

IS0020 Program Design and Software Tools
Quiz 1, Jan 25, 2005

Name:

Email:

1. [5 Points] Write the outputs of the following modules

```
int i;  
for (i= 2; i < 20; i = i * i ){  
    cout << i << endl;  
    i = i + 2;  
}
```

OUTPUT:

2
16

2. [10 Points] Consider the following recursive function and answer the following questions.

```
void recursive(int x)  
{  
    static int y = 1;  
    if (x < 0)  
        cout << "Done" << endl;  
    cout << x*y++ << endl;  
    recursive(x--);  
}
```

OUTPUT (a):

5
10
15
.. (infintite)

- a. Write the outputs of the function call `recursive(a)` if `a = 5`:

- b. Assume that the recursive call inside the function is changed to

```
recursive(--x);
```

What would be the output of the function call described in (a)

OUTPUT(b):

5
8
9
8
5
0
Done

3. [10 Points] Consider the following function

```
void whadDidIDo(int &x, int *y)  
{  
    x = x * (*y);  
    *y = x / (*y);  
    x = x / (*y);  
    return;  
}
```

- a. Assume `x1 = 10` and `y1 = 20`. Consider the following two function calls:

- i. `whadDidIDo(x1, y1);` – is this function call correct? YES[] NO[X]
ii. `whadDidIDo(x1, &y1);` – is this function call correct? YES[X] NO[]

- b. If the function call(s) is correct, what are values of `x1` and `y1` after the function call (i) and/or (ii), which ever is the correct one?

Answer: Values are swapped

4. [5 Points] In the assignment expression, identify the *Lvalue* and *Rvalue* expressions and state whether the statement is valid and what it does:

```
*(xPtr + 3) = x[5] = a + y;
```

Lvalues: *(xPtr + 3), x[5]

Rvalues only: a + y

What it does: Stores value of (a + y) in array elements x[3] and x[5].