Trivia Question (1 extra credit point)

0. (a) What is the capital of Cambodia?

-OR-

(b) Who won best supporting actress at the Oscars last Sunday?
(4 pts) 1a. Starting from the following input: M, F, G, Y, R, J, B, A, use the insertion algorithm for a binary tree to build the binary tree that keeps the elements of the tree in alphabetical order. Draw the final tree.

(4 pts) 1b. What is the output of an inorder traversal of this tree that prints each node’s contents when it visits the node?

(3 pts) 2a. Explain the term concurrency in the context of an event-driven simulator or a cpu scheduler.

(5 pts) 2b. Define the difference between transmission time and propagation time when a packet is sent over a computer network.

(6 pts) 3. What are the desirable properties of a good hash function?
(3 pts) 4. How is a linear list different from a linked list?

(2 pts) 5. Explain how the syntax changes in a called C++ function that provides for pass by reference.

(8 pts) 6. Explain the difference between using default arguments and member initializers in a C++ object constructor. Provide an example (that is a snippet of code) that shows clearly the syntax differences for these two concepts for an object constructor where the object includes two private integer data members.

(4 pts) 7. Why are set and get functions used in C++?

(5 pts) 8. What determines the sizeof a C++ object?
9. Name three techniques for referencing a C++ public class member from outside a class’s scope.

10. Explain how and why `#ifndef` is used in C++ header files.

11. Explain what happens when a C++ destructor is called.

12. When is member initialization required in C++?

13. What is a default copy constructor? How is it used in object composition in C++?
(4 pts) 14. When a program **overloads a function**, how does the C++ compiler decide which of the overloaded functions to execute?

(6 pts) 15. How does a **static** data member differ from a **non-static** data member for a C++ class?

(6pts) 16a. What are the two possible approaches for implementing **operator overload** in C++?

(4 pts) 16b. Name two C++ **operators** that **cannot** be overloaded.
(6 pts) 17a. How does a class derived from a public base class access private members of the base class?

(4 pts) 17b. List four things not inherited by derived classes.