

Q1 Given the following code snippet, what will be the value of result? (Solutions with proper demonstration of working will only be accepted) (5)

```
int a = 10;
int b = 3;
int c = 5;
int d = 6;
int result = 0;
if ((a+c)%c*2 < 1){
    result = a / b;
} else {
    result = a * b;
}
```

$$\begin{aligned} \text{result} &= 10/3 = 3 \\ (10+5) \cdot 1/5 \times 2 &< 1 \\ (15) \cdot 1/5 \times 2 &< 1 \\ 0 \times 2 &< 1 \\ 0 < 1 &\rightarrow \text{True} \\ \text{so result} &= 10/3 = 3 \end{aligned}$$

Q2 (10)

Write the output/error of the following:

Program Segment	Output
<pre>int num = 84; if (num % 12){ cout << "Number is divisible by 12\n"; } else cout << "Number is not divisible by 12\n";</pre>	<p>\rightarrow This statement means if (num % 12) is True true = 1 False = 0</p> <p>$84 \cdot 1/12 = 0$ so, This statement will run</p>
<pre>int a = 5, b = 3, c = 2; if (a > b && b > c); cout << "Condition 1\n" << a; else if (a = b) cout << "Condition 2\n" << b; else cout << "Condition 3"; return 0;</pre>	<p>\rightarrow Due to this com semi colon</p> <p>These lines of code can not compile because of above error</p> <p>error</p>
<pre>int x = 12, y = 10, z = 5; cout << (--x > y) x/--z + 4 <= 8 && z < ++y - x;</pre>	<p>All of the conditions are F and final result is T</p> <p>$\frac{1}{T=1}$ so 1 will be printed</p>
<pre>int x = 5, y = 10; double z = -1; if (x > y) z = x * --y + x; else z += 1; z = x++ * --y + y; std::cout << "The value of z:" << std::endl << z;</pre>	<p>$z += 1, \rightarrow$ can be error due to comma</p> <p>\rightarrow these statements will run</p> <p>The value of z: 54</p>

$$\begin{aligned} (--x > y) &\Rightarrow 11 > 10 \rightarrow \text{True} \\ x/--z + 4 &\Rightarrow 11/4 + 4 \leq 8 \\ 6.25 &\leq 8 \rightarrow \text{True} \\ z < ++y - x &\rightarrow 4 < 11 - 11 \\ 4 < 0 &\rightarrow \text{False} \end{aligned}$$

$$\begin{aligned} T \parallel T \&\& F \text{ solve first} \\ T \parallel F \text{ solve later} \\ \text{True} &\rightarrow T = 1 \end{aligned}$$