

UNIVERSITI TUNKU ABDUL RAHMAN

ACADEMIC YEAR 2014/2015

SEPTEMBER EXAMINATION

UCCA3224 WEB APPLICATIONS AND TECHNOLOGIES

WEDNESDAY, 3 SEPTEMBER 2014

TIME : 9.00 AM – 11.00 AM (2 HOURS)

BACHELOR OF INFORMATION SYSTEMS (HONS)
INFORMATION SYSTEMS ENGINEERING

Instruction to Candidates :

This question paper consists of TWO (2) questions in Section A and THREE (3) questions in Section B.

Answer **ALL** questions in **Section A** and **ONLY TWO (2)** questions in **Section B**.
Each question carries 25 marks.

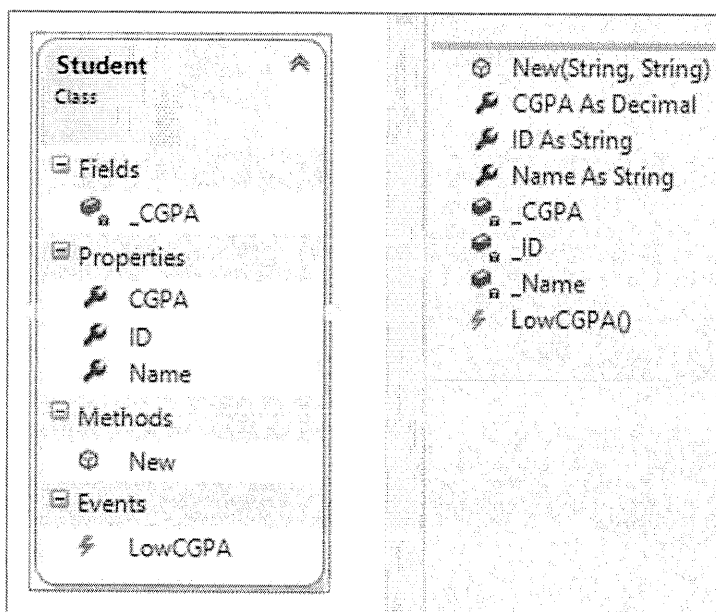
Should a candidate answer more than TWO (2) questions in section B, marks will only be awarded for the FIRST TWO (2) questions in that section in the order the candidate submits the answers.

Candidates are allowed to use calculator.

Answer questions only in the answer booklet provided.

UCCA3224 WEB APPLICATIONS AND TECHNOLOGIES**Section A (Answer ALL Questions)**

- Q1. (a) Briefly explain the difference(s) between client-side web applications and server-side web applications. (5 marks)
- (b) Discuss the main advantages of server-side web applications? (8 marks)
- (c) A developer has developed an ASP.NET web application that has the files Order.aspx, Order.aspx.vb and some other vb files that are located in the App_Code folder. Describe what happens when Order.aspx page is requested for the first time. (12 marks)
- [Total : 25 marks]
- Q2. (a) Write the VB code to create a class called Student that has the design as shown in Figure 1. The class constructor has parameters namely id and name. LowCGPA event will be raised if the CGPA is less than 2.0.

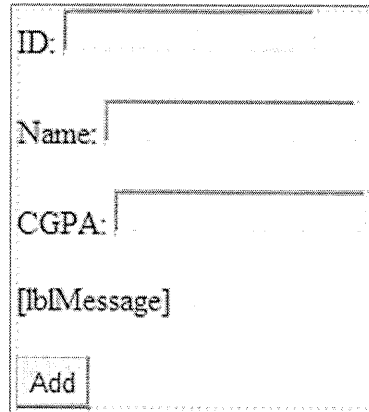
*Figure 1: The Student Class*

(10 marks)

- (b) (i) Write the markup to create the form as shown in Figure 2. [Note: The markup should start from the <form> tag.] (5 marks)

UCCA3224 WEB APPLICATIONS AND TECHNOLOGIES

Q2. (b) (i) (Continued)



The image shows a web form with a rectangular border. Inside the border, there are three text input fields stacked vertically. The first field is preceded by the label 'ID:', the second by 'Name:', and the third by 'CGPA:'. Below these input fields is a label '[lblMessage]'. At the bottom left of the form is a button labeled 'Add'.

Figure 2: A Web Form

- (ii) Write the code-behind so that the web form performs the following:-
- When the Add button is clicked, the content for ID, Name and CGPA will be saved in newStudent that is a Student object.
 - lblMessage will display "Warning! CGPA for student is < 2.0" if CGPA has a value that is less than 2.0 when the Add button is clicked.
 - The content of lblMessage should be cleared everytime the page loads.

(10 marks)

[Total : 25 marks]

UCCA3224 WEB APPLICATIONS AND TECHNOLOGIES**Section B (Answer Only TWO (2) Questions)**

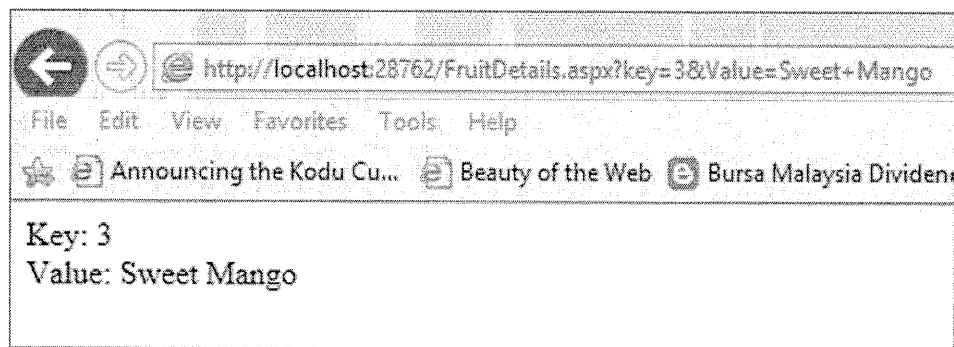
- Q3. (a) Microsoft adds another layer of features to its forms authentication framework known as *membership*. Describe the **THREE (3)** features of membership. (9 marks)
- (b) Explain how membership provider could be configured for a web application. (10 marks)
- (c) A web form was created for creating a user and adding the user to a specific role as shown in Figure 3.

Figure 3: A Web Form for Creating User and Role

- (i) Write the code to handle the click event of the button that will create a user and then call the AddToRole subroutine to add the user to the specified role by passing in the user name and the role to the parameters of the subroutine. The click event handler will then redirect the user to the default page, Default.aspx. (4 marks)
- (ii) Write the code for the AddToRole subroutine. (2 marks)
- [Total : 25 marks]
- Q4. (a) Briefly explain how single-value data binding can be used in an ASP.NET page and give an example of single-value data binding. (5 marks)
- (b) A supermarket would like to create a web form called Fruits.aspx that will list out the fruits the supermarket is selling in a ListBox as shown in Figure 4. When the user clicks on the name of the fruit, the page FruitDetails.aspx will be displayed showing the name of the selected fruit as shown in Figure 5.

UCCA3224 WEB APPLICATIONS AND TECHNOLOGIES

Q4. (b) (Continued)

*Figure 4: Fruits.aspx**Figure 5: Fruit Details*

- (i) A dictionary object is used to store the names of the Fruits and the ListBox will obtain its data from the dictionary object.

Information that needs to be kept in the dictionary object is as follows:

Key	Value
1	Australia Kiwi
2	Golden Pear
3	Sweet Mango

Write the markup and necessary subroutine in the code-behind for the web form Fruits.aspx. [Note: The markup should start from <form> tag.]

(15 marks)

- (ii) Write the necessary subroutine in code-behind for the web form FruitDetails.aspx. A Label control (id: Label1) is used to display the information.

(5 marks)

[Total : 25 marks]

UCCA3224 WEB APPLICATIONS AND TECHNOLOGIES

- Q5. (a) With the aid of a diagram, illustrate how Web API services work with REST. (10 marks)

- (b) A developer has created an MVC application that uses the Web API template. The developer has added **TWO (2)** class files named Category.vb and CategoryDB.vb in the Models folder.

The Category class is as shown below:-

```
Public Class Category
    Public Property CategoryID As String
    Public Property ShortName As String
    Public Property LongName As String
End Class
```

In the CategoryDB class, a function is defined to update a record in the Categories table as shown below:-

```
Public Function UpdateCategory(c As Category) As Integer
    Dim affected As Integer
    Dim sql As String = "UPDATE Categories " &
        "SET ShortName = @ShortName, LongName = @LongName " &
        "WHERE CategoryID = @CategoryID"

    Using con As New SqlConnection(GetConnectionString)
        Using cmd As New SqlCommand(sql, con)
            cmd.Parameters.AddWithValue("CategoryID",
                c.CategoryID)
            cmd.Parameters.AddWithValue("ShortName",
                c.ShortName)
            cmd.Parameters.AddWithValue("LongName",
                c.LongName)
            con.Open()
            affected = cmd.ExecuteNonQuery()
            con.Close()
        End Using
    End Using
    Return affected
End Function
```

- (i) Write the markup for a web page that has the design as show in figure 6.

ID:	Short Name:	Long Name:
<input type="button" value="Update"/>		

Figure 6: A web page that consumes Web API service

When the Update button is clicked, it will call the Javascript function UpdateCat().

[Note: The markup should start from the <body> tag.] (6 marks)

UCCA3224 WEB APPLICATIONS AND TECHNOLOGIES**Q5. (b) (Continued)**

- (ii) Write the Javascript function `UpdateCat()` that uses jQuery `$.ajax` method to update the record entered by the user. The function `showMessage` will be called if the update is successful. Otherwise, the function `showError` will be called if the update failed.

[Note: The base URL of the web service is
`http://localhost:51555/api/categories/` (9 marks)]

[Total : 25 marks]
