Fifth Semester Examination – 2006

INTERNET TECHNOLOGY

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory*

*and any **five** from the rest.*

The figures in the right-hand margin

indicate marks.

1. Answer the following questions :   2×10

   (a) Which fields of the IP header changes
       from router to router ?

   (b) What is the role of *Gateway* in Internet ?

(c) What is the basis of classification for four types of links defined by OSPF ?

(d) If TELNET is using the character mode, how many characters are sent back and forth between the client and server to copy a file name **file1** to another file named **file2** in LINUX ?

(e) Why there is a upper limit set for modem ?

(f) How a virtual circuit is identified in Frame relay network ?

(g) Describe why an application developer might choose to use UDP instead of TCP as the transport layer protocol ?

(h) What are the main services provided by the Domain Name System (DNS) ?

(i) What is meant by loose hierarchical routing in Internet ?

(j) Can there be more than one network adaptors that have the same IP address ? Explain why.

2. (a) When would you use an iterative vs. recursive domain name server (DNS) ?

5

(b) Consider sending an object of size 100 KB from server to client over TCP. Let segment size (MSS) = 536 bytes and RTT = 100 msec. Suppose TCP use static windows with window size W. (static window means this window size will not be affected by flow control and congestion control.) For a transmission rate of 28 Kbps, determine the minimum possible latency (delay). Determine the minimum window size that achieves this latency.   5

3. (a) Define and differentiate between packet switching and circuit switching ?   5

(b) What is meant by the term "IP spoofing"? What counter measures can be used to stop it? 5

4. (a) What is basic concepts of Border Gateway Protocol? What are four different types of BGP messages used by the protocol? 5

(b) Discuss the two connections between client and server that are needed in FTP. 5

5. (a) Explain the mechanism of TCP/IP in Network layer. What are the advantages of UDP over TCP? 5

(b) Define and differentiate between hypertext and hyper media in the context of WWW? Sketch the structure of "request message" format used in HTTP transaction. 5

6. (a) What is the basic principles with Packet-Switch Networks? Discuss the effect of packet size on transmission time. 5

(b) What is the basic characteristics of access network? What are the similarities and difference between access network and local area network? 5

7. (a) Distinguish *Ethernet addressing* from *IP addressing*? How many Ethernet addresses are possible? How many networks and how many hosts in each network is possible in Class-A IP addressing? 5

(b) What is the purpose of DNS? Is it necessary if everyone in the world was perfectly capable of remembering Internet addresses instead of just host names? 5

8. (a) Which of *UDP* or *TCP* would you choose for running an Internet telephony application ? Briefly explain your choice.

(b) When would you use an iterative vs. recursive domain name server (DNS) ?

(c) Describe the basic concept of firewall ?

(d) Draw the internet protocol stack. Which layers does a router process ?

2.5×4

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