**Exercise-Control Statements**

What is the output of the following programs:

1.

#include<stdio.h>

int main(void)

{

int a=9;

if(a=5)

printf("a is five\t");

else

printf("a is not five\t");

printf("Value of a is %d\n",a);

return 0;

}

2.

#include<stdio.h>

int main(void)

{

int a=0;

if(a=0)

printf("a is zero\t");

else

printf("a is not zero\t");

printf("Value of a is %d\n",a);

return 0;

}

3.

#include<stdio.h>

int main(void)

{

int i=10;

i==50;

if(i==50)

printf("i is fifty\n");

else

printf("i is not fifty\n");

return 0;

}

4.

#include<stdio.h>

int main(void)

{

int a=20,b=3;

if(a<10)

a=a-5;

b=b+5;

printf("%d %d\n",a,b);

return 0;

}

5.

#include<stdio.h>

int main(void)

{

int a=9,b=0,c=0;

if(!a<10 && !b||c)

printf("C in depth\n");

else

printf("See in depth\n");

return 0;

}

6.

#include<stdio.h>

int main(void)

{

int i=1, j=9;

if(i>=5 && j<5);

i = j+2;

printf("%d\n",i);

return 0;

}

7.

#include<stdio.h>

int main(void)

{

int a=0,b=0;

if(!a)

{

b = !a;

if(b)

a = !b;

}

printf("%d, %d\n",a,b);

return 0;

}

8.

#include<stdio.h>

int main(void)

{

int a=2,x=10;

if(a==2)

if(x==8)

printf("a is 2 and x is 8\n");

else

printf("a is not 2\n");

return 0;

}

9.

#include<stdio.h>

int main(void)

{

int x=10, a=15, b=6;

x+= a<b ? (-x) : 100;

printf("%d\n",x);

return 0;

}

10.

#include<stdio.h>

int main(void)

{

int i=3,j=2,k=2,l=10,m=1,z=0;

if(i==3)

if(j==k)

if(l<m)

z=100;

printf("%d\n",z);

return 0;

}

11.

#include<stdio.h>

int main(void)

{

int x=2,y=0;

if(x==0)

y++;

if(x>0)

y--;

if(x<0)

y+=2;

printf("%d %d\n",x,y);

return 0;

}

12.

#include<stdio.h>

int main(void)

{

char grade='A';

int marks = 94;

if(grade == 'A')

if(marks > 95)

printf("Excellent\n");

else

printf("Work hard for getting A grade\n");

return 0;

}

13.

#include<stdio.h>

int main(void)

{

int a=10,b=80,c=30;

if(a==10)

if(b==20)

if(c==30)

printf("a is 10,b is 20, c is 30\n");

else

printf("a is 10, b is not 20\n");

else

printf("a is not 10\n");

return 0;

}

14.

#include<stdio.h>

int main(void)

{

int k=10;

switch(k)

{

case '5':

case '10':

k++;

continue;

case '15':

case '20':

k--;

}

return 0;

}

15.

#include<stdio.h>

int main(void)

{

int var=2,x=1,y=2;

switch(var)

{

case x:

x++;

break;

case y:

y++;

break;

}

return 0;

}

16.

#include<stdio.h>

int main(void)

{

int i,total=0;

for(i=1; i<=10; i++)

{

switch(i)

{

case 1:

case 4:

case 5:

case 7:

total+=i;

break;

default:

continue;

}

printf("%d ",i);

}

printf("total=%d\n",total);

return 0;

}

17.

#include<stdio.h>

int main(void)

{

int x=2,y=20;

switch(x)

{

y=30;

case 1:

y++;

break;

case 2:

y--;

break;

default:

y=y+2;

}

printf("y is %d\n",y);

return 0;

}

18.

#include<stdio.h>

int main(void)

{

int x,y;

x=3,y=4;

if(x==1)

y=x+1;

else if(x==2)

{

y=0;

x=0;

}

else if(x==3 || x==4 || x==5)

y++;

else if(x==6)

y+=4;

else

y--;

printf("%d %d\n", x,y);

x=6,y=4;

if(x==1)

y=x+1;

else if(x==2 || x==3|| x==4)

y++;

else if(x==5)

y--;

else if(x==6)

y=0;

printf("%d %d\n", x,y);

return 0;

}

19.

#include<stdio.h>

int main(void)

{

int x=30,y=5,z=10;

switch(x)

{

case 10:

z++;

break;

case 20:

z--;

break;

case 30:

switch(y)

{

case 2:

z=z+3;

break;

case 4:

case 5:

z=z+10;

break;

default:

z=z-2;

}

break;

default:

z=0;

}

printf("%d\n",z);

return 0;

}

20.

#include<stdio.h>

int main(void)

{

int a=5;

begin:

if(a)

{

printf("%d ",a);

a--;

goto begin;

}

return 0;

}

21.

#include<stdio.h>

int main(void)

{

int a,b;

while(-1)

{

printf("Test Loop\n");

}

22.

#include<stdio.h>

int main(void)

{

int i,j;

/\*(i)\*/

for(i=0; i<10; i++)

printf("%d ",i);

/\*(ii)\*/

/\* for(i=1; i<=10; i++)

printf("%d ",i);

\*/

/\*(iii)\*/

/\* for(i=0; i<=10; i++)

printf("%d ",i);

\*/

/\*(iv)\*/

/\* for(i=1; i<10; i++)

printf("%d ",i);

\*/

/\*(v)\*/

/\* for(i=0; i<=10; i--)

printf("%d ",i);

\*/

/\*(vi)\*/

/\* for(i=10; i>=1; i--)

printf("%d ",i);

\*/

/\*(vii)\*/

/\* for(i=10; i>1; i--)

printf("%d ",i);

\*/

/\*(viii)\*/

/\* for(i=10; i>0; i--)

printf("%d ",i);

\*/

/\*(ix)\*/

/\* for(i=15; i>=0; i=i-3)

printf("%d ",i);

\*/

/\*(x)\*/

/\* for(i=10; i>=0; i--);

printf("%d ",i);

\*/

/\*(xi)\*/

/\* for(i=0; i>10; i++)

printf("%d ",i);

\*/

/\*(xii)\*/

/\* for(i=0; i<=10; i+=20)

printf("%d ",i);

\*/

/\*(xiii)\*/

/\* for(i=1; i!=10; i=i+2)

printf("%d ",i);

\*/

/\*(xiv)\*/

/\* for(j=10; i=j; j-=2)

printf("%d ",i);

\*/

/\*(xv)\*/

/\* for(i=10; i--; )

printf("%d ",i);

\*/

return 0;

}

23.

#include<stdio.h>

int main(void)

{

int term,i;

/\*(i)\*/

for(term=10; term<=70; term+=10)

printf("%d ",term);

printf("\n");

/\*(ii)\*/

for(term=-10; term>=-70; term-=10)

printf("%d ",term);

printf("\n");

/\*(iii)\*/

for(term=1; term<=11111; term=term\*10+1)

printf("%d ",term);

printf("\n");

/\*(iv)\*/

i=0;

for(term=1; term<=16; i++,term=term+i)

printf("%d ",term);

/\*(v)\*/

printf("\n");

for(term=10; term>=-5; term-=3)

printf("%d ",term);

printf("\n");

/\*(vi)\*/

for(term=1; term<=32; term\*=2)

printf("%d ",term);

printf("\n");

return 0;

}

24.

#include<stdio.h>

int main(void)

{

int i;

for(i=1; i<5; i++);

printf("%d ",i);

/\*

i=10;

while(i<5);

printf("%d ",i++);

\*/

/\*

i=0;

while(i<5);

printf("%d",i++);

\*/

return 0;

}

25.

#include<stdio.h>

int main(void)

{

int i=1;

while(i++ < 5)

printf("%d ",i);

printf("\n");

i=1;

while(++i < 5)

printf("%d ",i);

printf("\n");

i=6;

while(i--)

printf("%d ",i);

return 0;

}

26.

#include<stdio.h>

int main(void)

{

int a=6,b=4;

while(a+b)

{

printf("a=%d, b=%d\n",a,b);

a/=2;

b%=3;

}

return 0;

}

27.

#include<stdio.h>

int main(void)

{

int i=10;

do

{

printf("i=%d\t",i);

i=i-3;

}while(i);

return 0;

}

28.

#include<stdio.h>

int main(void)

{

int i,j,x=0;

for(i=0; i<5; i++)

for(j=i; j>0; j--)

x=i+j+1;

printf("x=%d\n",x);

return 0;

}

29.

#include<stdio.h>

int main(void)

{

int i,sum;

for(i=0; i<10; i+=3)

sum+=i\*i;

printf("%d\n",sum);

return 0;

}

30.

#include<stdio.h>

int main(void)

{

int i=1;

for( ; ; )

if(i++==3)

break;

printf("%d ",i);

i=1;

while( )

if(i++==3)

break;

printf("%d ",i);

return 0;

}

31.

#include<stdio.h>

int main(void)

{

int i,sum1=0,sum2=0;

for(i=1; i<5; i++)

sum1+=i;

i=1;

while(i<5)

{

i++;

sum2+=i;

}

printf("%d %d\n",sum1,sum2);

return 0;

}

32.

#include<stdio.h>

int main(void)

{

int i,j;

for(j=i+1,i=1; i<=5; j++,i++)

printf("%d %d\n",i,j);

return 0;

}

33.

#include<stdio.h>

int main(void)

{

int i=1;

do;

while(++i<10);

printf("%d\n",i);

return 0;

}

34.

#include<stdio.h>

int main(void)

{

int i,j,k;

printf("(i)\n");

for(i=1; i<=6; i++)

printf("\*");

printf("\n\n(ii)\n");

for(j=1; j<=5; j++)

for(i=1; i<=6; i++)

printf("\*");

printf("\n");

printf("\n\n(iii)\n");

for(j=1; j<=5; j++)

{

for(i=1;i<=6;i++)

printf("\*");

printf("\n");

}

printf("\n\n(iv)\n");

for(k=1; k<=3; k++)

{

for(j=1; j<=5; j++)

{

for(i=1; i<=6; i++)

printf("\*");

printf("\n");

}

printf("\n");

}

return 0;

}

35.

#include<stdio.h>

#include<math.h>

int main(void)

{

int i,j,n;

for(i=1; ;i++)

{

if(i>5)

break;

printf("%d ",i);

}

printf("\n\n");

i=1,j=3;

while(i<5)

{

if(j==0)

break;

printf("%d ",i++,j--);

}

printf("\n\n");

n=43;

for(i=2; i<=sqrt(n); i++)

if(n%i == 0)

break;

printf("%d\n",i);

return 0;

}

36.

#include<stdio.h>

int main(void)

{

int i=1,j=3;

while(i<5)

{

i++;

if(j==0)

break;

j--;

}

printf("%d %d\n",i,j);

return 0;

}

37.

#include<stdio.h>

int main(void)

{

int i,sum,n;

i=1;

for( ; ; )

{

if(i==5)

break;

printf("%d\n",i);

i++;

}

sum=0;

for( ; ; )

{

if(sum>100)

break;

scanf("%d",&n);

sum+=n;

}

return 0;

}

38.

#include<stdio.h>

int main(void)

{

int i,j,k;

i=0,j=10,k=6;

while(1)

{

if(i==j || k<0)

break;

printf("%d %d %d\n",i,j,k);

i++;

j--;

k=k-2;

}

printf("\n");

for(i=0,j=10,k=6; i!=j && k>=0; i++,j--,k=k-2)

printf("%d %d %d\n",i,j,k);

return 0;

}

39.

#include<stdio.h>

int main(void)

{

int i,z,emp\_id;

i=1,z=0;

do

{

if(i<5)

{

printf("%d ",i++);

z=z+2;

}

}while(i<5);

printf("\n");

do

{

printf("Enter employee ID(100-500) : ");

scanf("%d", &emp\_id);

}while(emp\_id < 100 || emp\_id > 500);

return 0;

}

40.

#include<stdio.h>

int main(void)

{

int l,b,h,sarea,vol;

printf("Enter length, width,height of a cubiod : ");

scanf("%d%d%d",&l,&b,&h);

while(l<=0 || b<=0 || h<=0)

{

printf("Enter length,width,height of a cubiod : ");

scanf("%d%d%d",&l,&b,&h);

}

sarea=2\*(l\*b + b\*h + h\*l);

vol=l\*b\*h;

printf("Surface Area=%d, Volume=%d\n",sarea,vol);

return 0;

}

41.

#include<stdio.h>

int main(void)

{

int i;

for(i=1; i<=5; i++)

printf("%d ",i);

printf("\n");

i=1;

while(i<=5)

{

printf("%d ",i);

i++;

}

printf("\n");

i=1;

do

{

printf("%d ",i);

i++;

}while(i<=5);

printf("\n");

return 0;

}

42.

#include<stdio.h>

int main(void)

{

int i;

for(i=1; i<=5; i++)

{

if(i==3)

continue;

printf("%d ",i);

}

printf("\n");

i=1;

while(i<=5)

{

if(i==3)

continue;

printf("%d ",i);

i++;

}

printf("\n");

i=1;

do

{

if(i==3)

continue;

printf("%d ",i);

i++;

}while(i<=5);

return 0;

}

43.

#include<stdio.h>

int main(void)

{

int i=0;

while(i<=5)

i++;

printf("%d ",i);

return 0;

}

44.

#include<stdio.h>

int main(void)

{

int i,x,sum;

for(i=1; i<6; i++)

{

if(i==3)

continue;

printf("%d ",i);

}

printf("\n");

x=0,sum=0;

while(x<10)

{

x++;

if(x%2==0)

continue;

sum+=x;

}

printf("%d ",sum);

printf("\n");

return 0;

}

45.

#include<stdio.h>

/\*(i)\*/

int main(void)

{

int i,j,k;

for(i=1; i<8; i++)

{

if(i!=3 && i!=5)

{

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

{

for(k=j; k>0; k--)

printf("%d ",k);

printf("\n");

}

printf("\n");

}

}

return 0;

}

46.

#include<stdio.h>

int main(void)

{

int i;

for(i=1; i<=80; i++)

{

if(i%8==0)

printf("%2d\n",i);

else

printf("%2d\t",i);

}

return 0;

}

47.

#include<stdio.h>

int main(void)

{

int i,n,large;

printf("Input 10 numbers : \n");

scanf("%d",&n);

large=n;

for(i=2; i<=10; i++)

{

scanf("%d",&n);

if(n > large)

large=n;

}

printf("%d is largest number\n",large);

return 0;

}

48.

#include<stdio.h>

int main(void)

{

int i,j,n;

for(i=1; i<=10; i++)

{

scanf("%d",&n);

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

printf("=");

printf("\n");

}

return 0;

}

49.

#include<stdio.h>

#include<math.h>

int main(void)

{

int i,num;

for(num=2; num<=99; num++)

{

for(i=2; i<=sqrt(num); i++)

if(num%i == 0)

break;

if(i>sqrt(num))

printf("%d\t",num);

}

return 0;

}

50.

#include<stdio.h>

int main(void)

{

int n,d,rev;

printf("Enter a number : ");

scanf("%d",&n);

rev=0;

do

{

d=n%10;

n/=10;

rev=rev\*10+d;

}while(n>0);

printf("%d %d\n",rev,rev\*2);

return 0;

}

51.

#include<stdio.h>

int main(void)

{

int n,d,rev;

printf("Enter a number : ");

scanf("%d",&n);

rev=0;

do

{

d=n%10;

n/=10;

rev=rev\*10+d;

}while(n>0);

printf("%d %d\n",rev,rev\*2);

return 0;

}

52.

#include<stdio.h>

#include<math.h>

int main(void)

{

int num,n,d,rev;

for(n=1000; n<=9999; n++)

{

num=n; rev=0;

do

{

d=num%10;

num/=10;

rev=rev\*10+d;

}while(num>0);

if(n==rev)

printf("%d\t",n);

}

return 0;

}

53.

#include<stdio.h>

int main(void)

{

int n,count=0,rem;

printf("Enter a number : ");

scanf("%d", &n);

n/=10;

count++;

while(n>0)

{

n/=10;

count++;

}

printf("Number of digits=%d\n", count);

return 0;

}

54.

#include<stdio.h>

int main(void)

{

int n,count=0,dig,d;

printf("Enter a number : ");

scanf("%d",&n);

printf("Enter a digit : ");

scanf("%d",&dig);

do

{

d=n%10;

n/=10;

if(d==dig)

count++;

}while(n>0);

printf("%d\n",count);

return 0;

}

55.

#include<stdio.h>

int main(void)

{

int i,n,sum;

printf("Enter n : ");

scanf("%d",&n);

sum=0;

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

sum+=i\*i;

printf("%d\n",sum);

return 0;

}

56.

#include<stdio.h>

int main(void)

{

int i,n,sum;

printf("Enter n : ");

scanf("%d",&n);

sum=0;

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

if(i%3==0)

sum+=i\*i\*i;

printf("%d\n",sum);

/\*using continue\*/

sum=0;

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

{

if(i%3!=0)

continue;

sum+=i\*i\*i;

}

printf("%d\n",sum);

return 0;

}

57.

#include<stdio.h>

int main(void)

{

int x,y,i,result;

printf("Enter x and y : ");

scanf("%d%d",&x,&y);

result=1;

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

result\*=x;

printf("%d\n",result);

return 0;

}

58.

#include<stdio.h>

int main(void)

{

long x,y,z,num;

printf("Enter a number : ");

scanf("%d",&num);

x=0; y=1;

do

{

z = x+y;

x = y;

y = z;

}while(z<num);

if(z==num)

printf("%d is a Fibonacci number\n",num);

else

printf("%d is not a Fibonacci number\n",num);

return 0;

}

59.

#include<stdio.h>

int main(void)

{

int i,j,n,x,term,sum;

printf("Enter n : ");

scanf("%d",&n);

sum=0;term=1;

for(i=1; i<=n; i++,term=term\*10+1)

{

printf("%d+",term);

sum+=term;

}

printf("\b=%d\n",sum);

printf("Enter x : ");

scanf("%d",&x);

sum=0;

for(i=1,term=x; i<=n; i++,term\*=x)

{

printf("%d + ",term);

sum+=term;

}

printf("\b\b=%d\n",sum);

sum=0;

for(i=1,term=x; i<=n; i++,term\*=-x)

{

printf("%d + ",term);

sum+=term;

}

printf("\b\b=%d\n",sum);

return 0;

}

60.

#include<stdio.h>

int main(void)

{

int i,m1,m2,m3,total,rno,maxtotal=0,maxrno,count;

count=0;

for(i=1; i<=10; i++)

{

do

{

printf("Enter roll number(1000-9999) : ");

scanf("%d",&rno);

}while(rno < 1000 || rno > 9999 );

printf("Enter marks of three subjects : ");

scanf("%d%d%d",&m1,&m2,&m3);

if( m1<40 || m2<40 || m3<40 )

continue;

total=m1+m2+m3;

if(total > 200)

count++;

if(maxtotal==0 || total > maxtotal)/\*maxtotal==0 should be written first\*/

{

maxtotal=total;

maxrno=rno;

}

}

printf("%d students got more than 200 marks\n",count);

printf("Student with roll no. %d got highest marks %d\n",maxrno,maxtotal);

return 0;

}

61.

#include<stdio.h>

int main(void)

{

int i,j,n;

printf("Enter n : ");

scanf("%d",&n);

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

{

if(i%2==0)

printf("");

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

printf("\* ");

printf("\n");

}

return 0;

}

62.

#include<stdio.h>

main()

{

int i,j,n;

printf("Enter n :");

scanf("%d",&n);

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

{

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

printf("\*");

printf("\n");

}

printf("\n\n");

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

{

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

if(i==1 || i==n || j==1 || j==n)

printf("\*");

else

printf("");

printf("\n");

}

printf("\n\n");

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

{

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

{

if(i==j)

printf("\\");

else if(i+j==n+1)

printf("/");

else

printf("\*");

}

printf("\n");

}

printf("\n\n");

return 0;

}