



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2011/2012**

**COURSE NAME** : **OBJECT ORIENTED  
PROGRAMMING**

**COURSE CODE** : **BIT 20603/BIT 2063**

**PROGRAMME** : **BACHELOR OF INFORMATION  
TECHNOLOGY**

**EXAMINATION DATE** : **JUNE 2012**

**DURATION** : **2 HOURS AND 30 MINUTES**

**INSTRUCTION** : **ANSWER ALL QUESTIONS.**

**THIS QUESTION PAPER CONSISTS OF EIGHT (8) PAGES**

**SECTION A**

**Instruction:** Choose the **BEST ANSWER. ONE (1) mark** for each correct answer.

**Q1** Which of the following statement(s) is/are TRUE about an object in C++ programming?

- A. A class is instantiated from an object.
- B. An object is instantiated from a class.
- C. An object is a template from which class is instantiated.
- D. An object is not an entity.
- E. A and C only.

**Q2** Which of the following statement(s) is/are TRUE about object-oriented programming?

- A. A way of organizing and developing software.
- B. The foundation goes back to Simula and Smalltalk.
- C. The concept is exactly the same with procedural programming.
- D. A and B only.
- E. A and C only.

**Q3** The essential characteristics of an object include \_\_\_\_\_.

- A. attributes or data
- B. services or methods
- C. global variables or pointers
- D. local variables or pointers
- E. A and B only.

**Q4** A constructor \_\_\_\_\_.

- A. has the same name with the class name.
- B. must use a different name from the class name.
- C. is called when a class is instantiated.
- D. is called when an object is instantiated.
- E. A and D only.

- Q5** Public class visibility in object-oriented programming means \_\_\_\_\_.
- A. only the class itself and subclasses can access the data and methods declared in a class.
  - B. only the class itself can access the data and methods declared in a class.
  - C. all classes can access the data and methods declared in one class.
  - D. all local variables are declared in class methods.
  - E. all global variables are declared in a class.
- Q6** Private class visibility in object-oriented programming means \_\_\_\_\_.
- A. only the class itself and subclasses can access the data and methods declared in a class.
  - B. only the class itself can access the data and methods declared in a class.
  - C. all classes can access the data and methods declared in one class.
  - D. all local variables are declared in class methods.
  - E. all global variables are declared in a class.
- Q7** Protected class visibility in object-oriented programming means \_\_\_\_\_.
- A. only the class itself and subclasses can access the data and methods declared in a class.
  - B. only the class itself can access the data and methods declared in a class.
  - C. all classes can access the data and methods declared in one class.
  - D. all local variables are declared in class methods.
  - E. all global variables are declared in a class.
- Q8** Which of the following statement(s) is/are TRUE about encapsulation concept in object-oriented programming?
- A. Both data and methods for an object are contained inside the object.
  - B. Also known as information hiding, meaning that only operations that preserve information correctness are available to the client.
  - C. The object can protect its data against misuse by other objects.
  - D. All of the above.
  - E. A and C only.
- Q9** Which of the following statement(s) is/are TRUE about inheritance concept in object-oriented programming?
- A. very useful mechanism that promotes information hiding.
  - B. "X inherits Y" means X is the parent class and Y is the child class.
  - C. "X inherits Y" means X is the child class and Y is the parent class.
  - D. A and B only.
  - E. A and C only.

**Q10** Polymorphism concept in object-oriented programming \_\_\_\_\_.

- A. promotes information hiding and privacy.
- B. promotes code sharing and code reuse.
- C. allows more than one method having the same name in the implementation.
- D. converts a parent class to become a child class.
- E. B and C only.

(10 marks)

**SECTION B**

**Instruction:** Answer ALL questions.

**Q11** Refer to **Figure Q11** to answer Q11(a) and Q11(b).

```
class MyClass{  
  
    double demo_1[10];  
    int demo_2[10];  
  
    public:  
    void SetValue();  
}
```

**Figure Q11**

- (a) Write a constructor for `MyClass` that will assign zero values to `demo_1` and `demo_2`.  
(3 marks)
- (b) Implement `SetValue( )` that will assign even numbers in the range of 92 to 110 to `demo_1`.  
(7 marks)

**Q12** Identify and fix **TEN (10)** errors in **Figure Q12**. In your answer, indicate explanation of the errors, and their corresponding corrections such as in the following:

**Example:**

Error in Line 1: wrong spelling of header file in the include statement, `#include <iostream.h>`

Correction: `#include <iostream.h>`

```

1. #include <iostream.h>
2. #include <math.h>
3.
4. class Power {
5. private:
6. int power;
7. public:
8.
9. void Result(int i);
10. }; // class Power
11.
12. void Power::Power2() {
13. cout<< "Please insert the number : ";
14. cin>> power;
15. }; // method Power2
16.
17. void Power::Result( ) {
18.
19. result = pow(power,i);
20. cout<< '\n' << power <<" power of " << i << " = "<< result;
21. };
22.
23. int main(){
24.
25.
26. PowerPower.Power2();
27. for (i=1;i<5;i++)
28. PowerPower.Result(i);
29. return 0;
30. }

```

Figure Q12

(10 marks)

**Q13** Define record of a student using struct. A student record consists of name, address, and course as follows:

Student

Name
Address
Course

where:

- the Name consists of the following data: firstName and secondName.
- the Address consists of the following data: house number, street name, city, state, and postcode.
- the Course consists of the following data: course code, course title, and number of credit hours.

(10 marks)

**Q14** Refer to **Figure Q14** to answer Q14(a) and Q14(b).

CarData
<ul style="list-style-type: none"><li>• CarModel</li><li>• PlateNumber</li><li>• Colour</li><li>• ManufactureDate</li></ul>
<ul style="list-style-type: none"><li>• SetData</li><li>• GetData</li><li>• SetDateofManufacture</li><li>• FindAgeofCar</li></ul>

**Figure Q14**

- (a) Declare the class for **Figure Q14**. The `ManufactureDate` consists of day, month, and year data of which a car is manufactured. `FindAgeofCar` should return the age of the car as number of years. (Note: You are only required to declare the components of the class. No implementation is required.) (15 marks)
- (b) Create the driver (main) to instantiate an object from class in **Figure Q14**, declared in Q14(a). Call the methods from the class. (5 marks)

## SECTION C

**Instruction:** Answer ALL questions.

**Q15** Refer to **Figure Q15** to answer Q15(a) - Q15(d).

3201	Mariam	12/04/2012	200
3308	Anisa	23/04/2012	180
3819	Fakrul	20/04/2012	800
3312	Fahmi	22/04/2012	900
3158	Sofea	30/04/2012	520

**Figure Q15. Order.dat**

**Figure Q15** shows the information of customer's order for an online shop. The information is stored inside a file called **Order.dat** as shown above. The information is as follows:

- ◆ Order Id
- ◆ Customer's Name
- ◆ Date of order
- ◆ Total order

You are required to implement a class Customer that contains customer's information. Your class implementation should allow data to be read from the specified file and write the data on the screen.

Based on the above requirements, answer the following questions:

- (a) Write a class diagram for the class Customer. (5 marks)
- (b) Use `struct` mechanism to declare the attributes identified in Q15(a). (10 marks)
- (c) Implement the class Customer using C++ programming language. Your class Customer must use the attributes that you have declared in Q15(b). Your class Customer should also be able to read the data from the specified file and write the data on the screen. (20 marks)
- (d) Implement the driver (main) that will instantiate an object of the class Customer. Call the method from the class implemented in Q15(c). (5 marks)