Maths 1262 quizzes

Quizzes are given every second Wednesday. You are allowed to cooperate, compare answers, refer to notes, etcetera. **Memorandum: your answers should show all work.**

Wednesday 23/1/14

(1) What's the mistake in the following program? (It won't compile).

```
#include <iostream>
using namespace std;
main()
{
  int MyVariable = 0;
  cout << myVariable << endl;

  return 0;
}
```

Answer. `MyVariable` and `myVariable` are different names.

(2) The following program is missing some information. (The use of `\n` instead of `endl` is ok). The program won't compile. (i) Why not? (ii,iii) Give two ways of correcting it.

```
#include <iostream>
int main()
{
  int x = 0;
  cout << "hello\n" << "x is " << x << endl;
  return 0;
}
```

Answer. (i) The namespace isn't given.

(ii) `using namespace std;`

(iii)

```
std::cout << "hello\n" << "x is " << x << std::endl;
```

(3) Write a complete C++ program which creates a table giving the lengths of all months in a non-leap year:

```
int month_length [12] = {31,...};
```

and prints the following

```
0
3
3
...
```

For $0 \leq i \leq 11$, the number printed is the total length of all months indexed from 0 to $i-1$, reduced modulo 7. These figures were mentioned in lectures. Only one for-loop is needed.

```
#include <iostream>

using namespace std;

int main()
{
  int month_length[12] = {31,28,31,30,31,30,31,31,30,31,30,31};

  int i, total;

  total = 0;
  for (i=0; i<12; ++i)
  {
    cout << total << endl;
    total = ( total + month_length[i] ) % 7;
  }

  return 0;
}
```

(4) Given

```
  int a[14];
  double b[15];
```

(i) What are the sizes, in bytes, of these arrays?

Answer. $56, 120$ respectively.

Suppose that `a` begins at address 3000 and `b` is immediately after `a`.

(ii) What are the addresses of `a[10]`, `b[3]`?

Answer. $3040, 3080$.

(iii) The address of `a[16]` is outside the range of `a`. Actually, it coincides with the address of `b[i]` for some i, where i is within array bounds for `b`, i.e., $0 \leq i \leq 14$. Determine i.

Answer. $3000 + 4 \times 16 = 3056 + 8i$; $i = 1$.