**Quiz Number 1 — Solutions**

(Closed book/Closed Notes: 10 minutes)

Friday, December 12, 2003

**Question 1:** Consider the following piece of code. Write down the output in the space provided below (on next page) when this program is executed.

```cpp
#include <iostream>
using namespace std;

int abs(int i)
{
    cout<< "Inside integer abs( )" << endl;
    if (i<0) return -i;
    else return i;
}

double abs(double d)
{
    cout<< "Inside double abs" << endl;
    if (d<0) return -d;
    else return d;
}

long abs(long l)
{
    cout<< "Inside long abs( )" << endl;
    if (l<0) return -l;
    else return l;
}

int square(int i)
{
    cout<< "Inside int sqr( )" << endl;
    return i*i;
}

long square(long l)
{
    cout<< "Inside long sqr( )" << endl;
    return l*l;
}

float square(float f)
{
    cout<< "Inside float sqr( )" << endl;
    return f*f;
}

int main()
{
    cout << abs(10) << endl;
    cout << abs(10.0) << endl;
    cout << abs(10L) << endl;
    cout << square(10) << endl;
    cout << square(2.5E1F) << endl;
    return 0;
}
```
Write your answer below:

<table>
<thead>
<tr>
<th>Inside integer abs( )</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside double abs</td>
<td>10</td>
</tr>
<tr>
<td>Inside long abs( )</td>
<td>10</td>
</tr>
<tr>
<td>Inside int sqr( )</td>
<td>100</td>
</tr>
<tr>
<td>Inside float sqr( )</td>
<td>625</td>
</tr>
</tbody>
</table>

**Question 2:** Consider the following two pieces of code. For each of them, indicate if they will run correctly. If not, what kind of error would they generate (compile time, runtime, or logical). State the reason the programs would not run correctly, if applicable. If the programs would run correctly, what would be the output?

```cpp
#include <iostream>
using namespace std;

int main()
{
    int i=9;
    const int *cptr;
    cptr=&i;
    cout << (*cptr) << endl;
    i=10;
    cout << (*cptr) << endl;
    return 0;
}
```

```cpp
#include <iostream>
using namespace std;

int main()
{
    int i=10;
    int j=20;
    int * const cptr=&i;
    cout << (*cptr) << endl;
    cptr=&j;
    cout << (*cptr) << endl;
    return 0;
}
```

Write your answer below:

<table>
<thead>
<tr>
<th>Run correctly. Yes/No? Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>What kind of error? N/A</td>
</tr>
<tr>
<td>Reason? N/A</td>
</tr>
<tr>
<td>Output: 9 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Run correctly. Yes/No? No</th>
</tr>
</thead>
<tbody>
<tr>
<td>What kind of error? Compile Time</td>
</tr>
<tr>
<td>Reason? cptr=&amp;j statement has error because it is trying to change value of a pointer which is declared as const</td>
</tr>
<tr>
<td>Output: N/A</td>
</tr>
</tbody>
</table>