

CONFIDENTIAL



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION

SEMESTER I

SESSION 2011/2012

COURSE NAME : OBJECT-ORIENTED PROGRAMMING
COURSE CODE : BIT2063/BIT20603
PROGRAMME : BACHELOR OF INFORMATION
TECNOLOGY
EXAMINATION DATE : JANUARY 2012
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF FIVE(5) PAGES

CONFIDENTIAL

SECTION A

Instruction: Answer **ALL** questions.

Q1 Give definition for the following terms:

- (a) Object
- (b) Encapsulation
- (c) Inheritance
- (d) Polymorphism
- (e) Message

(5 marks)

Q2 Name and explain **THREE(3)** types of visibility in classes.

(6 marks)

Q3 Explain the differences between black box testing and white box testing

(4 marks)

Q4 The following information is for the data of the book.

BookData
Author
ISBN
Publisher
Year

(a) Write the data of the Book above by using **struct** mechanism.

(5 marks)

(b) Create class Book which has the data in **Q4(a)** as its attribute and SetData and GetData as its methods. (Reference: **Figure Q4**)

(5 marks)

(c) Create the driver (main) to create an object from class Book and call the methods from class Book

Book
• BookData
• SetData
• GetData

Figure Q4: Class Book

(5 marks)

- Q5** Based on **Figure Q5**, by using C++ programming language, implement class **Person** with its attributes and methods. (Note: You only have to write the specification of the class.)

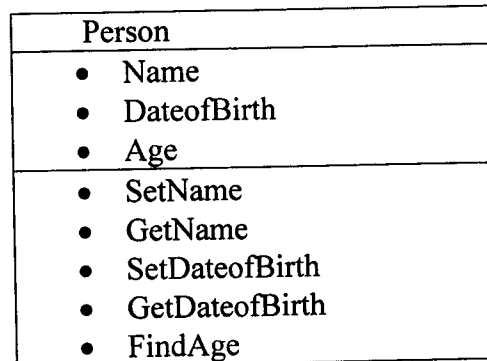


Figure Q5: Class Person

(5 marks)

- Q6** The following specification is used for Age linked list.

```
class AgeList {
protected:
    struct ListNode {
        Person aperson;
        ListNode *next;
    };
    ListNode *head;
public:
    AgeList();
    ~AgeList();
    int IsEmpty();
    void Add(Person newperson);
    void Remove(char name[25]);
    void DisplayList();
};
```

- (a) Implement function *Add(Person newperson)* according to the specification in Q6, where the object **Person** is added into the linked list according to the age. For example, if **Person A** is older than **Person B**, then **Person A** is the head and **Person B** is the tail. Next, if **Person C** is added to the list, where **Person C** is older than **Person B** but younger than **Person A**, the linked list now becomes: **Person A** (head), **Person C** followed by **Person B** (tail).

(10 marks)

- (b) Implement function *Remove(char name[25])* where the Person is removed from the linked list according to the name of the Person.

(10 marks)

- (c) Implement function *DisplayList()* to display the data inside the linked list.

(5 marks)

SECTION B

Instruction: Answer ALL questions.

- Q7.** You have been asked to implement a simple class based on the requirements as stated below.

Rosziati	FSKTM	12	3	2006	14	3	2006	BMW
Zaharah	FPTek		22	4	2006	25	4	2006
Perdana								
Sapiee	FSKTM	23	2	2006	25	2	2006	Wira
Suhaila	FPSK		3	12	2005	6	12	2005
Kelisa								
Mimi	FKEE		8	8	2005	12	8	2005
Perdana								
Khalid	FKAAS	18	6	2006	21	6	2006	Wira

Figure Q7: Staff.dat

Figure Q7 shows the information of borrowing cars for UTHM's Staff. The information is stored inside a file *Staff.dat*. The Staff's information is as follows:

- ◆ The Staff's name and faculty
- ◆ The date of the car is taken and return
- ◆ The type of the car

You are required to implement a class *Staff* that contains the Staff's information. Your class should be able to read the data from the specified file and write the data on the screen.

Based on the above requirements, answer the following questions:

- (a) Identify the attributes and method. Then produce the diagram for class *Staff*. (5 marks)
- (b) Use **struct** mechanism to declare the attributes that have been identified in **Q7(a)**. (10 marks)
- (c) Implement the class *Staff* using the C++ programming language. Your class *Staff* must have the attributes that you have declared in **Q7(b)**. Your class *Staff* 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 the object and send the message. (5 marks)