of the given number.

**Source Code:**

#include<stdio.h>
#include<math.h>
int main()
{
 float number;
 printf("Enter a number:");
 scanf("%f",&number);
 printf("Ceiling Value is: %.2f\n",ceil(number));
 printf("Floor Value is: %.2f\n",floor(number));
 printf("Name: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



**(LAB – 5)**

Write a program to prove that (p→q) [∧ (p→r) → (p→r) is tautology.](https://www.piliapp.com/symbols/conjunction/)

**Source Code:**

#include<stdio.h>
int main()
{
 int p,q,r,result1,result2,demo,result;
 printf("P \t Q \t R \t (P→Q)\t (P→R)\t(P→Q)∧(P→R)→(P→R)");
 printf("\n");
 for(p=0;p<=1;p++)
 {
 for(q=0;q<=1;q++)
 {
 for(r=0;r<=1;r++)
 {
 if(p==1&&q==0)
 result1=0;
 else
 result1=1;
 if(p==1&&r==0)
 result2=0;
 else
 result2=1;
 if(result1==1&&result2==1)
 demo=1;
 else
 demo=0;
 if(demo==1&&result2==0)
 result=0;
 else
 result=1;
 printf("%d \t %d \t %d \t %d \t %d \t %d \n",p,q,r,result1,result2,result);
 }
 }
 }
 printf("Hence, Tautology Proved");
 printf("\nName: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



**(LAB – 6)**

Write a program to find the factorial of a given number using recursion.

**Source Code:**

#include<stdio.h>
int fact(int n);
int main()
{
 int n;
 printf("Enter a number: ");
 scanf("%d",&n);
 if (n < 0)
 printf("Factorial cannot be determined");
 else
 printf("Factorial is: %d\n", fact(n));
 printf("\nName: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}
int fact(int n)
{
 if (n == 0)
 return 1;
 else
 return n \* fact(n - 1);
}

**Output Screen:**



**(LAB – 7)**

Write a program to print Fibonacci series upto n using recursion.

**Source Code:**

#include<stdio.h>
int fibo(int n);
int main()
{
 int i,n;
 printf("Enter the value of n:");
 scanf("%d",&n);
 for(i=0;i<n;i++)
 {
 int r=fibo(i);
 printf("%d\t",r);
 }
 printf("\nName: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
}
int fibo(int n)
{
 if(n==0)
 return 0;
 else if(n==1)
 return 1;
 else
 return fibo(n-1)+fibo(n-2);
}

**Output Screen:**



Write a program to print Fibonacci series upto n without using recursion.

**Source Code:**

#include<stdio.h>
int main()
{
 int n,first=0,second=1,next;
 printf("Enter the value of n: ");
 scanf("%d",&n);
 printf("Fibonacci series: ");
 for (int i = 0; i < n; i++)
 {
 if (i == 0)
 printf("%d ",first);
 else if (i == 1)
 printf("%d ", second);
 else
 {
 next=first+second;
 printf("%d ",next);
 first=second;
 second=next;
 }
 }
 printf("\nName: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
 return 0;
}

**Output Screen:**



**(LAB – 8)**

Write a program to compute power of any number.

**Source Code:**

#include<stdio.h>
#include<math.h>
int main()
{
 int base,power,result;
 printf("Enter the base:");
 scanf("%d",&base);
 printf("Enter the power:");
 scanf("%d",&power);
 result=pow(base,power);
 printf("Result is:%d",result);
 printf("\nName: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
}

**Output Screen:**

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**(LAB – 9)**

Write a program to print the permutated string “ABC”.

**Source Code:**

#include <stdio.h>
int printPermutations(char \*str, int length)
{
 char temp;
 for (int i = 0; i < length; i++)
 {
 for (int j = 0; j < length; j++)
 {
 for (int k = 0; k < length; k++)
 {
 if (i != j && i != k && j != k)
 printf("%c%c%c\n", str[i], str[j], str[k]);
 }
 }
 }
 printf("\nName: ASHESH NEUPANE \t Semester: SECOND \t Batch: 2080");
}
int main()
{
 char str[] = "ABC";
 int length = sizeof(str) - 1;
 printf("Permutations of the string \"ABC\":\n");
 printPermutations(str, length);
 return 0;
}

**Output Screen:**

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