Review Activity 4

Linked Data Structures

1) Examine the following code fragment. For each line marked with the [Question*] tag, state what is the output, and briefly explain why that output occurs. If a line represents a compilation error, state that instead, and briefly explain why the error occurs. Assume that no lines will be skipped.

```
int* p = new int(3);
int* q = new int(2);
int* r = new int(42);
cout << *p << " and " << *q << endl; // [Question1]
cout << r << endl; // outputs 0x555111
cout << r + *q << endl; // [Question2]
cout << p + r << endl; // [Question3]
Node *node = new Node(5); // Node includes the data item of int type
delete node;
node = NULL;
cout << node->getData() << endl; //[Question4]
```

Output and Explanations:

[Question1]

[Question2]

[Question3]

[Question4]

2) What will be the output of the following code fragment?

```
int* p = new int(42);
int* q = new int(16);
int* r = new int(33);
*r = *q;
q = p;
*r = 42;
cout << *p << " and " << *q << " and " << *r << endl;
```

3) What will be the output of the following code fragment? Explain.

```
int** data = new int*[2]();
data[0] = new int[10]();
data[1] = new int[20]();
int* q = data[0];
*q = 7;
q = q + 1;
*q = 8;
cout << data[0][0] << data[1][0] << endl;
delete [] data[1];
delete [] data[0];
delete [] data;
```