



# The University of Fiji



## SCHOOL OF SCIENCE AND TECHNOLOGY

### DEPARTMENT OF COMPUTER SCIENCE / INFORMATION TECHNOLOGY

**FINAL EXAMINATION SEMESTER 1, 2015**

#### **Website Designing & Programming**

**ITC314**

**Time Allowed:** Three hours (3 hours)

(An extra ten minutes is allowed for reading this paper)

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#### **INSTRUCTIONS**

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- 1.0 Write all your answers in the **Answer Book** provided.
- 2.0 There are Nine (9) pages of questions in this Question Booklet (excluding the Cover Page).
- 3.0 Write your **Student Identification Number** on the front page of the **Answer Book**.
- 4.0 If you use extra sheets of paper, be sure to show clearly the question number(s) being answered and to tie each sheet securely in your Answer Book at the appropriate place.
- 5.0 There are **two** sections in this paper, **Section A** consists of 30 multiple choice and is worth 30 marks, and **Section B** consists of 6 Short Answer Questions and is worth 70 marks.  
**Answer all the questions.**
- 6.0 **Programmable calculators** are not allowed.

## Section A: Multiple Choice

(30 Marks)

1. \_\_\_\_ refers to the creation of reusable software objects that can be easily incorporated into another program.
  - a. Object-oriented programming
  - b. Object-based programming
  - c. Functional programming
  - d. Unit programming
2. A \_\_\_\_ is a computer that delivers Web pages.
  - a. Web server
  - b. Web client
  - c. Web delivery agent
  - d. Web agent
3. A(n) \_\_\_\_ is a unique address used for identifying a computer, often a Web server, on the Internet.
  - a. global name
  - b. domain name
  - c. external name
  - d. host name
4. \_\_\_\_ refers to a scripting language that runs on a local browser.
  - a. Server-side scripting
  - b. Server-side includes
  - c. Client-side scripting
  - d. Client-side includes
5. A Visual Studio Solution file has the extension of \_\_\_\_.
  - a. .vsf
  - b. .sln
  - c. .suo
  - d. .vss
6. The \_\_\_\_ declaration belongs in the first line of an XHTML document and determines the document type definition with which the document complies.
  - a. <BASE>
  - b. <!DOCTYPE>
  - c. <HEAD>
  - d. <XHTML>
7. Whenever a request is made for a document with an extension of \_\_\_\_, the Web server sends the file to the scripting engine for processing.
  - a. .aspx
  - b. .asx
  - c. .aspn
  - d. .astx
8. The \_\_\_\_ attribute is required to identify the script section as an ASP.NET program.
  - a. readat="server"
  - b. execute="server"
  - c. hostat="server"
  - d. runat="server"
9. The data that an ASP.NET program receives from a form submission usually takes the form of a text string assigned to the \_\_\_\_ and *Request.Form* collections.
  - a. Request.String
  - b. Request.Input
  - c. Request.QueryInput
  - d. Request.QueryString
10. View state is maintained by assigning the form values to a hidden form field named \_\_\_\_.
  - a. \_\_STATE
  - b. \_\_VIEW
  - c. \_\_VIEWSTATE
  - d. \_\_VIEWSTATE\_STATE

11. With HTML, you can use the \_\_\_\_ element to create a selection list that presents users with fixed lists of options from which to choose.
- a. <list>
  - b. <option>
  - c. <select>
  - d. <item>
12. The \_\_\_\_ control ensures that a value is entered into a specified field.
- a. RequiredValidator
  - b. FieldValidator
  - c. RequiredField
  - d. RequiredFieldValidator
13. To ensure that values are of a specific data type, you need to use the \_\_\_\_ control.
- a. Validator
  - b. Comparator
  - c. CompareValidator
  - d. RangeValidator
14. The field that is to be validated is identified by the \_\_\_\_ property.
- a. ObjectToValidate
  - b. ControlToValidate
  - c. ValidateControl
  - d. ValidationControl
15. The syntax for using the *Replace()* method to replace all instances of text within a text string is \_\_\_\_.
- a. *string.Replace(oldText, newText)*
  - b. *string.Replace(newText, oldText)*
  - c. *oldText.Replace(newText)*
  - d. *string.Replace(oldText).(NewText)*
16. The statement *response.write("Hello World");* causes a syntax error because \_\_\_\_.
- a. the Response object is incorrectly typed with a lowercase r
  - b. the statement should be *write.response*
  - c. the literal should be in single quotes
  - d. there is no such method as *write* for the response object
17. \_\_\_\_ are flaws in a program's design that prevent the program from running as you anticipate.
- a. Syntax errors
  - b. Link errors
  - c. Logic errors
  - d. Runtime errors
18. To trace a problem, you can place a \_\_\_\_ statement at the point in the program where you think the error might be located.
- a. *Response.Console()*
  - b. *Response.Write()*
  - c. *Response.Log()*
  - d. *Response.Print()*
19. To redirect the Web browser to an error page from an error event handler, you must pass the name of the page to the \_\_\_\_ method.
- a. *System.Redirect()*
  - b. *System.Rewrite()*
  - c. *System.Transpose()*
  - d. *System.Transfer()*
20. You use the \_\_\_\_ method to clear errors.
- a. *System.Transfer()*
  - b. *System.ClearError()*
  - c. *Server.ClearError()*
  - d. *System.ClearError()*

- b. `System.ClearError()`                      d. `Server.Clear()`
21. To use delimited identifiers in SQL statements, you must contain them within \_\_\_\_.
- a. `""` or `\\`                      c. `""` or `{}`
  - b. `"` or `[]`                      d. `""` or `[]`
22. The syntax for the *CREATE TABLE* statement is as follows: \_\_\_\_.
- a. `INSERT TABLE table_name (column_name TYPE, ...);`
  - b. `NEW TABLE table_name (column_name TYPE, ...);`
  - c. `ALTER DATABASE NEW TABLE table_name (column_name TYPE, ...);`
  - d. `CREATE TABLE table_name (column_name TYPE, ...);`
23. The basic syntax for a *SELECT* statement is as follows: \_\_\_\_.
- a. `SELECT criteria FROM table_name;`
  - b. `SELECT criteria FROM TABLE table_name;`
  - c. `SELECT CRITERIA criteria FROM table_name;`
  - d. `SELECT criteria OUT OF table_name;`
24. You use the \_\_\_\_ keyword with the *SELECT* statement to perform an alphanumeric sort of the results returned from a query.
- a. `INTO`                      c. `WHERE`
  - b. `ORDER BY`                      d. `WHEN`
25. ODBC uses \_\_\_\_ commands to allow an ODBC-compliant application to access a database.
- a. `SQLDB`                      c. `DBSQL`
  - b. `OSQL`                      d. `SQL`
26. The components that make up the Universal Data Access technology are called the \_\_\_\_.
- a. Microsoft Data Components                      c. Microsoft Database Components
  - b. Microsoft Data Access Components                      d. Microsoft Data Activity Connection
27. The first step in working with a SQL Server database in ASP.NET is to create an object of the *SqlConnection* class using the following syntax: \_\_\_\_.
- a. `Object $SqlConnection = new SqlConnection("connection string");`
  - b. `SqlConnection object("connection string");`
  - c. `SqlConnection object.new("connection string");`
  - d. `SqlConnection object = new SqlConnection("connection string");`
28. If you instantiate a *SqlDataReader* object named *empRecords* for the Employees database, you can refer to the *first\_name* field by using a statement similar to \_\_\_\_.
- a. `empRecords.first_name;`
  - b. `empRecords("first_name");`
  - c. `empRecords["first_name"];`
  - d. `empRecords.access("first_name");`

29. To add multiple records to a database, you use the *BULK INSERT* statement and the \_\_\_\_\_ function with a local text file containing the records you want to add.

- a. ExecuteNoReturn()
- b. ExecuteVoid()
- c. ExecuteNoData()
- d. ExecuteNonQuery()

30. To delete a table, you use the \_\_\_\_\_ statement with the *ExecuteNonQuery()* function.

- a. DELETE TABLE
- b. DELETE STRUCT TABLE
- c. DROP TABLE
- d. CLEAR TABLE

## **Section B: Short Answer Questions**

### **Question 1**

**(10 Marks)**

- a) What's the use of *Response.Output.Write()*? (1)
- b) In which event of page cycle is the *ViewState* available? (1)
- c) What is the difference between *Server.Transfer* and *Response.Redirect*? (2)
- d) What are the different validators in ASP.NET? (2)
- e) Where the *viewstate* is stored after the page *postback*? (1)
- f) What is *caching*? (1)
- g) List the events in page life cycle. (2)

### **Question 2**

**(10 Marks)**

This section is dedicated to ASP.NET.

- a) In creating Web applications in ASP.NET, there are three ways in which you can integrate programming codes with your HTML codes. List these three methods. (1.5)
- b) Figures 1, 2 and 3 below shows the result in running a simple Web application called Check Box. This application was discussed in class. This Web application has three server controls: a check box, a label and a button. User click to check or uncheck the check box and then click the submit button. By clicking the submit button, a message will be displayed in the Label as in Figures 4 (checkbox being checked) and 5 (checkbox being unchecked). Use these figures and later information to answer the questions that follow.

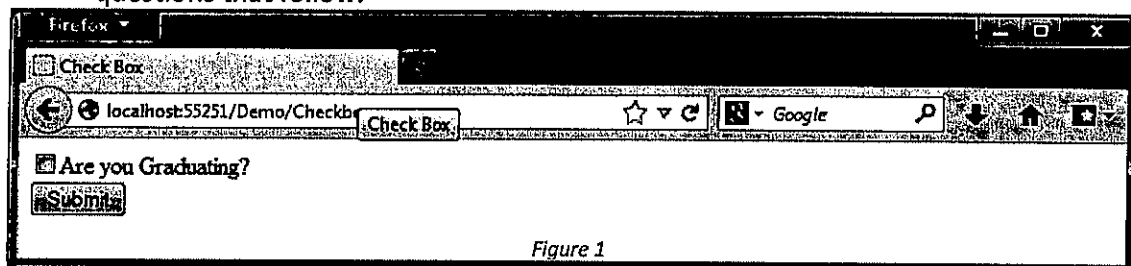


Figure 1

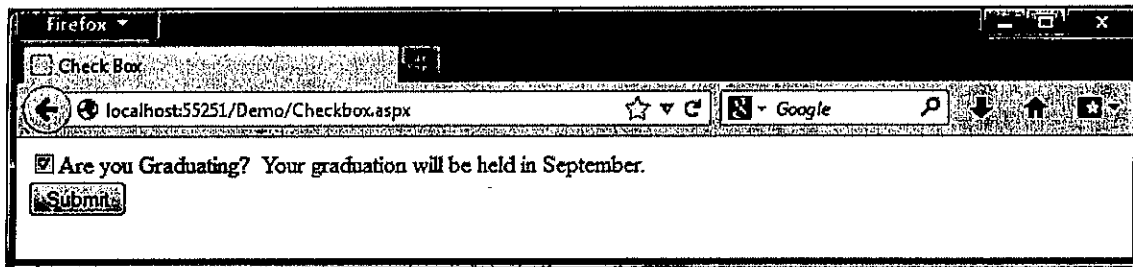


Figure 2

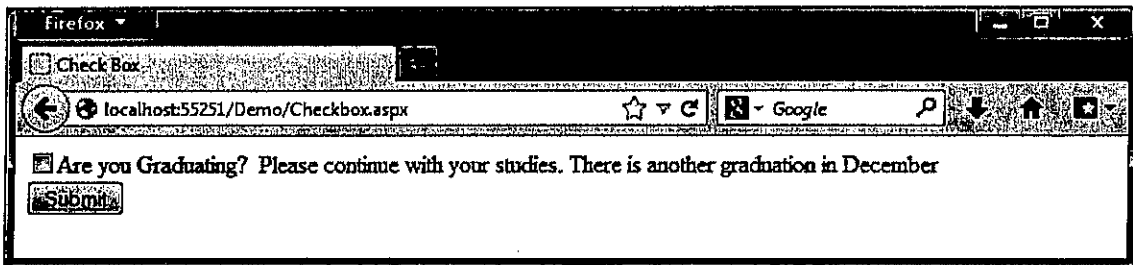


Figure 3

- i. Figure 4 given below is the source view of the Web form for the Check Box application with the body section being hidden. Write the codes that appear in a new Web form body section, before you even add any content. (2)

```
<%@ Page Language="C#" AutoEventWireup="true" CodeFile="Default.aspx.cs" Inherits="_Default" %>
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
<title></title>
</head>
<body>...</body>
</html>
```

Figure 4

- ii. The **general syntax** of a Web server control is given below as well as an example of Text Box server control. Every time you add a new server control, it comes with two important properties or attributes: **ID** and **Runat**. Other attributes can be added as required. (3)

**General Syntax:**

`<asp:TypeOfControl ID = "ControlName" Runat = "Server" />`

**Example:**

`<asp:TextBox ID = "TextBox1" runat = "server" ></asp:TextBox >`

Write the ASP.NET/HTML codes to complete the body section of the Web form for the Checkbox application.

[Hints: Study Figures 1 to 3 in order to identify additional properties or attributes you need to add to each control. In each server control case you only need to add one more property or attribute. For the Label server controls, the color of the text

displayed is red. You set the color by adding and setting the property or attribute called **ForeColor**. Also consider adding space and line break.]

- iii. Figure 5 below shows the content of *Checkbox.aspx.cs*, the code behind the file for the Check Box application. Write the appropriate C# codes that will complete the button click event handler, *Button1\_Click*. Remember that clicking on the button, a message will be displayed in the Label depending if the check box is checked or not. (3.5)

```

public partial class _Default : System.Web.UI.Page
{
    protected void Page_Load(object sender, EventArgs e)
    {

    }
    protected void Button1_Click(object sender, EventArgs e)
    {

    }
}

```

Figure 5

### Question 3

(10 Marks)

- What is Cross Page Posting? (1)
- What is boxing and unboxing? (2)
- Which data types does the *RangeValidator* control support? (1)
- What is the difference between a *HtmlInputCheckBox* control and a *HtmlInputRadioButton* control? (2)
- What are the components of ADO.NET? (1)
- What is the difference between *ExecuteScalar* and *ExecuteNonQuery*? (2)
- How we can force all the validation controls to run? (1)

### Question 4

(20 Marks)

- The rich data controls are quite a bit different from the simple list controls—for one thing, they are designed exclusively for data binding. What does the rich data controls includes. (2)
- Given are the sets of codes for running an ASP.net query from a database. Answer the questions that follow the codes.
  - protected void Page\_Load(object sender, EventArgs e)*
  - {*
  - // Define the connection string*
  - string selectSQL =*  
*"SELECT ProductID, ProductName, UnitPrice FROM Products";*
  - SqlConnection con = new SqlConnection(connectionString);*

```

6) SqlCommand cmd = new SqlCommand(selectSQL, con);
7) SqlDataAdapter adapter = new SqlDataAdapter(cmd);
8) DataSet ds = new DataSet();
9) adapter.Fill(ds, "Products");
10)    GridView1.DataSource = ds;
11)    GridView1.DataBind();
12)}

```

i. Define the connection string in line 3 that will connect to database *Northwind* so that it runs the query in line 4 and name the string as *connectionString*. (1)

ii. What will lines 4 – 9 do when the following lines are executed? (2)

c)

```
< asp: BoundField DataField = "ProductID" HeaderText = "ID" />
```

This tag demonstrates how you can change the header text at the top of a column from *ProductID* to just *ID*.

The following tag gives a complete *GridView* declaration with explicit columns:

```

< asp: GridView ID = "GridView1" runat = "server" DataSourceID
    = "sourceProducts"
    AutoGenerateColumns = "False" >
    < Columns >
    < asp: BoundField DataField = "ProductID" HeaderText = "ID" />
    < asp: BoundField DataField = "ProductName" HeaderText
        = "Product Name" />
    < asp: BoundField DataField = "UnitPrice" HeaderText = "Price" />
    </Columns >
</asp: GridView >

```

List down what are some of the advantages of explicitly defining columns. (2)

d) The following codes handles the *RowDataBound* event and changes the

background color to highlight high prices (those more expensive than \$50):

```
protected void grid_RowDataBound(object sender, GridViewRowEventArgs e)
```

```

{
    if (e.Row.RowType == DataControlRowType.DataRow)
    {
        decimal price = (decimal)DataBinder.Eval(e.Row.DataItem, "UnitPrice");
        if (price > 50)
        {
            e.Row.BackColor = System.Drawing.Color.Maroon;
            e.Row.ForeColor = System.Drawing.Color.White;
            e.Row.Font.Bold = true;
        }
    }
}

```

Explain what the event is doing keeping in mind the codes inside its method. (2)

- e) Describe what are the major differences between *Details View* and *Form View*? Also list down some of the templates provided by the Form View. (2.5)
- f) The basic principle of data binding is this: you tell a control where to find your data and how you want it displayed, and the control handles the rest of the details. There are two types of data binding that exists, explain what these two types of data binding are. (2)
- g) Before you start using single-value data binding techniques in every aspect of your ASP.NET programs, you should consider some of the serious drawbacks this approach can present. List down what are these drawbacks. (2)
- h) Draw the output for the following line of codes. (2.5)

```
protected void Page_Load(Object sender, EventArgs e)
{
    List < string > fruit = new List < string > ();
    fruit.Add("Kiwi");
    fruit.Add("Pear");
    fruit.Add("Mango");
    fruit.Add("Blueberry");
    fruit.Add("Apricot");
    fruit.Add("Banana");
    fruit.Add("Peach");
    fruit.Add("Plum");
```

*// Define the binding for the list controls.*

```
MyListBox.DataSource = fruit;
MyDropDownListBox.DataSource = fruit;
MyHtmlSelect.DataSource = fruit;
MyCheckBoxList.DataSource = fruit;
MyRadioButtonList.DataSource = fruit;
```

*// Activate the binding.*

```
this.DataBind();
}
```

- i) In most ASP.NET applications, you'll need to use a database for some tasks. What are some basic examples of data at work in a web application? (2)

### **Question 5**

**(10 Marks)**

- a) What does the following CSS do?

*P {font – family: Verdana, Arial, Helvetica; }*

**(1)**

- b) User controls look pretty much the same as ASP.NET web forms. Like web forms, they are composed of a *markup* portion with HTML and control tags (the . *ascx* file)

and can optionally use a code-behind file with event-handling logic. List down the differences between user controls and web pages? (2)

- c) When using automatic validation, the user receives a normal page and begins to fill in the input controls. When finished, the user clicks a button to submit the page. Every button has a *CausesValidation* property, which can be set to true or false. What happens when the user clicks the button depends on the value of the *CausesValidation* property. (2)
- d) Write down the regular expressions to validate some of the contents provided in the table given below. Also provide each description for the regular expression given. (5)

| Content                   | Regular Expression | Description |
|---------------------------|--------------------|-------------|
| E-mail address            |                    |             |
| Password                  |                    |             |
| Specific-length password  |                    |             |
| Advanced password         |                    |             |
| Another advanced password |                    |             |

**Question 6** (10 Marks)

- a) Why do you use the *App\_Code* folder in ASP.NET? (1)
- b) What is an ASP.NET Web Form? (1)
- c) What is Query String? What are its advantages and limitations? (3)
- d) How can you display all validation messages in one control? (1)
- e) Differentiate between client-side and server-side validations in Web pages. (2)
- f) How does a content page differ from a master page? (1)
- g) What is the default timeout for a Cookie? (1)

**End of Paper.**