Rayat Shikshan Sanstha's,

Rajarshi Chhatrapati Shahu College, Kolhapur

Department of Commerce IT

Class: B.Com IT – II **Computer Networking**

UNIT I: Introduction to Computer Network

Short Answer

1. Define a computer network.
2. Explain the need for computer networks.
3. What are the basic components of a computer network?
4. Differentiate between client, server, and workstation.
5. Explain client–server network architecture.
6. What is peer-to-peer network architecture?
7. List and explain any three network devices.
8. What is a hub? How does it work?
9. Explain router and gateway.
10. Classify computer networks based on geographical spread.
11. What is LAN? List its advantages.
12. Explain WAN and MAN.
13. What is network topology?
14. Explain bus topology with advantages and disadvantages.
15. Explain star topology.

Long Answer

1. Define a computer network and explain its components in detail.
2. Explain client–server and peer-to-peer network architectures with diagrams.
3. Describe various network devices such as hub, repeater, bridge, router, and gateway.
4. Classify computer networks based on geographical area and explain LAN, MAN, and WAN.
5. Explain different network topologies—Bus, Ring, Star, Mesh, and Tree with advantages and disadvantages.
6. Compare different network topologies.

UNIT II: Data Transmission

Short Answer

1. What is data transmission?
2. Differentiate between serial and parallel transmission.
3. Explain analog transmission.
4. What is digital transmission?
5. Explain simplex transmission mode.
6. Differentiate between half duplex and full duplex.
7. What are transmission media?
8. Explain twisted pair cable.
9. Write a short note on optical fiber.
10. Explain unguided transmission media.

Long Answer

1. Explain data transmission methods—serial and parallel transmission.
2. Discuss analog and digital transmission in detail.
3. Explain transmission modes—simplex, half duplex, and full duplex.
4. Describe guided transmission media: twisted pair, coaxial cable, and optical fiber.
5. Explain unguided transmission media—radio waves, microwaves, and infrared.
6. Compare guided and unguided transmission media.

UNIT III: Functionalities of Network

Short Answer

1. What is error detection?
2. Explain error control in data communication.
3. What is flow control?
4. Explain Stop and Wait protocol.
5. What is sliding window protocol?
6. Define routing.
7. What is switching?
8. Explain circuit switching.
9. What is packet switching?
10. Explain connection-oriented and connectionless services.

Long Answer

1. Explain error detection and error control techniques in data communication.
2. Discuss flow control mechanisms with Stop and Wait and Sliding Window protocols.
3. Explain different switching techniques—circuit switching, packet switching, and message switching.
4. Describe routing techniques used in computer networks.
5. Explain multiplexing techniques in detail.
6. Differentiate between connection-oriented and connectionless services.

UNIT IV: Network Models

Short Answer

1. What is a network model?
2. Explain the need for layered network architecture.
3. What is the OSI model?
4. List the layers of the OSI model.
5. Explain the function of the physical layer.
6. What is the role of the data link layer?
7. Explain the network layer.
8. What are the functions of the transport layer?
9. What is the TCP/IP model?
10. List the layers of the TCP/IP model.

Long Answer

1. Explain the OSI reference model with functions of all seven layers.
2. Describe the working of the OSI model.
3. Explain the physical, data link, and network layers in detail.
4. Discuss transport, session, presentation, and application layers of the OSI model.
5. Explain the TCP/IP model and its layers.
6. Compare OSI model and TCP/IP model.