**Section 3 Short Answer:**

1. How do modules help you to reuse code in a program?

Modules help you reuse code in a program because you can just call open the module as many times as you want.

2. Name and describe the two parts that a module definition has in most languages.

One part of the module is to define it and its parameters the other part is being able to call the module.

3. When a module is executing, what happens when the end of the module is reached?

It will return to main().

4. What is a local variable? What statements can access a local variable?

A local variable is when you declare it inside of a module and the variable scopes can access the variable

5. In most languages, where dose local variables scope begins and end?

Local variable scopes begin at the variables declaration and ends at the end of the module.

6. What is the difference between passing an argument by value or passing it by reference?

When you pass by value, you send a copy of that argument. When you pass by reference you send the argument its self to be changed.

7. Why do global variables make a program difficult to debug?

Because you can change values of your variables by accident and not be able to figure out what line of code is causing them to change.

**Section 4 Algorithm Workbench:**

1. Design a module named *timesTen*. The module should accept an Integer argument. When the module is called, it should display the product of its argument multiplied times 10.

Void timesTen()  
{

Int num;

Int timesTen;

timesTen = num \* 10

 printf("Your number times 10. %d\n", &timesTen);

}

2. Examine the following pseudocode module header, and then write a statement that calls the module passing 12 as an argument.

Module showValue(Integer quantity)

Int quantity = 12;

showValue();

3.Look at the following pseudocode module header:

Module myMoudle(Integer a, Integer b, Integer c)

Now look at the following call to myMoudle

Call myMoudle(3,2,1)

When this executes, what value will be stored in a? what value will be stored in b and what value will be stored in c?

The value of c will be stored in 1, the value of b will be stored in 2 and the value of 3 will be stored in a.

4. Assume that a pseudocode program contains the following module:

Moudle display(Integer arg1, Real arg2, String arg3)

Display “Here are the values”

Display arg1, “”, arg2, “”, arg3

End module

Assume that the same program has a main module with the following carriable declarations:

Declare Integer age

Declare Real income

Declare String Name

Write a statement that calls the display module and passes these variables to it.

Display(int integer, real income, string name);

5. Design a module named getNumber, which uses a reference parameter variable to accept an integer argument. The module should prompt the user to enter a number and then store the input in the reference parameter variable.

Float getNumber(float number)

{

Float number;

Display(“Enter a number”)

Number;

}

6.What will the following pseudocode program displays?

module main()

Declare Integer x = 1

Declare Real y = 3.4

Display x, “ “, y

Call change Us(x,y)

Display x, “ “, y

End module

module changeUs(Integer a, Real b)

Set a = 0

Set b = 0

Display a,” “, b

End module

It will display x and y then it will display a and b then display x and y

7. What will the following pseudocode program displays?

module main()

Declare Integer x = 1

Declare Real y = 3.4

Display x, “ “, y

Call change Us(x,y)

Display x, “ “, y

End module

module changeUs(Integer a, Real ref b)

Set a = 0

Set b = 0

Display a,” “, b

End module

It will display x and y then it will display the changed version of x and y twice.

**Section 5 Debugging Exercises:**

1. Find the error in the following pseudocode

module main()

Declare Real mileage

Call getMileage()

Display ”You’ve driven a total of “, mileage, “ Miles.”

End module getMileage()

Display “enter your vehicle’s mileage.”

Input mileage

End module

There was no prototyping in the begging.

2. Find the error in the following pseudocode

module main()

Call getCalroies()

End module

module getCalories()

Declare Real calories

Display “How many calories are in the first food?”

Input calories

Declare Real Calories

Display “How many calories are in the second food?”

Input calories

End module

The error is that to inputs are named the same thing.

3. Find the potential error in the following pseudocode

module main()

Call squareNumber(5)

End Moudle

module squareNumber(Integer Ref number)

Set number = number^2

Display number

End module

The error is that the number is passed by reference.

4. Find the error in the following pseudocode

module main()

Call raiseToPower(2, 1.5)

End module

module raiseToPower( Real value, Integer power)

Declare Real result

Set Result = value^power

Display result

End module

There is no input for the result to have anything.