

**THE OPEN UNIVERSITY OF SRI LANKA**

Faculty of Engineering Technology  
Department of Electrical & Computer Engineering  
Bachelor of Software Engineering  
**FINAL EXAMINATION – (2009/2010)**

**ECI4164 – Networking and Web Technology****CLOSED BOOK EXAM**

Time Allowed: 3 hours

Date: 30<sup>th</sup> May 2010

Time: 0930 – 1230 hours

Answer 2 questions from Part A including Question 1 and *any two* questions from Part B

**Part A****Question 1 (Compulsory)**

Colombo Sports Services is a small company specializing in the installation of outdoor sports surfaces such as tennis courts, badminton courts and running tracks.

There are only four employees in their office and currently the company has only three computers and one computer is shared by two employees. The company is having a laser printer which is connected to the Vidura's computer so if other employees need to print something they must copy the file to a 'USB Flash Disk' and give it to Vidura to print the document. To support these three computers, the company wants to install a network.

**Main goals of the network**

- Provide shared access to the printer
- Provide shared internet connection to all computers.
- The company hopes to keep the existing computers and they are to be used in the Network.
- The company hopes to buy a notebook computer within three months time.

Answer of the following questions, based on the above requirements:

- (a) Draw and explain the best suited network for the company. (20 marks)
- (b) Justify the need of each hardware device you may use in the network. (15 marks)
- (c) Which are the cables best suited for this network? (5 marks)

**Question 2**

- (a) Explain the importance of "Protocols and Standards" with examples. (2 marks)
- (b) Explain the protocols, services and functions that relate to each layer of the OSI model. (14 marks)
- (c) For each of the following protocols, briefly explain its significance in networking applications and specify in which layer of the internet protocol (IP) it operates:  
 (i) SMTP (ii) DNS (4 marks)

**Question 3**

- (a) List three main advantages of Internet banking and three main dangers in Internet banking. (6 marks)
- (b) Briefly explain how do you overcome those mentioned dangers? (6 marks)
- (c) Find out the sub-network address for the following IP addresses, given the subnet mask,  
 i. 201.14.78.65 and 255.255.255.224  
 ii. 180.25.21.172 and 255.255.255.192 (8 marks)

**Part B****Question 4**

- (a) Define the term 'XHTML' and explain the differences between HTML and XHTML? (6 marks)
- (b) The following example taken from the HTML 4.01 specification. Rewrite the given example to complies with the requirements of the XHTML 1.0 standard. (14 marks)

```
<TABLE border="1" cellpadding="2" cellspacing="2" width="100%">
<CAPTION><EM> A Test Table with<BR> merged cells</EM></CAPTION>
<TR>
<TD width="20%">Table cell 1<TD><TD>Table cell 2
<TR><TD width="20%">Table cell 3<TD><TD>Table cell 4
<TR>
<TH>Table header 1<TH>
<TH>Table header 2<TH>
<TR>
</TABLE>
```

**Question 5**

- (a) Define the following acronyms, and write brief description of each: (8 marks)
- i. HTTP
  - ii. URL
  - iii. UDP
  - iv. HTTPS
- (b) Write a XHTML document which will generate a basic login screen for a particular web site (6 marks)
- (c) Write an external cascading style sheet for the above code that sets the value of the font-family property to "Arial" and the background color of each cell to "blue". (6 marks)

**Question 6**

- (a) What is 'XML'? (2 marks)
- (b) Describe the usefulness of XML with examples? (4 marks)
- (c) Write a XML file to represent following data set. (14 marks)

**EmployeeNo, Name, DOB, Dept, JobTitle**

11234, Asanthi, 19750516, accounting, senior accountant  
23564, Chaminda, 19780112, administration, manager  
14562, Lasantha, 19880514, marketing, graphic designer  
11233, Rifas, 19850326, research, programmer  
35114, Chaluka, 19790108, accounting, internal auditor