Sri Lanka Institute of Information Technology

B. Sc. Special Honours Degree/ Diploma
in
Information Technology

Final Examination
Year 1, Semester 2 (2015) June Intake

IT104 - Internet Technology and Applications

Duration: 3 Hours

April 2015

Instruction to Candidates:

- This paper has five questions. Answer all questions.
- Provide answers on the answer booklet given.
- Total marks 100.
- This paper contains 08 pages including the Cover page.

Question 1 _____ (20 marks)

a) What are the two main types of networks available? Explain each briefly and clearly define each category and its purpose.

(3 marks)

b) Explain "**firewall**" using a diagram.

(4 marks)

c) Three architectures defined in "**Client Server Architecture**". Explain the concepts using a diagrams.

(4 marks)

d) Give three Advantages and 3 Disadvantages of the Internet.

(3 marks)

e) Explain the concept of VPN using a diagram.

(3 marks)

f) What is HTML and CSS stand for? Write the main purpose of each.

(3 marks)

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Question 2   (20 Marks)

a) Justify the following statement by giving a suitable example.
    "JavaScript give a programming tool to HTML designers"
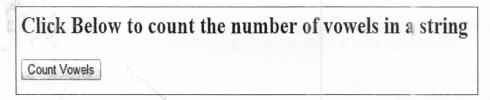
                                                 (2 marks)

b) Refer the given webpage (StringProcessor.html) and its outputs. Answer the questions below (i).
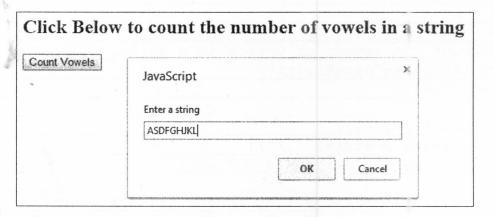
    Source code:

1.	`<HTML>`
2.	`<HEAD>`
3.	`<TITLE>Count the number of vowels in a string</TITLE>`
4.	`<SCRIPT LANGUAGE="JavaScript">`
5.	`function vowel()`
6.	`{`
7.	`var a = new Array(20);`
8.	`a=prompt('Enter a string ',"");`
9.	`document.write("The String Is = " +a);`
10.	
11.	`document.write(" The string Lenght is: " + length);`
12.	`document.write(" The Vowels in this String Are = ");`
13.	`var v=0;`
14.	`var i=0;`
15.	
16.	`{`
17.	
18.	`{`
19.	`++v;`
20.	
21.	`}`
22.	`}`
23.	
24.	`}`
25.	`</SCRIPT>`
26.	`</HEAD>`
27.	`<BODY>`
28.	`<h2>Click Below to count the number of vowels in a string</h2>`
29.	`<form>`
30.	`<input type="button" name="Button1" value="Count Vowels" onClick="vowel()">`
31.	`</form>`
32.	`</BODY>`
33.	`</HTML>`
34.	`<HTML>`

Source code of StringProcessor.html

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Initial output : Initial output of StringProcessor.html

Click Below to count the number of vowels in a string

Count Vowels

Output after "Button1" click

Click Below to count the number of vowels in a string

Count Vowels

JavaScript ✕

Enter a string

ASDFGHJKL

OK   Cancel

Output generated by the Javascript for the user input "ASDFGHJKL"

The String Is = ASDFGHJKL
The string Lenght is: 9
The Vowels in this String Are = A,
The number of vowels in this string Is = 1

i)   Write JavaScript codes according to the table below.

Line No.	Task
8	Prompt user to input a string and assign to the variable named "a"
10	Find the length of the input string and assign to the variable named "length"
15	Include a repetition loop which helps to traverse through the input string
17	Read the input string character-wise and check for vowels (a,e,I,o,u or A,E,I,O,U)
20	Print the vowels in the input String
23	Disply the he number of vowels in the string

(18 marks)

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Question 3 _____ (20 marks)

a) Compare and contrast **Marketplace** vs. **E-Marketplace**?

(4 Marks)

b) Differentiate Pure and Partial E-Commerce?

(2 Marks)

c) Explain "**Location based E-commerce**" by using three suitable examples.

(5 Marks)

d) Explain "**E-Government**" using an appropriate example.

(2 Marks)

e) What are digital goods? List three factors why digital goods are suitable for E-Commerce by giving suitable examples.

(5 Marks)

f) What is the difference between E-commerce and E-Business?

(2 Marks)

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Question 4 (20 marks)

a) List four benefits of using PHP as a server side scripting language.

(2 marks)

b) *"Maintaining the State of web applications is important."* Briefly explain how this could be achieved using PHP.

(4 marks)

c) Compare and contrast GET and POST methods which are used to send data form HTML forms.

(4 marks)

d) The following PHP script is used to load the data from the database to an HTML table when a web page is loaded. Study the "ViewComments.php" source code and explain the meaning of the line numbers given in the table (Table 01).

"ViewComments.php" (Code behind)

	`<?php`
Line 1	`    include("dbConnect.php");`
Line 2	`    $result = mysql_query("SELECT * FROM ta_comments");`
	`?>`
	`    <h2>View - Student Records in ITA</h2>`
Line 3	`    <table border='1'>`
	`    <tr>`
	`    <th>Reg. No</th> <th>Student Name</th><th>Comment</th>`
	`    </tr>`
	`<?php`
Line 4	`        while($row = mysql_fetch_array($result)) {`
	`        echo "<tr>";`
Line 5	`        echo "<td>" . $row['RegNo'] . "</td>";`
	`        echo "<td>" . $row['StdName'] . "</td>";`
	`        echo "<td>" . $row['Comment'] . "</td>";`
	`        echo "</tr>";`
	`        }`
	`    echo "</table>";`
	`    echo " ";`
Line 6	`    $num = mysql_num_rows($result);`
Line 7	`echo "Number of Records : ".$num;`
	`?>`

Table 01

Line no	Explanation		
Line 1			
Line 2			
Line 3			
Line 4			
Line 5			
Line 6			
Line 7			

e) Write the PHP script "dbConnect.php" using the following details.
   - Servername : localhost
   - Username : root
   - Password : abc123
   - Database : itadb

(3 marks)

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Question 5 _____ (20 marks)

a) Identify the security service, attack on the service, the type of the intruder by considering the facts given. Fill in the blanks (A-J) in the given table accordingly.

(10 marks)

Security service	Definition of the security service	Attack on the service	Type of the intruder (active/passive)	Example for an attack
Authentication	(A)	Fabrication	(B)	hacker gaining access to a person's email and sending messages
(C)	Computer resources (Web server) should be available for the authorized users when needed.	(D)	Active	(E) ....
Confidentiality	(F)	(G)	(H)	wiretapping to capture data into a network
(I)	Ensure that the message will be delivered to the receiver without being modified in the middle by the intruder	(J)	Active	changing the contents of messages that are sent over the network

b) Illustrate the security attacks you identified in (D) and (J) using labelled diagrams.

(3 marks)

c) Define the following terms. Briefly describe a practical scenario where these techniques are used over the Internet.
   i. Encryption
   ii. Decryption

(5 marks)

d) Convert the following plain text into chiper text using Substitution Chiper. Use 4 as the key.
   Plain Text: *spongebob and patrick laughing*

(2 marks)

End of the Question Paper

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