## Worksheet (Chapter 27)

## **KeyFocus: Classes and Object, Inheritance**

Q.1

A sports club stores data about its members. A program is to be written using an object-oriented programming language.

A Member class is designed. Two subclasses have been identified:

- FullMember
- JuniorMember
- (a) Draw an inheritance diagram for these classes.

[3]

- (b) The design for the Member class consists of
  - properties
    - MemberName
    - MemberID
    - SubscriptionPaid
  - methods
    - SetMemberName
    - SetMemberID
    - SetSubscriptionPaid

Write program code for the class definition of the superclass Member.	
Progran	nming language
•••••	
•••••	
	[5]
(c) Ad	ditionally a DateOfBirth property is required for the JuniorMember class.
(i)	Write program code for the class definition for the subclass JuniorMember.
	[3]
(ii)	Write program code to create a new instance of JuniorMember. Use identifier NewMember with the following data: name Ahmed with member ID 12347, born on 12/11/2001, who has paid his subscription.
	[3]

Write code to define a Borrower class as shown in the class diagram in Figure 27.05.

## Borrower BorrowerName : STRING EmailAddress : STRING BorrowerID : INTEGER ItemsOnLoan : INTEGER Constructor() GetBorrowerName() GetEmailAddress() GetBorrowerID() GetItemsOnLoan() UpdateItemsOnLoan() PrintDetails()

Figure 27.05 Borrower class diagram

The constructor should initialise ItemsOnLoan to 0. UpdateItemsOnLoan() should increment ItemsOnLoan by an integer passed as parameter.

Write a simple program to test the methods.