



THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF COMPUTER SCIENCE
 B.Sc. DEGREE PROGRAMME 2021/2022
 FINAL EXAMINATION CSU5302: WEB TECHNOLOGIES
 DURATION: TWO HOURS ONLY (2 HOURS)

25th October 2022

Time: 9.30 a.m. to 11.30 a.m.

This question paper consists of six (06) questions in four (04) pages.

Answer FOUR (04) questions only. All questions carry equal marks.

Q1). Client-server architecture is a computer networking related concept that is having an unbreakable relationship with web technology as well.

- i. Briefly describe the client-server architecture with a suitable diagram.
- ii. Describe the term “Thick Client application” in relation to the client-server architecture.
- iii. List the other two types of Client Applications in the client-server architecture.
- iv. Name three (03) advantages and two (02) drawbacks of the client-server architecture.
- v. Explain briefly, what a “Telnet Protocol” is and describe how it works to access resources on computers connected to the Internet.

Q2). The demand for efficient and professional web designers is increasing day by day.

- i. Describe the difference between “web design” and “web development”.
- ii. List four (04) main facts to consider in web development which is independent of the technologies to be applied. Briefly describe three (03) of them.
- iii. Briefly describe the functions of “Client-Side Programming” and “Server-Side Programming”.
- iv. List five (05) capabilities of JavaScript codes when embedded to HTML webpages.
- v. “While JavaScript is a tool used for “Client-Side programming” with many lucrative advantages, it also suffers from its disadvantages”. Comment on the statement providing relevant facts.

Q3). Cascading Style Sheets (CSS) is a client-side scripting language that defines layout of HTML documents. PHP is a server-side scripting language, and a powerful tool for making dynamic and interactive Web pages.

- i. List three (03) benefits of CSS in the web design process and briefly describe one of them.
- ii. What are the three (03) ways to apply CSS to HTML documents. Briefly describe one of them.
- iii. What is the “correct color name” you must use to fill in the blank in the code below to sets the color of <h1> elements to red?

```
h1 {  
    color: -----;  
}
```

Provide the other two values that can be used to fill in the blank above (hexadecimal values and rgb-values).

- iv. Write the necessary PHP code to satisfy following requirements.
 - a) Print “Hello World” on the output.
 - b) Compare the values in two variables named A and B and, return True if A is less than B or False otherwise.
- v. Make a PHP function called “Calculate” that takes two numeric parameter values and return the sum of them. For example, if we call the function as `echo Calculate(2.1, 6.4)`, it should return 8.5.

Q4). The need to find the right web site that contains information related to a selected topic has become very important with the growth of WWW. Search engine applications play a vital role in this context.

- i. Briefly explain what web crawling is and list two (02) techniques for improving its output.
- ii. Explain the usage of “Meta Tags” in search engine technology.
- iii. Briefly describe how a *search word index* is built.
- iv. Explain what is meant by Search Engine Optimization (SEO) and why it is important.
- v. Explain future of Search Engines technologies.

Q5). Suppose you run a website as an information provider for retail prices of consumer goods.

- i. Briefly explain two (02) advantages of storing information in XML format related to retail prices of consumer goods.
- ii. Develop an XML structure (code), which could be used to store retail prices of fruits and vegetables from different areas of the country.
- iii. Briefly describe different sources of income that can potentially contribute to the overall revenue from this website.
- iv. Describe the process of accessing and using a web service available on a remote server.
- v. List three (03) commonly known security vulnerabilities that can occur on your website.

Q6). Novel versions of markup and scripting languages are released to get the most out of mobile devices such as smart phones, e-readers, etc.

- i. Is it possible to browse a website made for desktop computers using a smart device? Justify your answer with two (02) reasons.
- ii. Which one out of a mobile app or a mobile website would you recommend for an online seat reservation service? Justify your answer.
- iii. Define and explain two (02) design consideration and one (01) development consideration for mobile-compatible websites.
- iv. Explain two (02) features available with HTML5, which improve the mobile user experience.
- v. List three (03) commonly accepted web technology best practices.

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