

GATE 2012 – C PROGRAMMING

Question 3 – Switch-Case Fall-Through

Quick Solution Note This question tests an important rule of the C switch statement: execution falls through to the following cases when break is absent.

QUESTION

What will be the output of the following C program segment?

C PROGRAM

```
char inChar = 'A';

switch ( inChar ) {
    case 'A' : printf ("Choice A\n");
    case 'B' :
    case 'C' : printf ("Choice B");
    case 'D' :
    case 'E' :
    default  : printf (" No Choice");
}
```

Options

(A) No Choice

(B) Choice A

(C) Choice A
Choice B No Choice

(D) Program gives no output as it is erroneous

Solution

Step 1 – inChar is 'A'

The switch expression is inChar, whose value is 'A'.

Therefore, execution starts at case 'A'.

```
case 'A' : printf ("Choice A\n");
```

Output so far: Choice A

Step 2 – No break after case 'A'

There is no break statement after case 'A'.

Therefore, execution falls through to the following cases.

case 'B' :

case 'C' : printf ("Choice B");

Output becomes: Choice A

Choice B

Step 3 – Execution reaches default

There is still no break statement.

Execution continues through case 'D' and case 'E',

and reaches the default statement.

default : printf (" No Choice");

Final output: Choice A

Choice B No Choice

FINAL OUTPUT

Choice A

Choice B No Choice

✓ **Correct Answer: (C)**

💡 Easy Rule to Remember**switch-case rule**

break present → switch statement ends

break absent → execution continues into the next cases

In this question, no break appears anywhere. Once execution enters case 'A', it keeps moving downward until the switch ends.

⚡ **GATE Tip:** Whenever you see switch cases without break, check carefully for fall-through.