

## Ghulam Ishaq Khan Institute (GIKI)

Assign	nment # 2
Subject: Object Oriented Programming & Design	Course Code: CS - 112 - A, F - Spring - 24
Class: BS AI & BS ME-2nd, Batch: 33 (Fall-23-Intake)	Deadline: 17/March/2024 - Sunday (11:59 - PM)
Course Instructor: M. Qasim Riaz - Lecturer - FCSE	Total Marks: 30 (Marks are divided problem wise)
Course TA's: Mr. Abubakar (BS-ME), Miss Munazza (B.	S-AI)
Name:	S-AI)

## MID TERM EXAM (SAMPLE) PRACTICE ASSIGNMENT

## INSTRUCTIONS

- 1. Print the complete given paper and solve by hand in given space
- 2. Mention your reg number and name at bottom of each page.
- 3. Take picture & upload the completed assignment in PDF format.
- 4. If above requirements are not met, assignment will not be marked.

Ougstion #1 (10 Morks)
Question # 1 (10 Marks)
1.1 Differentiate between shallow copy and deep copy. In which cases shallow copy will 3
suit and when do we require deep copy? Explain in 3-4 sentences.
Shallow copy Both objects data members are
Pointing to same directors memory Jogation
the colore when mares same values is
PHOTO PROPERTY OF THE PROPERTY
Deep copy, Reth offects data members have their
A STATE OF THE STA
Shallow cony is useful for non-dynamic memory
Shallow copy is useful for non-dynamic memory
while deep copy is useful for dynamic.
And the control of th

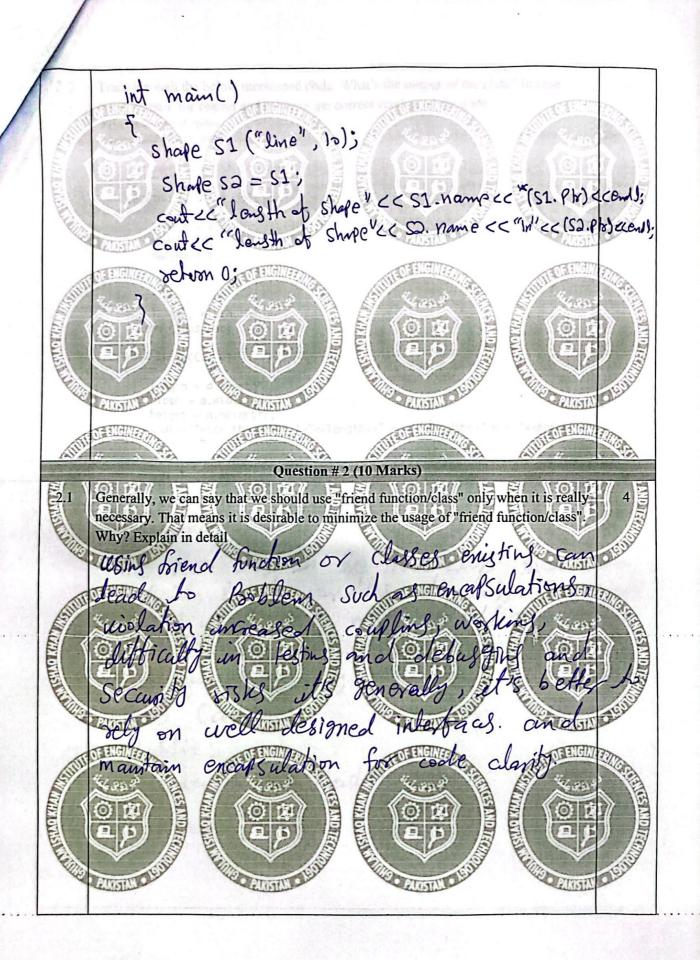
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```
Understand the following code. You need to provide source code for a copy
                                                                           7
constrcutor that performs deep copy.
#include <iostream>
using namespace std;
class Shape {
   public:
       string name;
       int *ptr;
       Shape( string n, int len );
3;
Shape::Shape(string n, int len) {
    cout << "Normal constructor" << endl;
    name = n;
    ptr = new int;
    *ptr = len;
int main() {
  Shape s1("Line", 10);
  Shape s2 = s1;
   cout << "Length of Shape " << s1.name << " is "<<*s1.ptr <<endl;
   cout << "Length of Shape " << s2.name << " is "<<*s2.ptr <<endl;
   return 0;
                             rite Your Code Here
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          names Pace sto
```

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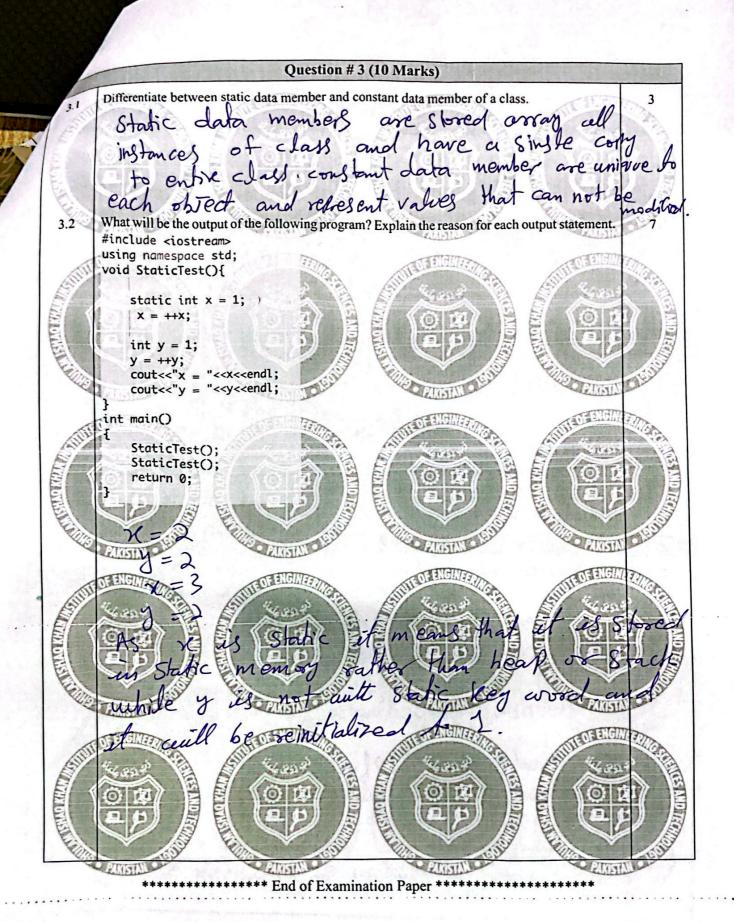
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```
6
Trace through the below mentioned code. What's the output of the code? In case
error, explain the reason and re-write the correct version of the code.
#include <iostream>
using namespace std;
class Car {
    int length, width, height;
public:
    Car(int x, int y, int z)
         length = x;
         width = y;
         height = z;
class Truck {
     int length, width, height;
    friend class Car;
public:
    void twice(Car a)
         length = a.length*2;
         width = a.width*2;
         height = a.height*2;
         cout<<"Twice the size: l="<<length<<" w="<<width<<" h="<<height;
 3;
 int main() {
     Car car(3, 2, 2);
     Truck truck;
     truck.twice(car);
             error les in the truck class, truck can not the broade variables of class. For code
```

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