Tribhuvan University

Institute of Science and Technology

2079

Bachelor Level / fourth-semester / Science
Computer Science and Information Technology(CSC258)
Computer Networks

Full Marks: 60 + 20 + 20
Pass Marks: 24 + 8 + 8
Time: 3 Hours

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

Long Answer Questions

Attempt any two questions (2 x 10 = 20)

1 What is protocol? Explain each layer of OSI modal in detail.

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2 Differentiate error detection with error correction. Explain CRC (Cyclic Redundancy Check) method for error detection with a suitable example.

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3 Explain distance vector routing with example.

Short Answer Questions

Attempt any Eight questions (8 x 5 = 40)

4 Why do we need network topology? Explain star topology along with its merits and demerits.

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5 Define Protocol. Why do we need standards?

6 Write the subnet ID and broadcast address of each subnet if you divide a class C network (192.168.3.0 – 192.168.3.255) into 4 different subnets. What is the new subnet mask?

7 What is circuit-switched network? Explain phases during communication in a circuit-switched network?

8 What is a virtual circuit network? Explain frame relay as a virtual circuit-wide area network.

9 Why TCP is called a connection-oriented and reliable protocol? Differentiate TCP with UDP.

10 Explain architecture of WWW. What is URL?

11 Explain in brief about software defined network? What are its features?

12 Write short notes on (any TWO)

a. Protocol and standards
b. Switch
c. Checksum

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2078

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Long Answer Questions

Attempt any two questions (2 x 10 = 20)

1. What is transmission media? How do guided media differ from unguided media? Explain different types of guided media in detail.

2. What is flow control? Explain Stop-and-Wait ARQ with suitable example. How is it different from G-Back-N ARQ?

3. Explain link state routing with example.

Short Answer Questions

Attempt any Eight questions (8 x 5 = 40)

4. Explain client/server network. How is it different from peer to peer network?

5. What is CSMA/CD? Why is there no need for CSMA/CD on a full-duplex Ethernet LAN?

6 What subnet ID and broadcast address of each subnet if you divide a class B network (150.10.0.0 – 150.10.255.255) in 4 different subnets. What is the new subnet mask?

7 Explain the structure of IPv6 address. Compare IPv6 address with IPv4 address.

8 What is virtual circuit network? Explain ATM as a virtual circuit wide area network.

9 What is routing table? Differentiate static routing table with dynamic roting table.

10 What is open-loop congestion control? Compare it with closed-loop congestion control.

11 What are the different approaches for multimedia streaming? Explain.

12 Write short note on (any two):

a. Blackbone network
b. ISDN
c. ALOHA

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2076

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Computer Science and Information Technology(CSC258)
Computer Networks

Full Marks: 60 + 20 + 20
Pass Marks: 24 + 8 + 8
Time: 3 Hours

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

Section A

Attempt any Two questions. (2x10=20)

1 Explain each layer of TCP/IP model in detail. Compare it with OSI model.

2 Define transmission media. What are different types of transmission media. Explain different types of unguided media in detail.

3 Define flow control. Explain Go-Back-N ARQ with suitable example. How is it different from Stop-and-Wait ARQ?

Section B

Attempt any Eight questions. (8x5=40)

4 Define network topology. Explain ring topology along with its merits and demerits.

5 Explain LAN with example. How is it different from PAN?

6 Define routing table. Differentiate static routing table with dynamic routing table.

7 What is switching? Compare and contrast a circuit-switched network and packet-switched network.

8 Why do we need wireless LAN? Explain the architecture of IEEE 802.11 in detail.

9 What is NAT? How does it work? What are its benefits?

10 In a block of address, we know the IP Address of one host is 192.34.12.56/28. What are the first address(network address) and the last address (limited broadcast address) in this block?

11 Why do we need a DNS system when we can directly use an IP address? what is domain name space?

12 Write short notes on (any two):

a. Connection-oriented service
b. Bridge
c. Hamming distance