**Data Structures and Algorithms – Week 3**

**Q1.** Which of following code snippets will compile successfully?

1. #include <iostream>;
2. using std:endl
3. #include “file.h”
4. using namespace std

**Q2.** What will the following code snippet print out?

int i = 3;

i += 43;

int \* p = &i;

p += 42;

\*p -= 8;

cout << \*p;

1. 46
2. An unknown value from memory
3. The address of variable i
4. The address of an unknown value from memory

**Q3.** Given a Stack with the standard push and pop functions, what value is on the top of the Stack after the following sequence of operations: push(5), push(10), pop(), push(1), push(6), push(9), push(1), pop(), pop(), push(18), pop(), pop()

1. 1
2. 18
3. 6
4. 5

**Q4.** Where are dynamically allocated variables stored?

1. The Stack
2. The Heap
3. The Deque
4. The Queue

**Q5.** Explain the difference between static and dynamic allocation. What keyword is used to dynamically allocate variables?

**Q6.** What will the following code snippet print out, given the input “Hello, World!”

string test;

cin >> test;

cout << test;

1. Hello,
2. Hello
3. Hello, World
4. Hello, World!

**Q7.** Which of the following statements prints a different output to the rest?

int a[] = {1};

1. cout << a[0];
2. cout << \*a;
3. int \* b = a; cout << \*b;
4. cout << a;

**Q8.** Which of the following operations is NOT normally included in a List ADT?

1. void enqueue(V value)
2. void prepend(V value)
3. void append(V value)
4. bool isEmpty()

**Q9.** Given a Queue with the standard enqueue and dequeue functions, what value is at the front of the queue after the following sequence of operations: enqueue(7), enqueue(5), enqueue(9), enqueue(6), enqueue(7), dequeue(), dequeue(), enqueue(4), dequeue(), enqueue(1), dequeue()

1. 5
2. 9
3. 7
4. 6

**Q10.** What type of function is the following, how is it invoked, and what is its purpose?

~intLinkedList()

**Q11.** Which of the following operations is NOT normally included in a Queue ADT?

1. void enqueue(V value)
2. void dequeue()
3. int peek()
4. int pop()

**Q12.** Which of the following is known as a LIFO (“Last-in-first-out”) data structure?

1. Queue
2. Linked List
3. Stack
4. Vector

**Q13.** Which of the following statements performs the same operation as foo->bar(and is legal in C++)?

1. (&foo).bar
2. (\*foo).bar
3. (~foo).bar
4. foo.bar

**Q14.** What will the following code snippet print out?

int a = 7;

int \* b = &a;

b++;

a += 2;

b--;

int c = \*b;

cout << c;

1. 9
2. 8
3. 7
4. An unknown value from memory

**Q15.** In what type of file would the following code typically be written? What is the commonly used extension for this type of file? (i.e. .\*extension\*)

#include <string>

using std::string;

class myClass : public parentClass {

private:

int privateInt;

public:

int getPrivateInt();

void setPrivateInt(int newValue);

string toString();

};

**Q16.** Which of the following code snippets is legal in C++?

1. getline(cout, aString);
2. cin << aString;
3. cout >> aString;
4. None of the above

**Q17.** Which library is used for file I/O in C++?

1. istream
2. ostream
3. iostream
4. fstream