**Department CCNE (duration: 1 hour)**

**Exam OOP LAPTOP is ALLOWED**

**Semester 2015/2016 OPEN BOOK**

**PART 1: Class Article**

The Class **Article** is an abstract class which contains the following attributes: **code** (number), **description** (set of characters).

1. Create one constructor of the class **Article** which takes as parameter the code and the description.
2. Write the properties of all attributes.
3. Override the method **ToString**() of the class **Article**. It should return a string which contains the value of the code and the description of the current object.
4. Create the method **Display**() which displays the characteristics of the current object.

**PART 2: Class CD**

**CDs** are **articles**.

1. Create the class **CD** which contains the attributes of article and the following attribute:

**storageSpace** (number)

**type** has the type TYPECD => **enum TYPECD {DVD, MP3, blueray}**

1. Write 3 constructors of the class **CD**: a default constructor, a constructor which takes as parameters the characteristics of a CD **(code, description, storageSpace, type)** and a constructor which takes as parameter an object CD.
2. Override the method **ToString()** of the class **CD** which returns a string with all characteristics the current object CD.
3. Create the method **Display()** in the class **CD** which displays the characteristics of the current object.
4. Create the method **Input()** which asks the user to enter information of a cd and modify the values of the current object of the class **CD**.

**PART 3: Class Customer**

Create the class Customer which contains the attribute:

* **LastName** (set of characters)
* **FirstName**(set of characters)
* **CDTab** is an array of cds.

1. Create a constructor of the class **Customer** which takes as parameter the last name and the first name of a customer and initializes the array **CDTab** with 0 element.
2. Create the method **AddCD(CD c)** which adds an object CD in the array **CDTab** only if **CDTab** contains less than 2 CDs. If the array **CDTab** contains already 2 object CDs, the object CD will not be added and an exception will be generated. (use Array.Resize)
3. Create the method **DisplayDVD()** which displays the dvd (i.e. cd which has the type DVD) in the array **CDTab** of the current object.

**PART 4: Application**

In the main function **Main():**

1. Create two objects CDs: **cd1**, **cd2** by using the constructor which takes as parameters the characteristics of a **CD**.
2. Create an object **cd3** by using the default constructor.
3. Use the method **Input()** which inputs the characteristic of **cd3**.
4. Create an object of the class **Customer**: **C**.
5. Use the method **AddCD** to add in the array **CDTab** of **C** the 3 object cds: **cd1**, **cd2** and **cd3**.