



Three address code for Switch / Case Statement

The Syntax for Switch-Case Statement can be shown as below,
Switch expression

{
Case Value : Statement

Case Value : Statement

⋮

Case Value : Statement

default : Statement

}

For Example Consider the following code and generate the three address code

Switch (S)

{
Case 1 : C = a + b

break;

Case 2 : C = a - b

break;

}

Three address code

① If S = 1 goto 3

② If S = 2 goto 6

③ t₁ = a + b;

④ C = t₁

⑤ goto next

⑥ t₂ = a - b

⑦ C = t₂

⑧ goto next

Assignment - (2)

TAC for

① Generate the code segment written below

```
C = 0
do
{
  if (a < b) then
    X++;
  else
    X--;
  C++;
}
while (C < 5)
```

② Generate the three address code for the following code segment.

(A) for (i = 1; i <= 10; i++)
{
 a[i] = X * 5;
}

(B)
int i;
int a[10][10];
i = 0;
while (i < 10)
{
 a[i][i] = 1;
 i++;
}



Assignment Solution;

Q.1

- ① $i = 1$
- ② If $(i < n)$ go to 4
- ③ go to next
- ④ $j = 1$;
- ⑤ If $(j \leq n)$ go to 9
- ⑥ $t_1 = i + 1$;
- ⑦ $i = t_1$
- ⑧ go to 2
- ⑨ $t_2 = b * c$
- ⑩ $t_3 = t_2 / d$
- ⑪ $a = t_3$
- ⑫ $t_4 = j + 1$
- ⑬ $j = t_4$
- ⑭ go to 5

Q.2

- ① $t_1 = c * 20$
- ② $t_2 = b + t_1$
- ③ If $(a < t_2)$ go to 5
- ④ go to next
- ⑤ $t_3 = a * b$
- ⑥ $t_4 = t_3 - 50$
- ⑦ $a = t_4$
- ⑧ $t_5 = a / b$
- ⑨ $t_6 = t_5 + 25$
- ⑩ $d = t_6$
- ⑪ go to next

Q.3

- ① $t_1 = A + B$
- ② $t_2 = C + D$
- ③ $t_3 = A + B$
- ④ $t_4 = t_3 + C$
- ⑤ $t_5 = t_1 - t_2$
- ⑥ $t_6 = t_5 + t_4$
- ⑦ $w = t_6$

Q.4

- ① $t_1 = b * c$
- ② $t_2 = a + t_1$
- ③ $t_3 = b * C$
- ④ $t_4 = t_2 + t_3$
- ⑤ $t_5 = C + a$
- ⑥ $t_6 = b * t_5$
- ⑦ $t_7 = t_4 + t_6$
- ⑧ $a = t_7$