EASTERN UNIVERSITY, SRILANKA

THIRD EXAMINATION IN SCIENCE - 2004/2005

SECOND SEMESTER (Oct./Nov.,2006)

CS303 – Internet and Multimedia Applications

Answer all questions **Time: 2Hours**

Q1.

(a) List and explain all the components of IPV6 (Internet Protocol Version 6) packet.

(b) Explain the most important changes introduced in IPV6 over IPV4.

(c) Briefly describe each of the following two approaches which are used to integrate IPV6 hosts into IPV4 world:

- Dual-stack approach
- Tunneling approach

(d) Describe the IP addressing procedure.

(e) Suppose an Internet Service Provider (ISP) have been allocated the address block 210.21.48.0/20. The ISP, in turn, could divide its address block into eight smaller address blocks of equal size and give each address block to organizations named Org0, Org1, and Org2 up to Org7 that are supported by this ISP. Identify the address blocks which are allocated to each organization.

Q2.

(a) Describe LAN addresses and Address Resolution Protocol (ARP)

(b) Describe briefly *non-persistent* and *persistent* connections which are used to transfer web pages from server to client.

(c) Describe each of the following components of an E-mail system:

- User Agent
- Mail Server
- SMTP
- POP3

(d) List the differences between static, dynamic and active web pages.

Q3.

(a) What is the main difference between HTML and XHTML?

(b) State the use of each of the following tags in XHTML:

i. <link>
ii. <script>
iii. <input>
iv. <frame>

(c) Describe how multimedia can be applied in education and training. Discuss the advantages and disadvantages over more conventional methods when it is applied in this area.

(d) The Lempel – Ziv – Welch (LZW) compression algorithm replaces string of characters with si code. Give the LZW compression algorithm in its simplest form.

Run the LZW compression algorithm for the string:

`/com/compute/computer` creating the corresponding compression table.

(e) Describe briefly the image file formats GIF and JPEG.

Q4.

(a) Define the term **Socket** in connection with process communication across a network.

(b) Describe the purpose of the **client socket** and **server socket** defined in the Java package `java.net` and outline how it can be used.

(c) Consider the following client/server application scenario for TCP protocol:

- A client reads two lines from its standard input one by one a sends the lines out its socket to the server.
- The server reads two lines from its standard input (keyboard) and sends the lines out its socket to the server.
- The server reads these two lines from its connection socket.
- The server concatenates these two lines.
- The server sends the concatenated line out its connection soc to the client.
- The client reads the concatenated line from its socket and prints the line on its standard output (monitor).

Write client/server java program pair for a TCP implementation of the above application. Th client program is named as `TCPClient.java` and the server program is named as `TCPServer.java`. The user at the client may then use the application to send two lines a then receive a concatenated version of these lines.

What will happen if you run `TCPClient` on a host before `TCPServer` on another host?