Total number of printed pages–4

53 (IT 403) CPNW

2018

COMPUTER NETWORKS

Paper : IT 403

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* What are the differences between classful addressing and classless addressing in IPv4 ? Explain demerits of classful addressing with examples. Briefly explain the advantages of IPv6 protocol in comparison to IPv4 protocol. 3+3+4=10

(b) An ISP is granted a block of addresses starting with 120.60.4.0/22. The ISP wants to distribute these blocks to 4 organizations with first two organizations receiving 200 addresses each and rest of the two organizations receiving 50 addresses each. Design the sub-blocks and give the slash notation for each sub-block. Find out how many addresses are still available after these allocations. 10

2. (a) List three strategies to move from IPv4 to IPv6. Explain the difference between tunneling and dual stack strategies during transition period. When is each strategy used ? 3+4+3=10

(b) Explain the working of Link State Routing Protocol with *one* example. What is count to infinity problem ? How can it be solved ? 5+3+2=10

3. (a) A window holds bytes 2001 to 5000. The next byte to be sent is 3001. Draw a figure to show the situation of the window after the following two events —

(i) An ACK segment with the acknowledgement number 2500 and window size advertisement 4000 is received.

(ii) A segment carrying 1000 bytes is sent. 5+5=10

(b) Give step by step explanation of working of Traceroute command. 10

4. (a) What is Traffic Shaping? Name *two* methods to shape traffic. Explain *one* method of traffic shaping. 3+2+5=10

(b) Explain the role of SMTP, POP3 and IMAP protocol in electronic mail transfer. 10

5. (a) Explain TCP connection setup and termination with a diagram. What are the merits and demerits of connection oriented communication? Give example. 5+5=10

(b) What is DNS? What are PQDN and FQDN? How does DNS work? 2+4+4=10

6. *(a)* What is the function of ARP protocol? Explain with a diagram. 10

(b) Compare static *vs* dynamic address assignment. How DHCP handles dynamic address assignment?

5+5=10

7. Write short notes on : ***(any two)***

10+10=20

(a) NAT

(b) HTTP

(c) IPv4 header.