



ICT 2014

OOP1 EXAMINATION

<i>Module Code:</i>	ICT B8IT052
<i>Module Description:</i>	Object Oriented Programming 1
<i>Examiner:</i>	Damien Kettle
<i>Internal Moderator:</i>	Michael Gleeson
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Date: Monday 21 July 2014
Time: 09:30 - 11:30

INSTRUCTIONS TO CANDIDATES:

Time allowed is 2 hours.

QUESTION 1 IS COMPULSORY

Answer any 2 other questions.

Question 1 – Compulsory – 30 Marks

- Inheritance, Encapsulation and Polymorphism are referred to as the three pillars of Object Oriented Programming. Discuss any **two** include C# examples?
(10 Marks Each)
- Explain what is meant by overriding and overloading. Give C# examples for **each**.
(5 Marks Each)

(Total 30 Marks)

Question 2 - 35 Marks

A local college has tasked you with creating a Student Enrolment Form written in C#. The form must contain the following controls;

- ✓ Textbox (First Name)
- ✓ Textbox (last Name)
- ✓ Textbox (Address)
- ✓ ComboBox (County)
- ✓ DateTimePicker (DOB)
- ✓ Submit Button
- ✓ Load Button
- ✓ Label to display data

(6 Marks)

- ✓ Correct naming convention of controls

(3 Marks)

When the submit button is clicked the data in the field will be saved to this location as a CSV file. `C:\test\example.csv`

(13 Marks)

When the Load Data Button is clicked the program will load the CSV file and populate the display label.

(13 Marks)

(Total 35 marks)

Question 3 - 35 Marks

Create a C# application which satisfies the following requirements:

1. A class named Library which contains the following properties and methods
 - a. A Catalogue property which contains a list of books
 - i. You must create a class Book with the following details
 1. ISBN
 2. Title
 3. Author
 4. Description
 - ii. You must create a class Books which implements ICollection
 1. You must implement all methods and properties from the interface
 2. You must provide a method to search for a book given its title
 3. You must provide a method to search for a book given its ISBN
 - b. A means by which the user can add a book to the catalogue
 - c. A means by which the user can remove a book from the catalogue
 - d. A means to sort the books by title alphabetically
 - e. A means to sort the books by author, then by title

(10 Marks)

(10 Marks)

(15 Marks)

(Total 35 marks)

Question 4 – 35 Marks

ASTRO ENG requires software to keep track of payments to both full time and part time staff. Full time staff are paid a fixed monthly salary, while part time staff are paid an hourly rate. You are required to develop software to help keep track of company wages. Write a program with the following details

- ✓ A class named Employee. It should have the following:
 - a. Private properties to hold the following information:
 - b. Name
 - c. Id
 - d. Implement a method which accepts a name and id as parameters.

(10 marks)

- ✓ A class named FTStaff which inherits Employee. It should have the following:
 - a. A constructor that allows a name, a staff id and a yearly salary to be passed as parameters
 - b. A private property for setting and retrieving the yearly salary
 - c. A method to CalculateWages which returns the monthly salary.

(7 marks)

- ✓ A class named PTStaff which inherits Employee. It should have the following:
 - a. Properties for the following:
 - i. The hourly rate
 - ii. The amount of hours worked in a month
 - b. A constructor with parameters for specifying the name and the staff id and the hourly rate.
 - c. A constructor with parameters for specifying the name and the staff id, the hourly rate and the number of hours worked in the month.
 - d. An implementation of CalculateWages which will return the amount to be paid to the part time Staff for the amount of hours they have worked

(7 marks)

Note: you must also provide at least one implementation of overriding the ToString method.

(4 marks)

Provide a program which will compile and test your code.

(7 Marks)

(Total 35 marks)