

COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Govt. of Maharashtra)

End Sem. Exam. –NOV. 2013

(CT-09005) Computer Networks

Class: - T.Y. B.Tech (Computer Engineering)

Year: - 2013-14

Semester: - V

Duration: - 3 hr

Max. Marks: - 60

Instructions:

1. First Question is compulsory, Solve any Five Question from Q.2 to Q.8
 2. All Questions carry 10 Marks..
 3. Assume suitable data whenever necessary.
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Q.1 What are the differences between classful addressing and classless addressing in IPv4? 10

An ISP is granted a block of addresses starting with 150.80.0.0/16. The ISP wants to distribute these blocks to 2600 customers as follows.

- a. The first group has 200 medium-size businesses; each needs 128 addresses.
- b. The second group has 400 small businesses; each needs 16 addresses.
- c. The third group has 2000 households; each needs 4 addresses.

Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations.

Q.2 Briefly define subnetting and supemetting. How do the subnet mask and supemet mask differ from a default mask in classful addressing? What is NAT? How can NAT help in address depletion? 10

Q.3 Define fragmentation and explain why the IPv4 and IPv6 protocols need to fragment some packets. Is there any difference between the two protocols in this matter? 10

An IPv4 datagram has arrived with the following information in the header (in hexadecimal):

Ox45 00 00 54 00 03 58 50 20 06 00 00 7C 4E 03 02 B4 OE OF 02

- a. Is the packet corrupted?
- b. Is the packet fragmented?
- c. What is the size of the data?
- d. How many more routers can the packet travel to?
- e. What is the type of service?

Q.4 Describe IPv4 and IPv6 packet format. Compare IPv4 and IPv6 with respect to basic header and extension packet Header. What are the strategies can be useful for transition from IPv4 to IPv6. 10

Q.5 How the techniques helps the size of routing table manageable and handle security issues during packet forwarding to its destination? With suitable example, explain forwarding process when packet arrives to the router considering classless address. 10

Q.6 Find the topology of the network if following Table is the routing table for router R1.

Mask	Network Address	Next-Hop Address	Interface
/27	202.14.17.224	-	M1
/18	45.23.192.0	-	M0
Default	Default	130.56.12.4	M2

Differentiate between Distance Vector Routing, Link State Routing and Path Vector Routing.

Q.7 Explain in detail UDP and its operation. Compare the TCP header and the UDP header. List the fields in the TCP header that are missing from UDP header. List out use of UDP and TCP.

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Q.8 Explain in detail Electronic Email system.

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