CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)
NORTHERN ZONE JOINT EXAMINATIONS SYNDICATE (NZ-JES)

FORM TWO PRE-NATIONAL ASSESSMENT AUG 2025
COMPUTER PROGRAMMING

MARKING GUIDE

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(a) Technologies for a Simple Website

To design a simple website for a local shop, you would use a combination of

HTML, CSS, and JavaScript.

HTML (Hypertext Markup Language): This is the foundational language for creating the structure and content of a web page. You would use HTML to define the different elements of the website, such as headings, paragraphs, images, and forms, to present information about the shop and its products

CSS (Cascading Style Sheets): This language is used for styling the appearance of a website. You would use CSS to control the colors, fonts, layout, and overall visual design to make the shop's website look appealing and professional.

JavaScript: This is a client-side scripting language used to add interactivity and dynamic behavior to a website. For a local shop's website, you could use JavaScript to create image slideshows of products, validate form inputs, or implement an interactive contact form

b. Simple HTML5 form Code

```
<form>
    <label for="name">Name:</label><br>
    <input type="text" id="name" name="name"><br>
    <label for="email">Email:</label><br>
    <input type="email" id="email" name="email"><br>
    <input type="submit" value="Submit">
</form>
```

c. Semantic HTML elements

Semantic HTML elements provide meaning to the content they contain. Examples include:

1. <header>: Defines a header for a document or section.
2. <nav>: Defines a set of navigation links.
3. <main>: Specifies the main content of a document.
4. <article>: Represents a self-contained composition in a document.
5. <footer>: Defines a footer for a document or section.
6. <section>: Defines a section in a document.

4. (a) **Roles of HTML and CSS**

- **HTML (Hypertext Markup Language):** The primary role of HTML is to provide the **structure and content** of a web page. It's like the skeleton of the website, defining the headings, paragraphs, lists, and images that make up the page.
- **CSS (Cascading Style Sheets):** The primary role of CSS is to handle the **presentation and styling** of the content. It's what makes the website look good, controlling the colors, fonts, spacing, and layout.

(b) Differences between Internal and External CSS

Feature	Internal CSS	External CSS
Location	Placed within the `<style>` tag in the `<head>` section of an HTML document.	Defined in a separate `.css` file and linked to the HTML document using a `<link>` tag.
Usage	Used to apply unique styles to a single HTML page.	Used to apply styles to multiple HTML pages, making it easy to maintain and update the website's look.

(c) `display: flex` property

`display: flex` property in CSS is used to enable a flexible box layout, commonly known as **Flexbox**. It allows you to create a one-dimensional layout, making it easier to align and distribute space among items within a container, even when their sizes are unknown or dynamic. Flexbox is particularly useful for building responsive website layouts

5 (a) JavaScript function to alert "Hello World

```
function helloWorld() { alert("Hello World");}
```

(b) Use of `document.getElementById()`

`The document.getElementById()` method in JavaScript is used to **find and return a specific HTML element** in the document based on its unique `id` attribute. This is a fundamental way to access and manipulate elements on a web page, allowing you to change their content, style, or add event listeners.

(c) JavaScript code to check for even or odd numbers

```
function checkEvenOrOdd(number) {
        if (number % 2 === 0) {
          console.log(number + " is an even number.");
  } else {
          console.log(number + " is an odd number.");
  }
}
// Example usage:
checkEvenOrOdd(10); // Output: 10 is an even number.
checkEvenOrOdd(7);  // Output: 7 is an odd number.
```

(d) Client-side vs. Server-side scripting

Feature	Client-side scripting	Server-side scripting
Execution Location	Code runs on the user's web browser.	Code runs on the web server.
Primary Purpose	To create interactive and dynamic user interfaces, handle user input, and improve the user experience without needing a server round-trip.	To process data, interact with databases, handle security, and generate dynamic web pages before they are sent to the user's browser.

6. (a) What is a loop? Name two types of loops.

Loop is a programming construct that executes a block of code repeatedly until a certain condition is met. Loops are used to automate repetitive tasks and iterate over collections of data. Two types of loops are:

1. **For loop**

2. **While loop**

(b)) Explain the concept of arrays with an example

An **array** is a data structure that stores a collection of elements, typically of the same data type, under a single variable name. Each element is identified by an index, which is its position in the array.

For Example in C

```
int numbers[5] = {10, 20, 30, 40, 50};
```

(c) Write a C++ program to print numbers from 1 to 10 using a loop.

```
#include <iostream>
int main() {
        for (int i = 1; i <= 10; i++) {
           std::cout << i << std::endl;
          }
return 0;
}
```

7. (a) Write a simple PHP code to print today's date.

```
<?php
        echo "Today's date is " . date("Y/m/d");
?>
```

(b) a simple PHP script to print "Welcome to PHP.

```
<?php
        echo "Welcome to PHP";
?>
```

(c) State any two uses of PHP in web development.Write

1. **Generating dynamic web page content:** PHP can be used to create web pages that change content based on user interactions, database information, or other factors.
2. **Database interaction:** PHP is excellent for connecting to and manipulating databases (like MySQL), allowing for the creation of login systems, e-commerce sites, and content management systems.
3. **Server-side scripting:** PHP is a server-side language used for tasks like handling form data, managing sessions, and processing file uploads

8. (a) Define the term "web hosting".

Web hosting is the service that allows individuals and organizations to make their website accessible on the internet. A web host is a company that provides the technologies and services needed for the website or webpage to be viewed online. Websites are stored on special computers called servers.

(b) What is the difference between VPS and Shared Hosting?

Feature	VPS Hosting	Shared Hosting
Control	Offers more control and customization over the server environment, as you have root access to your virtual server.	Offers very limited control over the server environment, as the host manages all server-level settings.
Resources	**Virtual Private Server**, which means you have dedicated resources (CPU, RAM, storage) that are not shared with other users.	Your website shares a server's resources with many other websites, which can lead to performance issues if another site gets a lot of traffic.
Cost	Generally more expensive due to the dedicated resources.	The most affordable type of hosting because the cost of the server is shared among all users.

(c) Write down the steps you can use to publish/deploy a website.

1. **Get a domain name:** Register a unique domain name (e.g., `www.example.com`) for your website.
2. **Choose a web hosting provider:** Select a hosting company that fits your needs (e.g., Shared, VPS, Dedicated) and purchase a hosting plan

3. **Upload your website files:** Use a **File Transfer Protocol (FTP)** client or the hosting provider's file manager to upload your HTML, CSS, JavaScript, and image files to the server.
4. **Connect the domain to the server:** Point your domain's **DNS (Domain Name System)** records to the IP address of your web server.
5. **Test the website:** After the DNS propagation is complete, visit your domain name in a browser to ensure the website is live and functioning correctly.

9. Describe how computers are used in day-to-day office applications. Mention **Word**, **Excel**, and **PowerPoint**.

Computers are essential in modern offices, primarily for tasks related to document creation, data management, and presentations.

Word Processors (e.g., Microsoft Word): Used for creating and editing text-based documents like letters, reports, and memos. It allows for formatting text, spell-checking, and collaborating on documents.

Spreadsheets (e.g., Microsoft Excel): Used for organizing and analyzing data in rows and columns. Excel is vital for tasks such as budgeting, financial analysis, creating charts, and managing databases.

Presentation Software (e.g., Microsoft PowerPoint): Used to create visual presentations with slides that can include text, images, charts, and videos. It's crucial for meetings, training sessions, and school projects.

(b) Key features in PowerPoint for an effective presentation

To make a school project presentation effective, a user should utilize the following key features in PowerPoint:

Transitions: The visual effects that occur when moving from one slide to the next. Using subtle and consistent transitions can make the presentation flow smoothly.

Animations: The visual effects applied to individual text or objects on a slide. Animations can be used to emphasize key points or reveal information at a specific time.

Charts and Graphs: PowerPoint can create various charts and graphs from data. These visuals are powerful for presenting complex data in an easy-to-understand format.

Speaker Notes: A dedicated area for the presenter to write notes and reminders that are only visible to them, not the audience. This helps in delivering a well-structured and confident presentation.

Slide Master: A feature that allows the user to apply a consistent design, layout, and theme to all slides in the presentation, ensuring a professional and uniform look.

10. Advantages of Computer Programming in Real Life

Learning and applying computer programming offers significant advantages in today's world by fostering problem-solving skills, enhancing career opportunities, and driving innovation.

Problem-solving and Logical Thinking: Programming teaches you to break down complex problems into smaller, manageable steps. This logical and structured way of thinking is applicable to various fields beyond coding, such as finance, science, and daily decision-making.

Career Opportunities and Higher Earning Potential: The demand for skilled programmers and developers is consistently high across almost every industry. Learning to code opens up career paths in software development, data science, cybersecurity, and more, which often come with high salaries and job security.

Innovation and Automation: Programming is the foundation of new technologies and a key driver of innovation. With programming skills, you can create new applications, automate repetitive tasks, and build solutions that improve efficiency in various sectors, from healthcare to entertainment. For example, a programmer can write a script to automate data entry for a small business, saving hours of manual work.