Computer Networking Questions

UNIT 1 Introduction

1. 1.What are the components of computer network infrastructure and data communications?
2. What are the applications of computer network?
3. Differentiate between client server and peer to peer network architecture with their advantages and disadvantages.
4. What are the types of computer network on the basis of geographical area? Differentiate between LAN and WAN.
5. What is protocol? List its elements with their functions?
6. What do you mean by standard? List its categories and any five international organizations involved in standardization.
7. Explain OSI reference model.
8. Describe TCP/IP protocol suite.
9. Compare OSI and TCP/IP reference models.
10. Critically analyze OSI and TCP/IP model with their challenges.

UNIT 2 The physical layer

1. Explain the functions of physical layer?
2. What are the transmission impairments that affect the communication system?
3. Differentiate between analog and digital signals.
4. What is data rate limit? What are the factors affecting data rate?
5. Explain the factors that affect the performance of a transmission channel.
6. What is guided communication channel. Explain its types.
7. Differentiate between wired and wireless transmission media.
8. How does it support bandwidth utilization? Explain the basic multiplexing techniques.
9. What is switching? Explain circuit switching, message switching and packet switching.
10. What are the advantages and disadvantages of mobile communication?

UNIT 3 The data link layer

1. Explain the roles of data link layer with its frame structure.
2. What are the types of framing in Data link layer? Illustrate with frame structure.
3. Explain the different protocols used for flow control on noisy and noiseless channel.
4. What are the types of error in Data link layer? Explain different types of error detection techniques.
5. Mention the error correction techniques and explain some error correction codes.
6. What is the function of HDLC protocol. Explain different fields in HDLC frame and the types of HDLC frames.
7. List the roles of PPP with frame details. Also mention the components of PPP.
8. Define channel allocation problem with its types.
9. Explain any one of the multiple access protocols in data link layer.
10. Write about different control access protocols.
11. What is channelization? Explain the protocols used in channelization.
12. Write short notes on the following;
    a. Ethernet standards
    b. FDDI
    c. IEEE 802.11x
    d. Bluetooth Standards

e. Token Ring
f. Token Bus
g. Virtual LAN

UNIT 4 The Network layer

1. What are the functions and responsibilities of Network layer?
2. Distinguish between virtual circuit packet switching and datagram packet switching.
3. Explain classful and classless addressing in context of IPv4 addresses.
4. Clarify IPv4 datagram format. Also write about fragmentation.
5. What are the advantages of IPv6 over IPv4? Explain IPv6 header format.
6. Elucidate IPv6 address structure. Write difference between IPv4 and IPv6.
7. Write description on either one of them.
    a. Distance vector routing
    b. Link state routing technique.
8. Write short notes on any one of the following.
    a. ARP
    b. RARP
    c. ICMP
9. Explain any one of the following routing protocols.
    a. OSPF
    b. BGP
    c. Unicast
    d. Multicast
    e. Broadcast
10. What do you mean by subnetting and super netting? What are their implications?

UNIT 5 The Transport layer

1. What are the services and functions provided by transport layer?
2. Explain the different elements of transport protocols.
3. Why do we use UDP? Explain the UDP operation with UDP message format.
4. Differentiate between TCP and UDP.
5. Write short notes on
    a. RPC
    b. Crash recovery
    c. Demultiplexing
    d. Error control
    e. Buffering
6. Explain different scenarios to build a reliable data transfer.
7. What is pipelined protocols. Distinguish between Go Back N (GBN) and Selective Repeat(SR) pipelined reliable data transfer protocols.
8. Explain the use and features of TCP along with TCP segment header format.
9. What is congestion? What are the different approaches to control congestions.
10. What are the main challenges while designing the transport protocol?

UNIT 6 The application layer

1. What are the functions of application layer?
2. Explain any one of the following protocols;
    a. DNS

    b. DHCP
    c. www
    d. HTTP
    e. HTTPs
    f. TELNET
    g. FTP
    h. SMTP
    i. POP
    j. IMAP
3. Write the use, features and working mechanism of any one of the network monitoring tools.
4. Differentiate between HTTP and HTTPs.
5. Explain the SNMP.

UNIT 7 Network Security

1. Difference between symmetric and asymmetric encryption.
2. Explain RSA algorithm (public key algorithm)
3. What is digital signature? Explain its importance along with its merits and demerits.
4. Write short notes on the following.
    a. IPsec
    b. VPN
    c. Firewall
    d. Types of VPN protocols.
5. What are the different ways to deliver wireless security?

All the best