

## Principle of Programming Language (RCS-503)

### ASSIGNMENT 3

1. What are formal parameters? What are actual parameters?[CO1,CO2]
2. What are the differences between a function and a procedure?.[CO2]
3. Which of the caller or callee saves execution status information?[CO4]
4. What is the difference between an activation record and an activation record instance?[CO1,CO4]
5. Write an example of call and return statements? [CO2]
6. What are the various parameter Passing methods? Explain with an example [CO4]
7. Consider the following C code:[CO3]

```
p = 1; m = n; a = b;
while (m > 0) {
if (m % 2 != 0) p = p * a;
m = m / 2;
a = a * a;
}
```

Write a more concise version of this code. Is the concise version more or less readable?

8. Consider the C++ generic function swap. If i1 and i2 are int variables, and p1 and p2 are Person variables, which of the following function calls are legal?[CO3]  
swap(i1, i2);  
swap(p1, p2);  
swap(i1, p1);

For each legal function call, state which type is substituted for the generic function's type parameter Item.

9. Consider the following program written in C syntax: [CO2,CO3]

```
void swap(int a, int b) {
int temp;
temp = a;
a = b;
b = temp;
}
void main() {
int value = 2, list[5] = {1, 3, 5, 7, 9};
swap(value, list[0]);
swap(list[0], list[1]);
swap(value, list[value]);
}
```

For each of the following parameter-passing methods, what are all of the values of the variables value and list after each of the three calls to swap?

- a. Passed by value

- b. Passed by reference
- c. Passed by value-result