1. In object-oriented programming, what is meant by the following terms?

(a) Encapsulation [2]

(b) Data hiding [2]

(c) Instantiation [2]

(d) Inheritance [2]

(e) Polymorphism [2]

2. An object-oriented program is to be used to store and display details of members of a sports club.

A member class is defined which holds attributes surname, first name, annual membership fee, and methods to amend and display these details.

A junior member class inherits the attributes and methods of the member class but has an additional attribute date of birth.

An incomplete definition of the Member class is given below.

Complete the statements where indicated. [3]

class Member

private surname

private firstname

private annualFee

public procedure new(mySurname, myFirstName, myAnnualFee)

(complete procedure here)

public procedure amendDetails(mySurname, myfirstname, myAnnualFee)

*(leave this procedure incomplete)*

endprocedure

*(other procedures – do not complete)*

endclass

(a) Complete the definition of the JuniorMember class constructor. [2]

class JuniorMember

private dateOfBirth

public procedure new(mySurname, myFirstname, myAnnualFee, myDateOfBirth)

endprocedure

*(other procedures – do not complete)*

endclass

(b) Write a statement to instantiate a junior member called Harry Mason, born 12/12/2004, annual fee £25.00. [1]

(c) Write a method which will amend the annual fee of a junior member. [2]

(d) Write a method which will return the date of birth of a junior member. [2]

[Total 20 marks]