

The University of Fiji

Undergraduate Programme
Department of Computer Science & Information Technology
Semester 1 Year 2019

FINAL COURSE EXAMINATION PAPER

ITC 314 – WEB DESIGN & PROGRAMMING

Important Instructions to Students:

1. Read the questions, instructions carefully and answer the questions.
2. You are allowed an **extra 10 minutes reading time** (during this time, you are not allowed to write with a pen) and **180 minutes (3 Hours) to complete this paper**.
3. Silent, non-programmable calculators are allowed, but not supplied.
4. Write all your answers in the answer booklet provided. If you need extra sheets, please ask the supervisor. Write your name, course code and student identification number in the answer booklet and on the attendance sheet.
5. **This Final Course Examination Paper is worth 100 marks contributes 50% of the total course assessments.**
6. This paper contains two (2) sections.
7. Write all your answers legibly. The marker has the right to award zero for answers that are not legible.
8. This is a **Closed Book Examination**. The University views plagiarism, cheating and dishonest practice as serious offences and if found, offenders are penalized.

Examination Paper Content (Format):

<u>Section</u>	<u>Question</u>	<u>Content</u>	<u>Marks</u>	<u>Suggested Time</u>
A	1-3	Short Answer Questions	80	144 minutes
B	2	Long Answer Question	20	36 minutes
		TOTAL	100	180 Minutes

All questions in this section are compulsory.

Question 1: Introduction to ASP.NET & C#**[38 Marks]**

- A. Define these acronyms: MVC, IIS, ASP, HTTP, HTTPS, WWW, VWD, and IDE. **[2]**
- B. Referring to the image provided below, explain all the relevant information such as the elements used in the website together with its meaning. **[2]**

```
1 <%@ Page Language="C#" AutoEventWireup="true"
2   CodeFile="Default.aspx.cs" Inherits="_Default" %>
3
4 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
5   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
6
7 <html xmlns="http://www.w3.org/1999/xhtml">
8 <head runat="server">
9   <title></title>
10 </head>
11 <body>
12   <form id="form1" runat="server">
13     <div>
14
15     </div>
16   </form>
17 </body>
18 </html>
```

Figure 1: ASP.Net Website

- C. For the following, name the element and define its purpose: **[2]**
- I. <p>
 - II. <h1>
 - III. <h2>
 - IV. </panel>
 - V. </p>
 - VI.
 - VII. <i>
 - VIII.
- D. Describe the term *private* and *public* that is used in the C# program with appropriate examples. **[1]**
- E. What do you need to do to make a piece of text both bold and italicized in your web page?
What will the resulting HTML look like? **[1]**

- F. Suppose you have dragged and dropped a textbox control on your design pane. How will you change its ID from TextBox1 to firstNameTxt and how will you apply the bold and italics properties on that textbox? [1]
- G. Imagine you have a number of HTML fragments that you expect to use a lot throughout the site. What's the best way to make these fragments available in VWD? [1]
- H. What are the ways to create structured web sites that are easy to manage, now and in the future? [1]
- I. What is the difference between In-line Code and Code Behind? What are the files associated with each of them? [2]
- J. As you already know by now C# is an object-oriented language. List and describe any four objects you have used while designing your website. It can be said that objects are known as controls which are part of the toolbox in your VWD. [2]
- K. How do you provide your HTML elements on a page with access to styles from an external style sheet? [1]
- L. What do you understand by the term variable? How would someone declare a variable? Is a variable different from a constant? If so, explain how? [2]
- M. What is the purpose of <asp:HyperLink> control? [1]
- N. It is said that Naming Conventions play an important role in all programming languages. They ensure that names are declared properly and are case sensitive. List and describe the three naming conventions you know of with appropriate examples. [1.5]
- O. Write a *for loop* to get the output in the Textbox as "ABC0_ ABC10_ ABC20_ ABC30_ ABC40_ ABC50_ ABC60_". [2]
- P. Write a *foreach loop* to get the output in the textbox as "Iron Man, Captain America, The Hulk, The Avengers, Spiderman, Captain Marvel, Shazam, Superman, Batman" The entire output should be represented *inline*. [2]
- Q. Write a *while loop* to get the output in the Textbox as -100@, -90@, -80@, -70@, -60@ -50@. [2]
- R. Write a *do while loop* to get the output in the Textbox as "1.01, 10.02, 19.03, 28.04, 37.05, 46.06, 55.07,". [2]
- S. Write series of classes that combines three separate strings together "THIS", "IS", and "ITC314" and shows it in the output textbox as "THIS IS ITC314". [2]

- T. Write a switch case that shows the result when user enters an appropriate GPA. Follow the scenario below to understand how the code structure should be executed. 4.5 = A+, 4.0 = A, 3.5 = B+, B = 3.0, C+ = 2.5, C = 2.0, D = 1.5, E = 1.0, so if user enters GPA as 4.5 then the result as output should be "The Grade is A+". [2]
- U. What is the purpose of having an Array? Explain the following array methods: Reverse, Sort, Find, and IndexOf. [2.5]
- V. A class is an important factor of an application and making a simple *C# Class* consists six basic things, list them down. [3]

Question 2: Forms and Controls

[27 Marks]

- A. Describe some of the HTML Web Controls and identify how they are related or similar to the ASP.NET Controls. [1.5]
- B. Differentiate the following with examples: [3]
- I. Subroutines
 - II. Functions
 - III. Methods
- C. Can you use any event handler name you want? What if I wanted to use "Page_ Load" as an event handler name for a button? [1]
- D. A hyperlink control in the ASP.NET web application has five target properties, list and describe at least four of the five target properties. [1]
- E. What is the purpose of the AdRotator Web Server Control in ASP.NET? [1]
- F. For each of the following, describe what it does in ASP.NET based websites and for each give appropriate examples. [3]
- I. RequiredFieldValidator,
 - II. RangeValidator,
 - III. RegularExpressionValidator,
 - IV. CompareValidator,
 - V. CustomValidator
 - VI. ValidationSummary
- G. What is *Intellisense* and how it helps people who use Visual Studios? [1]
- H. Differentiate between a RadioButton and RadioButtonList. Also, identify under what circumstances you would choose one over the other. [2]

- I. What are the three different ways of generating control events (such as for a button or textbox)? [1.5]
- J. Write a series of IF conditions that will output the result as the selected options. Refer to the below image for a better understanding. [3]

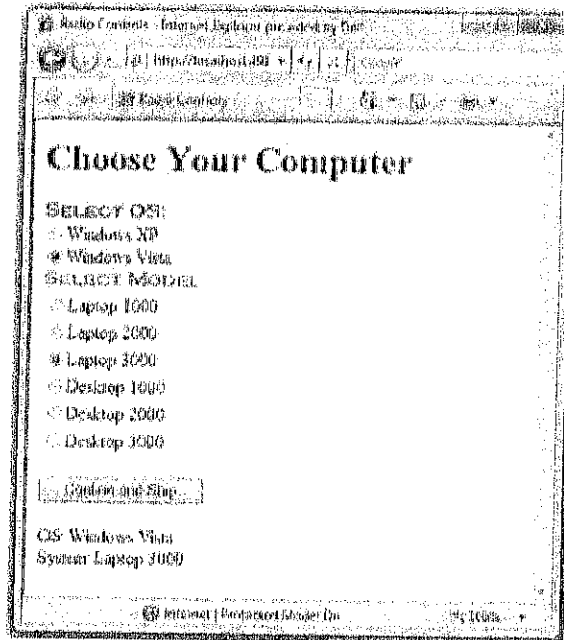


Figure 2: Resulting Website

- K. Write the series of codes that will show a picture named "MoonLight.png" to an Image control called ImageView. [1]
- L. Differentiate the following: [1]
- I. TextBox
 - II. Label
 - III. Literal
 - IV. Panel
- M. Differentiate between a ListBox and DropDownList, how would one add items to it and what if the items added needs its value property to be filled in so that some calculations can be carried out. [1.5]
- N. When you drag and drop a button control to design view and go to the events in properties section, you will come across these following events and for each describe what it does: [2]
- a. Click
 - b. Command
 - c. DataBinding
 - d. Disposed
 - e. Init
 - f. Load

- g. PreRender
- h. Unload

O. Explain why is it necessary for a programmer or developer to implement some sort of validation controls in the website? Provide appropriate examples. [1.5]

P. What is the difference between client-side validation and server-side validation? Provide appropriate examples. [2]

Question 3: ASP.NET and Databases

[15 Marks]

All questions in this section are 1 mark each.

- A. With SQL, how do you select a column named "FirstName" from a table named "EMPLOYEE"?
- B. With SQL, how do you select all the columns from a table named "EMPLOYEE"?
- C. With SQL, how do you select all the records from a table named "EMPLOYEE" where the value of the column "FirstName" is "John"?
- D. With SQL, how do you select all the records from a table named "EMPLOYEE" where the value of the column "FirstName" starts with an "a"?
- E. The OR operator displays a record if ANY conditions listed are true. The AND operator displays a record if ALL of the conditions listed are true
- F. With SQL, how do you select all the records from a table named "EMPLOYEE" where the "FirstName" is "John" and the "LastName" is "Smith"?
- G. With SQL, how do you select all the records from a table named "EMPLOYEE" where the "LastName" is alphabetically between (and including) "Tom" and "Hardy"?
- H. Which SQL statement is used to return only different values?
- I. Which SQL keyword is used to sort the result-set?
- J. With SQL, how can you return all the records from a table named "EMPLOYEE" sorted descending by "FirstName"?
- K. With SQL, how can you insert a new record into the "EMPLOYEE" table?
- L. With SQL, how can you insert "Rebecca" as the "LastName" in the "EMPLOYEE" table?

- M. How can you change "Hardy" into "Harrison" in the "LastName" column in the EMPLOYEE table?
- N. With SQL, how can you delete the records where the "FirstName" is "John" in the EMPLOYEE Table?
- O. With SQL, how can you return the number of records in the "EMPLOYEE" table?

SECTION B: Long Answer Question

20 Marks

All questions in this section are compulsory

1. You are required to write codes for a website that can help people calculate loan payments. The application should be able to narrow down the loan payment on a weekly, monthly, and yearly basis.

You will require a class where the information's such as loan amount, interest rate, and number of years can be sent to methods for calculation. Within the class, you can have as many as three methods for calculating weekly, monthly, and yearly loan payments and then returning the final amount to the main program. You have to show results in three separate labels.

Formula: Loan interest is calculated on the loan amount (e.g. \$10,000 x 8%), you will get \$800.00 interest per year, this will then be multiplied by the number of years (e.g. \$800 x 3 = \$2400). So your total loan amount is \$10,000 + \$2,400. Next, you simply need to show the final loan payment of \$12,400 in weekly, monthly, and yearly terms.

Refer to the images below for more clarifications.

The screenshot shows a web form titled "Loan Calculator". It contains three input fields: "Enter Loan Amount:" with the value "10000", "Select Interest Rate:" with radio buttons for 7.50%, 8.00% (selected), 9.00%, and 15.00%, and "Number of Years:" with a dropdown menu showing "3". Below these fields is a "Calculate" button. At the bottom, there are three labels showing the results: "Weekly Payment: \$79.43", "Monthly Payment: \$344.44", and "Yearly Payment: \$4,133.33".

Figure 3: Resulting Website

[10]

2. Suppose you are to create a registration site for university students which will have numerous fields and whatever entries the students make should be sent to the database for records. Refer to the below figure, you are to write down the insert functionality of the website that will be the entire button code as soon as students fill out all of their information and clicks on submit button.

[10]

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On-line Registration Site

Fill out the details in the respective fields than proceed by pressing the submit button.

Section A: Personal Details

First Name:	Sanjay	Middle Name:	Kumar
Last Name:	Singh	Date of Birth:	18/08/1987
Select Country:	New Zealand	Select Town:	Auckland
Gender:	☒ Male ☐ Female	Postal Address:	P.O.Box, 1234, Auckland
Street Address:	123 Johnson Road	Marital Status:	Married
Phone Number:	98864455	Mobile Number:	99998877
Email Address:	sks@hotmail.com		

Section B: Medical Record

Name of Next of Kin:	Rama Singh Kumar	Address:	456 Hospital Road
Phone Number:	98888899	Relationship:	Father

Do you suffer from any medical condition: ☒ Yes ☐ No

If yes than please give details:

Section C: Programme and Majors

Enter the choices 1st, 2nd and 3rd below.

1st Choice:	BIT	2nd Choice:	BCom
3rd Choice:	MBBS		

☒ I verify that the information provided by me is correct.

Figure 4: Registration System

THE END