

Practice midterm

31 October 2016

1. The following program just uses variables. What does the program output?

```
#include <iostream>
using namespace std;
int main()
{
    int lisa = 5;
    double bart = 5 / 2.0;
    lisa = lisa + 1;
    int maggie = lisa / 2;
    maggie = maggie * 3;
    cout << lisa << ", " << bart << ", " << maggie << "\n";
    return 0;
}
```

2. The following program uses ASCII character arithmetic. What does the program output?

```
#include <iostream>
using namespace std;
int main()
{
    char hundred = 'C';
    char five = 'V';
    char marty = five + 2;
    char shelly = hundred + 6;
    cout << hundred << marty << marty << shelly << five << endl;
    return 0;
}
```

3. The following program uses conditions. What does the program output?

```
#include <iostream>
using namespace std;
int main()
{
    int bilbo = 9;
    int frodo = 3;
    if(bilbo % 2 == 0)
    {
        frodo *= 2;
        bilbo += 1;
    }
    else
    {
        bilbo = bilbo - 1;
        frodo *= 4;
    }
    cout << bilbo << ", " << frodo << "\n";
    return 0;
}
```

4. Given numPeople = 10, numCars = 2, userKey = 'q', mark each of these expressions as true or false.

- a. _____ numPeople >= 10
- b. _____ (numPeople >= 10) && (numCars > 2)
- c. _____ (numPeople >= 20) || (numCars > 1)
- d. _____ !(numCars < 5)
- e. _____ !(userKey == 'a')
- f. _____ userKey != 'a'
- g. _____ !((numPeople >= 10) && (numCars > 2))
- h. _____ (userKey == 'x') || ((numPeople > 5) && (numCars > 1))

5. Suppose that we have a main program containing this declaration:

```
string courseTitle;
```

Briefly explain the difference between these two operations:

```
cin >> courseTitle;           // (a)
getline(cin, courseTitle);    // (b)
```

6. The following program uses a switch. What does the program output?

```
#include <iostream>
using namespace std;
int main()
{
    int bill = 9;
    int ted = bill - 4;
    switch(ted)
    {
        case 3: cout << "ant ";
        case 2: cout << "bee "; break;
        case 5: cout << "cat ";
        case 4: cout << "dog "; break;
        default: cout << "eel ";
    }
    cout << "\n";
    return 0;
}
```

7. The following program uses *nested* if/else statements. Given the values of baz and tar as inputs, what does the program output?

- baz = 6; tar = 3; Output: _____
- baz = 3; tar = 6; Output: _____
- baz = 6; tar = 9; Output: _____
- baz = 9; tar = 6; Output: _____
- baz = 3; tar = 4; Output: _____

```
#include <iostream>
using namespace std;
int main()
{
    int baz, tar;
    cin >> baz >> tar; // Receives values as shown above
    if(baz > 4)
    {
        if(baz > 8)
        {
            cout << "Austria ";
        }
        if(tar < 8)
        {
            cout << "Belgium ";
        }
        cout << "Chile ";
    }
    else
    {
        cout << "Denmark ";
        if(tar < 6)
        {
            cout << "Egypt ";
        }
    }
    cout << "France\n";
    return 0;
}
```