Review Activity 1

Introduction to Algorithms and Data Structures

1) "An algorithm is a sequence of instructions" as a definition does not address three important aspects/properties of algorithm design. List the three missing aspects/properties.

Aspect1:	Aspect2:	Aspect3:

2) Data structures play an important role with respect to algorithm design. Explain that role.

Explanation:

3) Abstract Data Type (ADT) exposes only the interface (the operations) to external users, and hides the internal organization of data items. Explain two benefits realized through this design.

Benefit1:	Benefit2:

4) Explain the <u>encapsulation</u> principle of ADT design. Just stating the definition is not enough. Also, give a short code example.

Explanation:	Example:

5) In the list below, check all statements that apply to class constructors. That is, insert a checkmark for all the items that are true when it comes to constructors.

☐ Used to initialize objects	☐ A special kind of member function	☐ The name is chosen by user
☐ Initialize some or all member variables	☐ Default one is provided automatically	☐ Always return void
☐ May be called multiple times on the <u>same</u> object	☐ Automatically called when an object is instantiated	☐ If any constructor is explicitly defined, then the default one is not provided

6) In the list below, check all statements that apply to class destructors. That is, insert a checkmark for all the items that are true when it comes to destructors.

☐ More than one exists	☐ May be called manually to free up a dynamic object
☐ Called automatically at the end of scope	☐ Accept parameters
☐ Deallocate memory assigned to an object	☐ Cannot be explicitly defined