

Code: 9A05806

B. Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

INTERNETWORKING WITH TCP/IP

(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Discuss the purpose of each layer in the TCP/IP protocol suite.
(b) Explain the various types of options in IPV4 header.
- 2 (a) What is sub-netting? Explain with an example.
(b) Discuss in detail classful addressing.
- 3 (a) Discuss in detail the five components of ARP package.
(b) Why isn't the one-way time for a packet simply the round-trip time divided by two?
- 4 (a) Explain with an example the concept of link state routing.
(b) Describe the five different types of OSPF packets.
- 5 (a) With an example explain how to calculate checksum of a UDP use datagram.
(b) Give the format of TCP segment header and explain the significance of each field.
- 6 (a) Explain how TCP provide reliability using errors control.
(b) Discuss about the options in TCP header.
- 7 Write notes on the following:
(a) TELNET
(b) FTP
- 8 (a) Make a comparison between IPV4 and IPV6 headers.
(b) Describe the following ICMPV6 messages:
 - (i) Informational messages
 - (ii) Neighbor - advertisement message

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- 1 (a) Discuss the four levels of addresses used in an internet employing the TCP/IP protocols.
(b) Explain the fields related to fragmentation and reassembly of an IP datagram.
- 2 (a) Explain the significance of sub-network mask.
(b) Explain how classless addressing address the problem of address depletion.
- 3 (a) With a neat diagram explain the significance of ATMARP packet.
(b) List and describe the five types of error reporting messages.
- 4 (a) List the considerations used by RIP while directly implementing distance vector routing.
(b) Discuss BGP in detail.
- 5 (a) Give the format of UDP header and explain the significance of each field.
(b) Explain three-way handshaking for connection termination.
- 6 (a) Explain silly window syndrome. Give the two solutions to prevent it.
(b) Discuss the five components of TCP package and their interactions.
- 7 Write notes on the following:
(a) TELNET
(b) SSH
- 8 (a) Discuss error messages in ICMPV6 and compare and contrast them with the error messages in ICMPV4.
(b) Explain IPV6 addressing format.

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- 1 (a) Make a comparison between OSI and TCP/IP protocol suite.
(b) Draw the format of IPV4 header and explain the significance of each field.
- 2 Discuss the various short-term solutions to address depletion problem.
- 3 (a) With neat diagrams explain the four different cases in which the services of ARP can be used.
(b) Explain the various tools used in the internet for debugging.
- 4 (a) Explain with an example the two-node loop problem. Also give the solutions to this problem.
(b) Describe the types of links defined in OSPF.
- 5 (a) List the typical applications that can benefit more from the services of UDP than from those of TCP.
(b) Discuss TCP features in detail.
- 6 (a) Explain congestion control in TCP.
(b) Describe the four TCP timers.
- 7 Write notes on the following:
(a) SSH
(b) TFTP
- 8 (a) What are the advantages of IPV6?
(b) Explain the significance of each field in the format of the IPV6 base header.

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- 1 (a) Discuss in detail the layered architecture of OSI model.
(b) List the fields of the IP header that change from router to router.
- 2 Write notes on the following:
 - (a) Super netting
 - (b) Address aggregation
 - (c) NAT
- 3 (a) List and explain the seven steps involved in an ARP process.
(b) Explain with an example how checksum is calculated and tested on the ICMP packet.
- 4 (a) With an example explain distance vector routing algorithm.
(b) Explain in detail path vector routing.
- 5 (a) Describe the general services provided by UDP.
(b) Explain connection establishment in TCP using three-way handshaking.
- 6 (a) Discuss some scenarios that occur during the operation of TCP.
(b) Explain how RTT and RTO are calculated.
- 7 Write notes on the following:
 - (a) SSH
 - (b) FTP
- 8 (a) Describe the six types of extension headers in IPV6 header.
(b) Explain ICMPV6 error-reporting messages.
