Linked List Exercises

1. What output is produced by the following C++ code segment on execution?

```
#include <iostream>
using namespace std;
struct nodeType{
      int info;
      nodeType *link;
};

int main(){
      nodeType *list, *ptr;
     list = new nodeType;
     list -> info = 10;
      ptr = new nodeType;
      ptr -> info = 13;
      ptr -> link = NULL;
      list -> link = ptr;
      ptr = new nodeType;
      ptr -> info = 18;
      ptr -> link = list -> link;
      list -> link = ptr;
      cout << list -> info << " " << ptr -> info << " ";
      ptr = ptr -> link;
      cout << ptr -> info << endl;
      return 0;
}
```

2. What output is produced by the following C++ code segment?

```
#include <iostream>
using namespace std;
  struct nodeType{
      int info;
      nodeType *link;
   };

   int main(){
      nodeType *list, *ptr;
      list = new nodeType;
      list->info = 20;
      ptr = new nodeType;
      ptr->info = 28;
      ptr->link = NULL;
      list->link = ptr;
      ptr = new nodeType;
      ptr->info = 30;
      ptr->link = list;
      list = ptr;
      ptr = new nodeType;
      ptr->info = 42;
      ptr->link = list->link;
      list->link = ptr;
      ptr = list;
      while (ptr != NULL){
              cout << ptr->info << endl;
              ptr = ptr->link;
      }
      system("PAUSE");
      return 0;
   }
```

3. What output is produced by the following C++ code segment on execution?

```
#include <iostream>
using namespace std;
struct nodeType{
      int info;
      nodeType *link;
};

int main(){
      nodeType *list, *ptr;
     list = new nodeType;
     list -> info = 21;
      ptr = new nodeType;
      ptr -> info = 45;
      ptr -> link = NULL;
      list -> link = ptr;
      ptr = new nodeType;
      ptr -> info = 79;
      ptr -> link = list -> link;
      list -> link = ptr;
      cout << list -> info << " " << ptr -> info << " ";
      ptr = ptr -> link;
      cout << ptr -> info << endl;
      return 0;
}
```

4. What output is produced by the following C++ code segment?

```
struct nodeType{
    int info;
    nodeType *link;
};

int main(){
    nodeType *list, *ptr;
    list = new nodeType;
    list->info = 34;
    ptr = new nodeType;
    ptr->info = 56;
    ptr->link = NULL;
    list->link = ptr;
    ptr = new nodeType;
    ptr->info = 73;
    ptr->link = list;
    list = ptr;
    ptr = new nodeType;
    ptr->info = 99;
    ptr->link = list->link;
    list->link = ptr;
    ptr = list;
    while (ptr != NULL) {
            cout << ptr->info << endl;
            ptr = ptr->link;
    }
    system("PAUSE");
    return 0;
}
```

5. What output is produced by the following C++ code segment on execution?

```
#include <iostream>
using namespace std;
struct nodeType{
      int info;
      nodeType *link;
};

int main(){
      nodeType *list, *ptr;
     list = new nodeType;
     list -> info = 34;
      ptr = new nodeType;
      ptr -> info = 45;
      ptr -> link = NULL;
      list -> link = ptr;
      ptr = new nodeType;
      ptr -> info = 55;
      ptr -> link = list -> link;
      list -> link = ptr;
      cout << list -> info << " " << ptr -> info << " ";
      ptr = ptr -> link;
      cout << ptr -> info << endl;
      return 0;
}
```

6. What output is produced by the following C++ code segment?

```
struct nodeType{
    int info;
    nodeType *link;
};

int main(){
    nodeType *list, *ptr;
    list = new nodeType;
    list->info = 45;
    ptr = new nodeType;
    ptr->info = 66;
    ptr->link = NULL;
    list->link = ptr;
    ptr = new nodeType;
    ptr->info = 91;
    ptr->link = list;
    list = ptr;
    ptr = new nodeType;
    ptr->info = 70;
    ptr->link = list->link;
    list->link = ptr;
    ptr = list;
    while (ptr != NULL) {
            cout << ptr->info << endl;
            ptr = ptr->link;
    }
    system("PAUSE");
    return 0;
}
```