

MIDTERM EXAMINATION (2)

Course: **CS202 – PROGRAMMING SYSTEMS**

Time: **90** minutes

Term: **1** – Academic year: **2018-2019**

Lecturer(s): **Dr. Dinh Ba Tien**

Student name:

Student ID:

(Notes: Closed Book Exam)

- Problem 1.** In object-oriented programming, what is **data hiding**? Given an example. Does **friend** violate the meaning of data hiding?
- Problem 2.** What do you know about a **copy constructor** in C++? List 3 different cases in which the copy constructor will be called.
- Problem 3.** In object-oriented programming, how do the **constructors** and **destructors** work among the classes in **inheritance**? Give an example to illustrate.
- Problem 4.** When do you need to implement your own **copy assignment operator** for a class? Given an example.
- Problem 5.** Should we set all data member of a class to be **public**? Why?
- Problem 6.** Given the class **Product** as follow:

```
class Product {  
public:  
    // add your code  
private:  
    int ID;  
    char* name, *category;  
    float price;  
};
```

You are asked to implement the following methods:

- The **destructor** to clean up all the dynamically allocated data.
- The **copy assignment operator=** to assign one product to another one.
- The **operator>>** to input a product.
- The **Insertion operator (<<)** to print out a product on the screen.

-- GOOD LUCK --