Philadelphia University Faculty of Engineering Department of Computer Engineering		First Semester 2017/2018 Date:- 29/03/2018 Allowed time:- 60 Minutes
	Object Oriented Programming (630221) First Exam	

Student Name: - …………………………….............................   ID: - ……………………………

Question 1: Mark the following statements as true or false.

20 points

1. A structure can be passed to function by reference only.

2. A member of a structure cannot be another structure.

3. Default copy constructor perform deep copy of class data.

4. The member methods of class must be public.

5. A class cannot have more than one constructor.

6. Static variable of class can only be accessed by static methods.

7. Static methods of class can access non static data.

8. Dynamically created data of class don't destroyed when class is destroyed.

9. Constructor can be called by user after object was created.

10. Private data members are accessible from nonmember methods.

Question 2: Suppose that you have the following definitions:

25 points

```
struct Time
{
    int Hr;
    int Min;
    int Sec;
};
```

```
struct Trip
{
    string Destination;
    int Distance;
    Time Travel_Time;
    Time Arrival_Time;
};
```

Perform the following tasks

1- Declare a pointer of type Trip then use it to declare an array of 20 elements of type Trip.

2- Write a function that asks the user to enter the information of a single Trip and return the input data.

3- use the function defined in previous question to Enter the data of Trips in the array.

4- Write a function that display the information of data stored in the array.

5- Write a function that displays the destination of trips with distance greater than 50 km.

Question 3:   30 points

  a- Define a structure Date which contains Day, Month, Year of type
     int.
  b- Define a class Person which contains the following data:
      1- Class name Person.
      2- The class has 4 variables:
          i. Name of type string.
         ii. ID of type int.
        iii. Birth date of type Date.
         iv. Address of type string.
      3- The class has the following methods
          i. Default constructor which initialize the int data to ZERO
              and string data to "".
         ii. Constructor that takes argument (ID, name, Address, day,
              month, year) to initialize the variable of class.
        iii. Print method to print the data of class on screen.
         iv. Get methods that return each data member of the class.
      4- Write a definition of class methods listed above.

Question 4: Given the following class definition: 25 points

```
class test
{
private:
    static int cnt;
    int value;
    doubel* Data
public:

};
```

  1- Write a C++ statement that initialize the cnt variable to 0.
  2- Define a method that return the value of cnt.
  3- Define a constructor that take one argument X which use it to
     initialize the variable value then use value to create a dynamic
     array Data that contain [value] elements , and increment cnt
     variable.
  4- Define a destructor that free memory locations and decrement cnt.
  5- Define a copy constructor that perform deep copy of class data, and
     increment cnt.
  6- Write a C++ statement that display the cnt value on screen.