



The University of Fiji

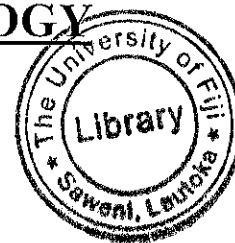
(An Entity of Arya Pratinidhi Sabha of Fiji)



SCHOOL OF SCIENCE AND TECHNOLOGY

Semester 1: Year 2023

FINAL EXAMINATION PAPER



ITC314: WEB DESIGN AND 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 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 from the supervisor. Write your name, course code and student identification number in the answer booklet and in the attendance sheet.
5. **This Final Examination Paper is worth 100 marks contributes 50% of the total course assessments.** Students must **at least score 40%** in this final exam to pass the course.
6. This paper contains one (1) section A. All questions are compulsory to answer within the section.
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	1-4	Short Answer Questions	100	180 minutes
		TOTAL	100	180 Minutes

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Registration Certificate Number (RGN0020/11)

All questions within this section are compulsory.

Question 1: HTML & CSS**[40 Marks]**

- A. Imagine you are creating a webpage for a restaurant. Explain the purpose of the <head> section in an HTML document and provide some examples of elements commonly placed within it. **[2 Marks]**
- B. You are designing a webpage to display a product catalog. Explain the difference between <div> and tags in HTML, and provide scenarios where you would use each of them. **[2 Marks]**
- C. You are building a personal website and want to create a navigation menu. How would you create a hyperlink in HTML to link different pages of your website? Provide an example of how you would structure the HTML code. **[2 Marks]**
- D. Suppose you are creating a webpage to display the results of a survey. Describe the purpose of the <table> tag in HTML and explain how you would create a basic table structure to present the survey results. **[2 Marks]**
- E. You are working on an HTML document and want to apply an external CSS file to style the webpage. Explain how you would include the external CSS file in your HTML document and provide an example. **[2 Marks]**
- F. You are designing a blog post page. Explain the purpose of the <header> and <footer> tags in HTML, and provide examples of content that you would typically include in each of these sections. **[2 Marks]**
- G. Imagine you are creating a website for a photography portfolio. How would you use the tag in HTML to display an image on your webpage? Provide an example of how you would specify the image source, alt text, and width attributes. **[2 Marks]**
- H. You are developing a contact form for a website. How would you create a text input field and a textarea field using HTML? Include the necessary HTML tags and attributes in your example. **[2 Marks]**
- I. Suppose you are building a webpage to showcase a collection of videos. Explain how you would embed a YouTube video on your webpage using HTML. Provide an example of the HTML code required. **[2 Marks]**
- J. Imagine you are designing a pricing page for a software product. How would you create a pricing table using HTML? Include the necessary HTML tags and attributes to structure the table and display the pricing details. **[2 Marks]**
- K. You are working on a webpage that requires a bulleted list. Explain how you would create an unordered list using HTML. Include an example of how you would add list items within the unordered list. **[2 Marks]**

- L. Suppose you are building an online store and need to display a product image gallery. How would you create an image carousel using HTML? Describe the HTML structure and any additional CSS or JavaScript required. *[2 Marks]*
- M. You are developing a registration form that requires users to select their country from a dropdown list. Explain how you would create a dropdown/select list using HTML, and provide an example with at least three country options. *[2 Marks]*
- N. Imagine you are creating a webpage for a music festival and want to add audio playback. How would you embed an audio file on your webpage using HTML? Provide an example of how you would specify the audio source and add playback controls. *[2 Marks]*
- O. You are building a webpage for a restaurant menu and need to display a table of menu items with different columns. How would you create a table with multiple columns using HTML? Provide an example that includes columns for item name, description, and price. *[2 Marks]*
- P. You are designing a website header that needs to have a background color, centered text, and a specific height. How would you use CSS to style the header element? Provide an example of CSS code to achieve the desired styling. *[2 Marks]*
- Q. Imagine you are creating a webpage with a navigation menu. How would you use CSS to style the navigation menu items as a horizontal bar with equal spacing between them? Provide an example of CSS code to achieve this layout. *[2 Marks]*
- R. You are working on a webpage that requires a paragraph with a specific font size, font family, and text color. How would you use CSS to style the paragraph element? Provide an example of CSS code to achieve the desired styling. *[2 Marks]*
- S. Suppose you are designing a form that needs to have consistent styling for all input fields, including a specific border, background color, and padding. How would you use CSS to style the input fields? Provide an example of CSS code to achieve the desired styling. *[2 Marks]*
- T. You are working on a webpage that requires a responsive, centered layout with a maximum width. How would you use CSS to create a responsive, centered container with a maximum width? Provide an example of CSS code to achieve this layout. *[2 Marks]*

Question 2: ASP.NET & C#**[25 Marks]**

- A. Write an if then else statement to display the corresponding grade when a user enters a valid GPA. To better comprehend the code structure execution, refer to the following scenario: 4.5 is equivalent to A+, 4.0 corresponds to A, 3.5 corresponds to B+, 3.0 corresponds to B, 2.5 corresponds to C+, 2.0 corresponds to C, 1.5 corresponds to D, and 1.0 corresponds to E. For instance, if the user enters a GPA of 4.5, the output should be "The Grade is A+". *[5 Marks]*

- B. For each of the following, describe what it does in ASP.NET based websites and for each give appropriate examples. **[6 Marks]**
- I. RequiredFieldValidator,
 - II. RangeValidator,
 - III. RegularExpressionValidator,
 - IV. CompareValidator,
 - V. CustomValidator
 - VI. ValidationSummary
- C. Differentiate between a RadioButton and RadionButtonList. Also, identify under what circumstances you would choose one over the other. **[2 Marks]**
- D. What is Intelisense and how it helps people who use Visual Studios? **[2 Marks]**
- E. 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. **[2 Marks]**
- F. Why is it crucial for programmers or developers to incorporate validation controls into a website? Support your explanation with relevant examples. **[2 Marks]**
- G. Imagine you are developing a web application using ASP.NET. Explain the role of the ASP.NET page lifecycle and describe the different stages involved. How does understanding the page lifecycle help in developing robust web applications? **[4 Marks]**
- H. Imagine you are working on a large web application that consists of multiple pages with a consistent layout and design. Explain the purpose of master pages in ASP.NET and discuss how they help in achieving a consistent look and feel across all pages of the application. Provide an example scenario where using master pages would be beneficial. **[2 Marks]**

Question 3: SQL Database

[20 Marks]

Scenario - You are developing a web-based inventory management system for a retail store. The system needs to store and manage information about products, categories, suppliers, and stock levels. The SQL database will be used to store and retrieve the data necessary for the system's operation.

- A. What are the essential database tables required for this inventory management system? Provide a brief description of each table's purpose and the columns it should contain. **[2 Marks]**
- B. Assume the "Products" table in the database stores information about each product, including its unique ID, name, price, category ID, and supplier ID. Write an SQL query to retrieve the name and price of all products in the "Electronics" category. **[2 Marks]**

- C. How would you establish a database connection in your ASP.NET application to interact with the SQL database? Explain the necessary steps involved in establishing the connection and accessing the database using C# code. *[2 Marks]*
- D. The inventory management system requires a feature to add new products to the database. Describe how you would implement an SQL query to insert a new product record into the "Products" table, including the necessary columns and sample data. *[2 Marks]*
- E. The store manager wants to view a report of low stock products. Write an SQL query that retrieves the product name, category, and stock quantity for all products with a stock level below a specified threshold, such as 10. *[2 Marks]*
- F. Explain how you can implement data validation in your ASP.NET application when inserting or updating records in the SQL database. Discuss techniques to validate user input and prevent the insertion of invalid or harmful data. *[2 Marks]*
- G. The inventory management system needs to support searching for products based on their names or categories. Write an SQL query that retrieves the product name, price, and category for all products that match a given search term. *[2 Marks]*
- H. Describe the process of updating an existing product's information in the SQL database. Explain how you would construct an SQL query to update specific columns of a product record, such as changing the price or category. *[2 Marks]*
- I. The inventory management system needs to maintain information about suppliers. Describe how you would design and implement a table in the SQL database to store supplier details such as ID, name, address, and contact information. *[2 Marks]*
- J. The store manager wants to generate a monthly sales report. Write an SQL query that retrieves the total sales amount for each product, grouping them by category, for a specified month and year. *[2 Marks]*

Question 4: Programming**[15 Marks]**

You are tasked with developing a website that provides a loan payment calculator to assist individuals in calculating their loan payments. The application should offer the ability to determine loan payments on a weekly, monthly, and yearly basis. You have the flexibility to implement this functionality either through a function or directly within a button's code. Additionally, the results should be presented in three distinct labels.

To calculate the loan interest, utilize the following formula: Multiply the loan amount (e.g., \$10,000) by the interest rate (e.g., 8%) to obtain \$800.00 in interest per year. Next, multiply this yearly interest amount by the number of years (e.g., $\$800 \times 3 = \$2,400$). Consequently, the total loan amount will be the sum of the initial loan amount and the interest, resulting in $\$10,000 + \$2,400$. Lastly, display the final loan payment of \$12,400 in weekly, monthly, and yearly terms.

Please refer to the accompanying images for additional clarification and guidance. Write all the codes that will be part of the code behind file. Please note, you do not have to write any frontend/interface codes. You can choose either C# or VB.

Loan Calculator

Enter Loan Amount:

Select Interest Rate: ☐ 7.50%
☒ 8.00%
☐ 9.00%
☐ 15.00%

Number of Years:

Calculate

Weekly Payment: \$79.49
Monthly Payment: \$344.44
Yearly Payment: \$4,133.33

THE END...