Quiz

Note: It is recommended that you save your response as you complete each question.

Question 1 (10 points)

Matching the following terms with the definitions given below:

[ ] The area of memory used for allocation and deallocation of dynamic data	**1**. Pointer type
[ ] A simple type that only be initialized with the address of a variable	**2**. Indirect addressing
[ ] a member function involked when an object goes out of scope	**3**. Direct addressing
[ ] Variable created using the new operation	**4**. Reference type
[ ] A pointer that points to a deallocated object	**5**. Heap
[ ] An object that has been allocated but has no pointer pointing to it	**6**. Memory leak
[ ] A simple type that can be assigned the address of a variable	**7**. Inaccessible object
[ ] The loss of available space that occurs when dynamic data is not deallocated properly	**8**. Dangling pointer
[ ] Accessing a variable using an address stored in a pointer	**9**. Dynamic data
[ ] Accessing a variable using its name	**10**. Destructor

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Question 2 (10 points)

1. **Explain what is the effect of each of the following statements?**

(a) intPtr p _____

(b) p = new int [10]; _____

(c) p [3] = 4; _____

(d) delete [] p; _____

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Question 3 (20 points)

1. **What is the output of the following program segment?**

```
typedef     int   *   intPtr;
intPtr        p, q;
int             x=3, y=6;

p=&y;
q=p;
*q = *p+1;
x=*q;
y= x+1;

cout << x << " " << y << " " << *p  << " " << *q << endl;

p=new int;
*p = 5;
*q = *p + 2;
x = *q;

cout << x << " " << y << " " << *p  << " " << *q << endl;

q=new int;
delete p;
p=q;
delete p;
p = NULL;
q = NULL;

cout << x << " " << y << " " << *p  << " " << *q << endl;
```

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Question 4 (10 points)

Given the following pointer variables:

```
int x;
int*    p;
p = &x;
```

Which of the following code segments will cause segmentation fault?

- *p = 100.12;
- p = NULL;
  cout << *p;
- p = NULL;
  cout << p;
- p = NULL;
  cout << &p;

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Question 5 (10 points)

Assume we have the following structure definition:

```
struct Student
{
   string     name;
   string     email;
   string     major;
};
```

Which of the following statements declares a pointer to a Student struct?

- Student aPointerToStudent;
- *Student p;
- Student p*;
- Student *p;

Save

Question 6 (10 points)

Given the following structure and variables:

```
struct Student {
  string name;
  string email;
};
Student john;
Student* p;
```

Which of the following statements makes the pointer p point to the variable john?

- p = *john;
- p = &john;
- &p = john;
- *p = &john;
- *p = john;

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Question 7 (10 points)

Suppose the following structure and variables are declared:

```
struct Student {
  string name;
  string email;
};
Student john;
Student* p = &john;
```

Which of the following statements assigns a new email to the student john?

- p[email] = "john@mtsu.edu";
- p.email = "john@mtsu.edu";
- john[email] = "john@mtsu.edu";
- john->email = "john@mtsu.edu";
- p->email = "john@mtsu.edu";

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Question 8 (10 points)

Which of the following code segments correctly declares a structure and a pointer variable in which the structure only contains the name and email?

```
struct Student {
        string    name;
        string    email;
};
Student*    pointer;
```

```
Student*    pointer;
struct Student {
        string    name;
        string    email;
};
```

```
struct Student {
        string    name;
        string    email;
        Student*    pointer;
};
```

```
struct Student {
        string    name;
        string    email;
};
Student       pointer;
```

Save

Question 9 (10 points)

Suppose the following structure and variables are declared:

```
struct    Student {
    string      name;
    string      email;
};
Student       john;
Student*       p = &john;
```

Which of the following statements print the student john's email?

- cout << p.email;
- cout << p[email];
- cout << john->email;
- cout << p->email;
- cout << john[email];

Save

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