EASTERN UNIVERSITY, SRI LANKA

THIRD YEAR SECOND SEMESTER EXAMINATION IN SCIENCE - 2005/2006

(Aug/Sep, 2007)

CS 303 – Internet and Multimedia Applications

(Special Repeat)

Answer all questions   **Time Allowed: 02 Hours**

Q1)

a) The Internet connects many networks each of which runs a protocol known as TCP/IP (Transmission Control Protocol/ Internet Protocol). Draw the block diagram to describe the relation of "*TCP*", "*IP*", and "*UDP*" (User Datagram Protocol) and explain various protocols involved in each layer.

b)

   i) Draw the "*IPV6*" packet format and explain each component of this packet.

   ii) Explain most important changes introduced in "*IPV6*" over "*IPV4*".

   iii) Describe a way to integrate "*IPV6*" hosts into "*IPV4*" world.

c)

   i) Describe the "*IP*" addressing procedure.

   ii) Suppose an "*ISP*" (Internet Service Provider) may itself have been allocated the address block "*200.25.10.0/25*". The "*ISP*", in turn could divide its address block into eight smaller address blocks of equal size and give each address blocks to eight organizations named "Org – 1", "Org – 2", up to "Org – 8" that are supported by this "ISP". Identify the address blocks, which are allocated to each organization.

Q2)

a) Describe the followings:

- User Agent;
- Mail Server;
- SMTP;
- POP3.

b) Explain the "*Web – Based – E – mail System*".

c) Suppose "Jack" having a web – based e – mail account sends a message to "Hill", accesses his mails from his mail server using "*POP3*". Discuss how the message m from "Jack's" host to "Hill's" host. Your answer should include the series of applic – layer protocols that are used to move the message between the two hosts.

Q3)

a)

i) Explain how a "*Web – Cache*" satisfies a "*HTTP*" request on behalf of a clien

ii) List the differences among "*Static*", "*Dynamic*", and "*Active*" web pages.

iii) How "*scripting languages*" can be used to create an "*Active web pages*"?

iv) Briefly describe the use of the following tags in "*XHTML*".

- <form>....</form>
- <a>....
- <img>....</img>
- <frameset>.....</frameset>
- <script>....</script>

b)

i) List the important characteristics of "*Clients*" and "*Servers*".

ii) Define the term "*Socket*" in connection with process communication acr network.

iii) Describe the purpose of the class "*Socket*" and "*ServerSocket*" define in the Package "java.net" and outline how it can be used.

Q4)

a) Define the term *"Interactive Multimedia"*.

b) 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.

c) The *"LZW"* (Limpel – Ziv – Welch) compression algorithm string of characters with single code. Give the *"LZW"* compression algorithm in its simplest form. Run the *"LZW"* compression algorithm starting with the string below:

   Create the corresponding compression table.

   /WED/WE/WEE/WEB/WET

d) Compare and contrast the *"BMP"* and *"GIF"* image format.

e) State clearly what is meant by *"Video – on – Demand"*.

f) Briefly explain how the *"MPEG"* compression technique works.