



EASTERN UNIVERSITY, SRI LANKA
DEPARTMENT OF MATHEMATICS
THIRD EXAMINATION IN SCIENCE –2011/2012
SECOND SEMESTER (Apr./ May, 2017)
EXTCS303 – INTERNET AND MULTIMEDIA APPLICATIONS
(SPECIAL REPEAT)

Answer all Questions

Time: 2 Hours

1)

- i) Define the following terms:
 - a) Intranet;
 - b) Topology of the Internet;
 - c) Internet Service Provider(ISP);
 - d) Distributed applications.
- ii) Write short notes on the following topics:
 - a) Internet Service Provider (ISP)
 - b) Address Resolution Protocol (ARP)
- iii) Briefly explain each layers of **TCP/IP Reference Model**:
- iv) Distinguish between Transmission Control Protocol (TCP) and User Datagram Protocol (UDP).
- v) How will the public Internet, which is based on IPv4, be transitioned to IPv6? Explain the approaches briefly.
- vi) Briefly explain the following two approaches:
 - a) Dual Stack approach;
 - b) Tunneling approach.

2)

- i) List three protocols which are commonly used in E-mail. State the main function of those protocols.
- ii) Distinguish between persistent and non-persistent connections.
- iii) Consider the url <http://www.esn.ac.lk/science/ComputerScience.html>, and write the series of steps to fetch this site using non-persistent connection.
- iv) Consider the following string of ASCII characters that were captured by Wireshark when the browser sent HTTP message.

Figure (i)

```
HEAD /hello.htm HTTP/1.1
User-Agent: Mozilla/4.0
Host: www.tutorialspoint.com
Accept-Language: en-us
Connection: Keep-Alive
```

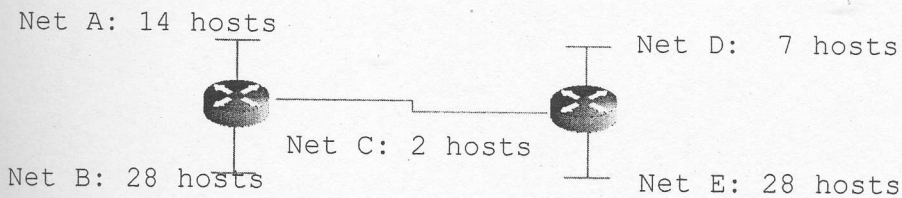
Figure (ii)

```
HTTP/1.1 201 Created → P
Date: Mon, 27 Jul 2009 12:28:53 GMT → Q
Server: Apache/2.2.14 (Win32)
Content-type: text/html → R
Content-length: 30
Connection: Closed → S
<html>
<body>
<h1>The file was created.</h1>
</body>
</html>
```

- i) Answer the following questions using Figure(i):
 - a. What version of HTTP is the browser running?
 - b. Does the browser request a non-persistent or a persistent connection?
 - c. What is the IP address of the host on which the browser is running?
 - d. What type of browser initiates this message? Why is the browser type needed in an HTTP request message?
 - e. What is the URL of the document requested by the browser?
- ii) Answer the following questions using Figure(ii):
 - a. Figure(ii) is a response message to a particular request. Identify the type of HTTP request message.
 - b. Explain the parts of the HTTP messages which indicate **P**, **Q**, **R** and **S**.
- v) Briefly describe the scenario to send an e-mail from a person Bob to Bubby.

Q3)

- i) What is meant by **Subnetting** and Why we need to subnet the network addresses?
- ii) Consider an organization that needs to assign 254 hosts to connect the internet. Explain how to choose the most appropriate IPV4 class in classful address.
- iii) Given the Class C network of 204.15.5.0/24, subnet the network in order to create a network in the following figure with the host requirements shown.



- iv) The source host has an IP address of 194.168.0.1 and a subnet mask of 255.255.255.0. The destination host has an IP address of 194.168.25.33. Determine, whether these hosts are on the same subnet or different subnets.
- 4)
- i) What is the main difference between HTML and XHTML?
 - ii) What are the problems with centralize DNS?
 - iii) Explain the difference between lossy and lossless data compression:
 - iv) Write the port number/s used for the following:
 - a. TCP control connection
 - b. TCP data connection
 - v) List five FTP commands and describe them:
 - vi) Describe the following terms:
 - a. Hypermedia
 - b. Multimedia system
 - c. Data Compression
 - vii) Describe Run Length Encoding (RLE) data compression technique with example.