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Quiz 4 CSE 131

Name _____

Signature _____

Winter 2014

Student ID _____

1. What is the output of the following Reduced-C program:

```

int a = 6;

function : int foo( int x, int & y )
{
  int z = y;

  ++x;
  --y;
  ++z;

  cout << a << endl;
  cout << x << endl;
  cout << y << endl;
  cout << z << endl;

  return y--;
}

function : int main( )
{
  int a = 2;
  int b = 9;

  a = foo( b, ::a );

  cout << a << endl;
  cout << b << endl;
  cout << ::a << endl;

  return 0;
}

```

Parameter passing mode for **x** _____

Parameter passing mode for **y** _____

Output

Fill in the blanks below to simulate the above in C. Basically what is really happening under the code.

```

int
foo( _____ x, _____ y )
{
  int z = _____;

  ++ _____;
  -- _____;
  ++z;

  printf( "%d\n", _____ );
  printf( "%d\n", _____ );
  printf( "%d\n", _____ );
  printf( "%d\n", z );

  return _____;
}

```

```

int aa = 6;

int
main( )
{
  int a = 2;
  int b = 9;

  a = foo( _____, _____ );

  printf( "%d\n", a );
  printf( "%d\n", b );
  printf( "%d\n", aa );

  return 0;
}

```

Parameter passing mode for **x** _____

Parameter passing mode for **y** _____

2. Use the following to answer the questions below related to most calling conventions discussed in class.

- 1) Pre-Call (Caller) 2) call/jsr 3) Post-Call (Caller) 4) Prologue (Callee) 5) Epilogue (Callee)
- _____ Stores return value into return value location _____ Retrieves saved return address for return/rti
_____ Allocates space for local variables _____ Performs initialization of local variables
_____ Copies actual arguments into argument space _____ Saves registers in callee-save scheme
_____ Retrieves return value from return value location _____ Saves %pc into the return address location
-

1) Compile time 2) Run time

Method overriding is resolved at _____.

Method overloading is resolved at _____.

Given the following code where ??? may represent different parameter passing modes:

```
int global = 9;

void foo( int ??? param )
{
    param = 2;

    cout << global << endl;
}
```

```
int main()
{
    foo( global );

    cout << global << endl;

    return 0;
}
```

What values do you expect to be printed if the parameter passing mode is

call-by-value? _____

call-by-reference? _____

call-by-value/result? _____

Use the options below to fill in the blanks

- | | | | | |
|-------------|-------------|------------|--------|--------|
| A) %pc | D) +4 | G) %i0-%i5 | J) +0 | M) %g0 |
| B) positive | E) negative | H) %o0-%o5 | K) -68 | N) %o0 |
| C) %fp | F) %sp | I) +68 | L) -4 | O) %i0 |

In the SPARC architecture, local variables are stored and accessed with a _____ offset from the current _____ register. Actual arguments are passed to functions by the caller in the _____ registers and are retrieved by the callee in the _____ registers. They should be stored in the current/callee's stack frame's formal parameter area with the first argument stored at offset _____ from the current _____ register. When the callee is ready to return, the return value is put in the _____ register. Back in the caller, the return value is retrieved from the _____ register.