

THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF COMPUTER SCIENCE
B.Sc. DEGREE PROGRAMME 2019/2020
FINAL EXAMINATION
CPU3149/CSU5302: WEB TECHNOLOGIES
DURATION: TWO HOURS ONLY (2 HOURS)



Date: 07th January, 2020

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

Answer Four (04) Questions Only.

Q1)

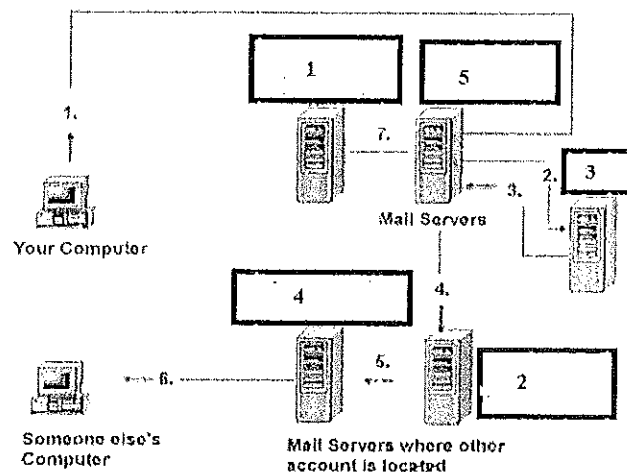
In web technologies, Client Server Architecture describes the fundamental behaviors of any web application. Server side uses different ports to provide various services to the end user and those ports are categorized into two major sections as Well Known and Customizable ports. When the data transferring happens between servers and the clients there are commonly used prototypes which enable common communication between different servers all around the world.

- Briefly explain the TCP/IP protocol.
- What are the two modes of the File Transfer Protocol?
- Describe the 3-tier client server architecture using a suitable diagram.
- List down two major advantages of 3 tier architecture over 2 tier architecture.
- Can two different applications bind the same port on a host, if they use different protocols? Justify your answer with a real-world example.
- List down the 7 layers of the ISO/ OSI Model.

Q2)

Emailing is one of the main functionalities of everyday life. There are several prototypes and rules to send and receive email through email providers.

- Explain the major difference between POP and IMAP protocols by providing suitable examples?
- What is meant by incoming and outgoing email servers and what are the services provided by them?
- What is SMTP protocol and what is its main responsibility?
- List the correct naming for empty boxes in the diagram given below that describes the basic email life cycle.



- e) What is the main purpose of the TELNET protocol?
- f) Indicate whether the following Statements are TRUE or FALSE.
 - i. POP3 is designed to delete mail on the server as soon as the user downloads it.
 - ii. POP is allowed to download only the header in the initial stage.
 - iii. Both POP and IMAP clients use the Simple Mail Transfer Protocol (SMTP).
 - iv. Telnet does NOT allow to connect with the shared information of the connected network devices.
 - v. POP protocol is needed to have an uninterrupted network connection and does not provide offline mode.
 - vi. Most webmail products use the IMAP protocol.

Q3)

HTML, CSS and Java scripting can be named as the major client-side web development languages, and basement technologies for the leading web development frameworks used today.

- a) What is the main difference between HTML and Java Scripts?
- b) Write HTML and CSS code to create a student registration form with the following requirements:
 - i. Create Text Boxes for Student Name, Gender, Student Address (Multi line input), Student user name, Student password (password field), Confirm the password and Dropdown for Student gender using HTML.
 - ii. Create Submit button using HTML.
 - iii. Prepare External CSS file to add styles to the student registration form. You need to create separate styles for each input type (text boxes, dropdowns, checkboxes, password inputs, buttons) and write how to include the external CSS file into the HTML page.
- c) Write Java script functions to handle the following client-side validations
 - i. Validate a text box to its emptiness (the function returns false if the given text input is empty)
 - ii. Validate password and confirm password fields, are equal or not. If they are not equal return false.
 - iii. Validate whether or not the Gender is selected or not. If Gender is not selected return false.

Q4)

PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages.

- a) What are the tags (start and end) used to insert the PHP codes into an HTML page?
- b) Write down PHP codes to satisfy the following requirements
 - i. Print "Hello World" in the output.
 - ii. There are two variables X and Y, return true if X is less than Y, if not return false
 - iii. There is a Variable called X,
 - 1. Echo "less than 10" if X is less than 10
 - 2. Echo "less than 20" if X is less than 20
 - 3. Echo "Over 20" if X is greater than 20

- c) The “While” loop is one of the loop types which is available in PHP language. List down Two more loop types available in PHP.
- d) Create a Function called as Calculate with two numeric parameters and return the addition of the provided parameters. (ex:- if we call function `echo Caculate(1.2, 5.2)`, it should return 6.4)
- e) Fill the blanks in the code below

```

$servername = "localhost";
$username = "username";
$password = "password";

// Create connection
$conn = new mysqli(.....(1)....., .....(2)....., .....(3).....);

// Check connection
if ($conn->connect_error) {
    die("Connection failed: " . $conn->.....(4).....);
}
.....(5).....
{
echo "Connected successfully";
}

```

Q5)

- a) Web Security is a key component of web application development.
- i. What is meant by Known and Unknown attacks?
 - ii. List 5 types of commonly known vulnerabilities.
- b) The World Wide Web offers millions of web pages as the form of websites which provides information on different topics.
- i. List 3 basic tasks of a search engine.
 - ii. What is Web Crawling?
 - iii. List 5 Common Boolean operators used in Search Engines.
 - iv. What is mean by Search Engine optimization.
 - v. Explain how we optimize our web pages to list at the top of user search results in search engines.

Q6)

- a) Web hosting is a key part of Web Technology
- i. Define what Web Hosting is?
 - ii. What is meant by Professional Web Hosting? State one advantage of professional web hosting.
 - iii. What is the definition of Domain Name?
 - iv. What is the purpose of ICANN (Internet Corporation for Assign Names and Numbers)?

- v. State 3 rules that apply when we create a Domain Name.
 - vi. Generic Top-Level Domain (gTLD) is one type of Domain name Extension (DOE), List 3 more types of DOE s.
 - vii. What is a Shared Server?
- b) HTML5 is the fifth and current major version of HTML, which includes many new additions and features compared to previous HTML versions
- i. List down 4 main Application Programming Interface (APIs) included in HTML 5
 - ii. Explain the purpose of the following tags in HTML 5
 - a. <canvas> Tag
 - b. <audio> Tag
 - c. <video> Tag
 - d. <source> Tag
 - e. <datalist> Tag
 - f. <keygen> Tag

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