**Philadelphia University**

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**Faculty of Information Technology**

**Department of Software Engineering**

**Examination Paper**

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**Object-Oriented Programming 721220 First Exam**

**Section: 1**  **Time**: **50 Minutes**

**Information for Candidates**

1. *This examination paper contains 4 questions. The total is 20.*
2. *The marks for parts of questions are shown in round brackets.*

**I. Basic Notions**

*Objectives: The aim of the question is to evaluate your knowledge and skills concerning with the basic concepts of* ***OOP****.*

**Question 1: [3 Marks, 1 Mark each]**

Answer the following questions:

1. What does it mean for a member of a class to be static?

it belongs to the class to certain objects ..and it is called using class name

1. What does Information hiding mean?

using private data

1. A Library has several books. Which of the following concepts characterize it best?

a. Inheritance

b. Composition

c. Association

d. Specialization

**Question 2:** **[10 Marks]**

* Create a class called "Item", that contains three instance variables :   
  item\_id , name, price. **[3 Marks]**
* Write a method called print that prints the value of the three instance variables. **[ 2 Marks]**
* Create another class called "Store" which has the following instance variables: location, owner\_name, List of type Item called ItemList **[3 Marks]**

* Write a method called Add\_Item that adds a new item to ItemList **[2 Marks]**

**Public class Item**

**{**

**private int item\_id;**

**private string name;**

**private double price;**

**public void print( )**

**{ Console.WriteLine("{0}, {1}, {2}", item\_id, name , price); }**

**}**

**public class Store**

**{**

**private string location;**

**private string owner\_name;**

**List< Item> ItemList = new List<Item>( );**

**public void Add\_item( item p)**

**{ ItemList.Add(P); }**

**}**

### II. Familiar Problems Solving

### *Objectives: The aim of the question is to evaluate your basic knowledge of the key aspects of the lectures material and your ability to solve familiar problems.*

**Question 3: [4 Marks]**

Study the following class, then answer the questions below:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

public class Number

{

public int x;

public int y;

public const int z = 0;

public Number(int x, int y)

{

this.x = x;

this.y = y;

}

public void sum(double no1, double no2)

{

double s = x + no1 + no2;

Console.WriteLine("x= {0}, s={1}", this.x, s);

}

public void sum(int no1, int no2)

{

int x = 10;

int s = this.x + no1 + no2;

Console.WriteLine("{0}", s);

}

public static void Main()

{

Number n = new Number(6, 2);

n.z= 9;

n.x = 10;

n.sum(9 , 10);

}

}

1. The Main method conatins an error. Try to locate that error and correct it. **[2 marks]**

n.z=9 🡪 z is a constant, so it can't be assidned a new value

Correction: we can remove const keyword.

1. What is the output of the his program? **[2 marks]**

***III. Unfamiliar Problems Solving***

Objectives: *The aim of the question is to evaluate your knowledge of the key aspects of the lectures material and your ability to solve unfamiliar problems.*

**Question 4**: **[3 Marks]**

Extend the class in *Question 2* by adding a method called *price\_print( )* that selects a random item and prints out its price.

create a public property in class item for price called Price

public void price\_print( )

{

Random r =new Random( );

int i= r.Next( ItemList.capacity);

Item c= ItemList[i];

c.Price;

}

Good Luck ☺