



MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SCO 207: WEB DEVELOPMENT TECHNOLOGIES

DATE: 19/4/2023

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

This paper consists of FIVE questions

*Answer **question one** and other **two questions** in this paper*

QUESTION ONE (30 MARKS)

- a) Define the following terms in relation to the Internet and the World Wide Web.
- i. Protocol (1 mark)
 - ii. VPN (1 mark)
 - iii. CGI (1 mark)
- b) Describe the layout of internet infrastructure (3 marks)
- c) Write HTML code to generate the following output on a web browser (5 marks)

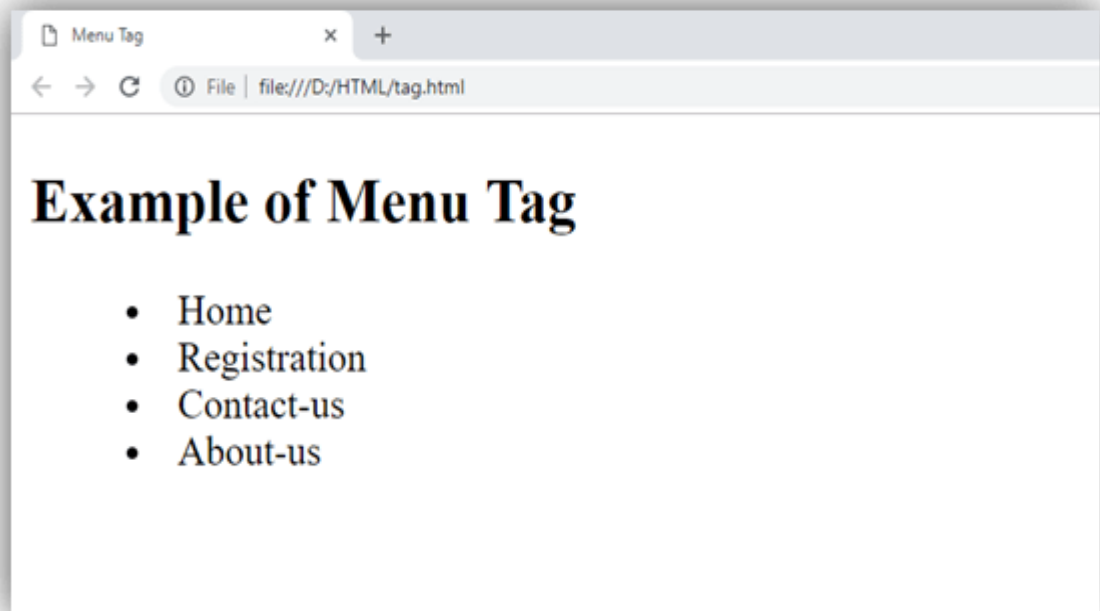
Product Prices

Product code	Product Price	Quantity	Total Price
P01	70,000/-	2	140,000/-
P02	100,000/-	4	400,000/-
P03	150,000/-	2	300,000/-
Total Amount			840,000/-

- d) Using a valid example, explain the role and demonstrate how each of the following header tags works
- i. `<meta>` tag (2 marks)
 - ii. `<script>` tag (2 marks)
- e) Discuss THREE ways of inserting style sheets using CSS, illustrate using an example (6 marks)
- f) Write the code that will generate a button (3 marks)
- g) Highlight TWO considerations to make when selecting a web host (2 marks)
- h) Embedding in HTML write javascript code to illustrate how the following event handlers that maybe used in a program
- i. Onmouseover (2 marks)
 - ii. Onclick (2 marks)

QUESTION TWO (20 MARKS)

- a) Discuss **FOUR** characteristics which enable hypertext transfer protocol (HTTP) to support internet browsing (8 marks)
- b) Write HTML code that gives the following output (4 marks)



- c) In a typical DNS query without any caching, there are FOUR servers that work together to deliver an IP address to the client, briefly explain each (8 marks)

QUESTION THREE (20 MARKS)

- a) Illustrate the output of the following code/program print (6 marks)

```
<html>
<body>
<h2>JavaScript Numbers</h2>
<p>A common mistake is to expect this result to be 102030:</p>
<p id="demo"></p>
<script>
    var x = 10;
    var y = 20;
    var z = "30";
    var result = x + y + z;
    document.getElementById("demo").innerHTML = result;
</script>
</body>
</html>
```

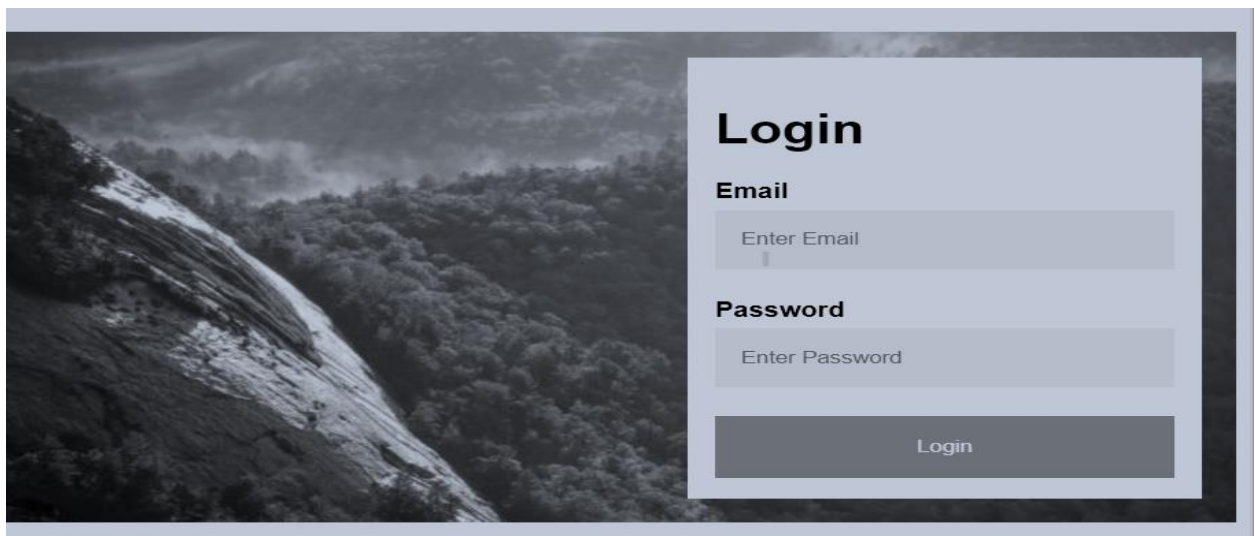
- b) Write a HTML code that displays “Bachelor of science Computer Science”. The background color should be red and the text color black. (4 marks)
- c) A newly opened consultancy firm based in Machakos town had a website developed for the organization. Discuss THREE web security considerations that they should have in place (6 marks)
- d) Give a hyperlink example for each of the protocols listed (4 marks)
- HTTP
 - HTTPS
 - FTP
 - Email

QUESTION FOUR (20 MARKS)

- a) Illustrate with a detailed diagram the client server architecture interaction in a web browser (6 marks)
- b) Using HTML language develop a basic website that summarizes your CV in two pages (8 marks)
 - a. Apply three paragraphs per page
 - b. Apply three different hyperlinks.
 - c. Choose any set of texts to be moving across the window.
 - d. Indicate hobbies personal details and any other relevant items of choice.
- c) Discuss THREE benefits an organization would realize from outsourcing Web development services (6 marks)

QUESTION FIVE (20 MARKS)

- a) Compare and contrast XML and XHTML clearly stating application during web design and development. (5 marks)
- b) Write HTML code to illustrate how a form can be added to an image as shown in the below output: - (6 marks)



- c) State FIVE qualities of a good web designer providing references of real-life application to support the quality. (5 marks)
- d) Illustrate XHTML syntax using an example (4 marks)