



# Open University *of* Mauritius

## BSc (HONS) COMPUTER SCIENCE [OUbs033]

**EXAMINATION FOR:** November - December 2023

**MODULE** : Server Side Web Technologies [OUbs033211]

**DATE** : Tuesday 14 November 2023

**DURATION** : 2 Hours

### INSTRUCTIONS TO CANDIDATES

1. This question paper consists of **FOUR (4) QUESTIONS**.
2. Answer **ALL** questions.
3. Always start a new question on a fresh page.
4. Total marks: **100**

**This question paper contains 4 questions and 6 pages.**

## ANSWER ALL QUESTIONS

### QUESTION 1 [25 MARKS]

- a) Jason wants to access the website of the Open University of Mauritius. He typed the following URL (Uniform Resource Locator) on his browser.

<https://www.open.ac.mu:80/index.htm>



Part 1

Part 2

Part 3

- i. Identify the **three (3)** parts that make up this URL and briefly describe each part.

**(6 marks)**

- ii. Draw the tree diagram of the domain namespace for the above URL. Show the root and the branches.

**(8 marks)**

- iii. Explain how the webpage is obtained from the webserver (host) when you request the home page of the Open University website (www.open.ac.mu) from your browser, including the role of DNS and ISP in this process.

**(8 marks)**

- iv. Many computer users often confuse the terms the 'internet' and the 'World Wide Web'. Explain what is meant by the term 'World Wide Web'.

**(3 marks)**

## QUESTION 2 [25 MARKS]

a) Illustrate with a diagram how the internet is structured based on the client-server architecture.

**(6 marks)**

b) Web pages can either be static or dynamic. What is the main difference between static and dynamic web pages.

**(4 marks)**

c) A scripting language is a programming language that supports scripts or programs written for a special run-time environment that automate the execution of tasks. The two main types of scripts are Client-side and Server-side Scripting. List **two (2)** differences between Client-side and Server-side Scripting.

**(4 marks)**

d) In PHP script writing, the variables can be declared anywhere in the script. The scope of a variable is the part of the script where the variable can be referenced or used. List **three (3)** variable scopes in PHP.

**(3 marks)**

e) Explain the following PHP code and what is the output:

```
<?php
    $a = 15;
    $b = 6;
    function myTest() {
        global $a;
        $b = 20;
        $b = $a + $b;
        echo "The value of the operation is ".$b;
    }
    myTest();
?>
```

**(8 marks)**

### QUESTION 3 [25 MARKS]

a) Web application security is a branch of Information Security that deals specifically with security of websites, web applications and web services. The following terms are frequently used in computer security.

- i. Threat
- ii. Vulnerability
- iii. Risk
- iv. Exploit
- v. Hacking

Explain each of the above terms.

**(10 marks)**

b) Since 25<sup>th</sup> May 2018, the EU General Data Protection Regulation (GDPR) was implemented to address the data protection and privacy concerns of website users. In this regulation, the term cookie is mentioned: “when cookies can identify an individual, it is considered personal data.”

a) What is a Cookie?

**(3 marks)**

b) Give **two (2)** uses of cookies that a Web Developer can apply while developing a website.

**(4 marks)**

c) Sessions and cookies work together in web programming to maintain user state on a website.

i. Explain PHP sessions and provide an example scenario where sessions are commonly used in web development.

**(4 marks)**

ii. Give **two (2)** differences between session and cookie.

**(4 marks)**

## QUESTION 4 [25 MARKS]

Note: During the examination, whenever you will need to connect to a database you are required to use the following credential:

- username = “root”;
- password = “pwd”;
- database = “exam”;
- server =” localhost”

The following is an example of a HTML form used to collect data about students.

### Student Registration Form

First name:	<input type="text"/>
Last name:	<input type="text"/>
Address:	<input type="text"/>
Phone:	<input type="text"/>
<input type="submit" value="Submit"/>	

- a) We can use either GET or POST method to send the following form data to server.  
Give **three (3)** differences between GET and POST Method in PHP.

**(6 marks)**

- b) Give **four (4)** reasons why PHP is a popular choice when designing dynamic websites.

**(4 marks)**

The following codes were used to create the above form:

```
<form id="form1" name="form1" method="post" action="student_reg.php">
    <div>First name: <input type="text" id="fname" value=""></div><br>
    <div>Last name: <input type="text" id="lname" value=""></div><br>
    <div>Address: <input type="text" id="address" value=""></div><br>
    <div>Phone: <input type="text" id="phone" value=""></div><br>
    <input id="smt" type="submit" value="Submit">
</form>
```

The database named exam contains a table named student, with the following fields.

- firstname
- lastname
- address
- phone

c) Write the PHP codes for the “student\_reg.php” file. The PHP file should include the following:

- i. PHP code to open a connection to a database named exam.

**(6 marks)**

- ii. SQL statement used for adding the form data in the table student.

**(9 marks)**