

Name:

1. In the following program segment

```
#ifndef X  
rest of program  
#endif
```

- (a) will evaluate the rest of the program if **X** is already defined.
- (b) will evaluate the rest of the program if **X** is not already defined.
- (c) will evaluate the rest of the program regardless of whether **X** is defined.
- (d) will cause a syntax error.

ANS: (b)

2. Constructors are not

- (a) required to be explicitly defined.
- (b) called automatically when an object is initialized.
- (c) able to be overloaded.
- (d) member functions.

ANS: (a)

3. A class may contain multiple constructors if

- (a) they have different names.
- (b) they have different argument lists.
- (c) they have the same argument list.
- (d) they have different return types.

ANS: (b)

4. A default constructor

- (a) is a constructor with all default arguments
- (b) is the constructor generated by the compiler when one is not provided by the programmer
- (c) does not perform any initialization
- (d) both (b) and (c)

ANS: (d)

5. Which of the following is not true of a constructor and destructor of the same class?

- (a) they both have same name aside from the tilde (~) character.
- (b) they are both called once per object (in general).
- (c) they both are able to accept default arguments.
- (d) both are called automatically, even if not defined in the class.

ANS: (c)

6. Assume class `CreateAndDestroy` has a constructor and a destructor function that acts as follows:

When an object of this class is created its constructor takes two strings as arguments and prints a message. For example, the statement `CreateAndDestroy c("c", "In Example")` would call its constructor, which will simply print out the message "Created c: In Example". Its destructor will, on the other hand simply print out the message "Destroyed c: In Example". Now consider the following code sequence .

Write the sequence of creation and destruction of objects if the program containing above code is run.

```
main()
{
    CreateAndDestroy c1("c1", "auto - main");
    static CreateAndDestroy sc1("sc1", "static - main");
    firstThingFirst("f-first");
    static CreateAndDestroy sc2("sc2", "static - main");
}
firstThingFirst(chr *msg)
{
    static i = 1;
    CreateAndDestroy fcl(msg, "auto - firstThingFirst");
    static CreateAndDestroy fsc1(msg, "static - firstThingFirst");
    for (; i < 3; i++){
        switch (i) {
            case 1:
                static CreateAndDestroy fsc("case 1", "static -
                firstThingFirst");
                firstThingFirst("f-case1");
                break
            case 2:
                static CreateAndDestroy fsc("case 2", "static -
                firstThingFirst");
                firstThingFirst("f-case2");
                break;
            default: break;
        }
    }
}
Answer
```

```
C:\Documents and Settings\jjoshi\My Documents\INFSC100 20\Programs\Debug\Create.exe
MAIN FUNCTION: EXECUTION BEGINS
Object 1 constructor runs <local automatic in main>
Object 2 constructor runs <local static in main>
CREATE FUNCTION: EXECUTION BEGINS: 2
Object 8 constructor runs <Here: local automatic in create>
Object 10 constructor runs <static in create>
Object 14 constructor runs <static - switch case 2>
CREATE FUNCTION: EXECUTION BEGINS: 1
Object 4 constructor runs <Here: local automatic in create>
Object 6 constructor runs <static - switch case 1>
CREATE FUNCTION: EXECUTION BEGINS: 0
Object 0 constructor runs <Here: local automatic in create>
CREATE FUNCTION: EXECUTION ENDS: 0
Object 0 destructor runs <Here: local automatic in create>
CREATE FUNCTION: EXECUTION ENDS: 1
Object 4 destructor runs <Here: local automatic in create>
CREATE FUNCTION: EXECUTION ENDS: 2
Object 8 destructor runs <Here: local automatic in create>
MAIN FUNCTION: EXECUTION ENDS
Object 1 destructor runs <local automatic in main>
Object 6 destructor runs <static - switch case 1>
Object 14 destructor runs <static - switch case 2>
Object 10 destructor runs <static in create>
Object 2 destructor runs <local static in main>
Press any key to continue_
```