

Real switch statement :- switch statement is used [©] to execute a block of statements depending on the value of a variable or an expression. It has the following form:

```
switch (< expression >)  
{  
    case < label 1 > : {  
        .....  
        < statement block 1 >  
        .....  
        break ;  
    }  
    case < label 2 > : {  
        .....  
        < statement block 2 >  
        .....  
        break ;  
    }  
    case < label n > : {  
        .....  
        < statement block n >  
        .....  
        break ;  
    }  
    default :  
    {  
        .....  
        < default statement block >  
        .....  
        break ;  
    }  
}
```

* Q. Write a C program to find the value of y using ⁷

$$y(x, n) = \begin{cases} 1+x & \text{when } n=1 \\ 1+x/n & \text{when } n=2 \\ 1+x^n & \text{when } n=3 \\ 1+n \times x & \text{when } n > 3 \text{ or } n < 1 \end{cases} \quad (2013, 14, 2015)$$

(using switch statement)

Soln: /* program to find value of y */

```
#include <stdio.h>
#include <conio.h>
#include <math.h>
main()
{
    int n;
    float x, y;
    clrscr();
    printf("\n Enter value to x and n: ");
    scanf("%f %d", &x, &n);
    switch (n)
    {
        case 1: y = 1+x;
                break;
        case 2: y = 1+x/n;
                break;
        case 3: y = 1+pow(x, n);
                break;
        default: y = 1+n*x;
                break;
    }
    printf("\n Value of  $y(x, n) = %0.2f$ ", y);
    getch();
}
```

Q: Write a C program to find the roots of a quadratic equation $ax^2 + bx + c = 0$ for all possible combinations of a, b and c. (2012, 2014)

Ans: /* Program to find roots of a Quadratic Equation */
#include <stdio.h>
#include <conio.h>
#include <math.h>
main()
{
float a, b, c, d, x1, x2, x;
clrscr();
printf("\n Enter coefficients a, b and c:");
scanf("%f %f", &a, &b, &c);
d = b*b - 4*a*c;
if (d > 0)
{
x1 = (-b + sqrt(d)) / (2*a);
x2 = (-b - sqrt(d)) / (2*a);
printf("\n Roots are real and unequal");
printf("\n %6.2f %6.2f", x1, x2);
}
else
if (d == 0)
{
x = -b / (2*a);
printf("\n Roots are real and equal");
printf("\n %6.2f", x);
}
else
printf("\n No Real roots, roots are complex");
getch();
}

3.

Questions and Answers

1. Q. Give the general syntax of if-else statement in C.

Ans:- if (condition)
{
 <statements in true block>
}
else
{
 <statement in false block>
}.

2. Q. Give the general syntax of switch statement in C.

Ans:- switch (variable) (2014)
{
 case <value 1> :
 {
 <statement block 1>
 break ;
 }
 case <value 2> :
 {
 <statement block 2>
 break ;
 }
 default :
 {
 <default statement block>
 }
}

3.Q:- A break statement is used to exit from a —.
Ans:- statement block in a switch statement.

4.Q:- What is the purpose of a switch statement?

Ans:- The purpose of a switch statement is to execute a block of statements depending on the value of an integer or character variable. It can ~~be~~ also be used to replace a complicated nested if statement.

5.Q:- In what ways does a switch statement differ from an if statement?

Ans:- An if statement executes a statement block depending on the value of a condition. A nested if statement can be used to implement a complicated condition. A switch statement executes a statement block depending on value of an integer or char variables.

6.Q:- Using what other statement can you avoid multiple nested if conditions.

Ans:- switch statement.