



**SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES  
(AUTONOMOUS)**

**QUESTION BANK**

**Year / Semester: III B.Tech VI Semester**

**Regulation: R23**

**Subject and Code: Computer Networks & Internet Protocols, 23CSE352T**

**SYLLABUS**

UNIT-1: INTRODUCTION - Types of Computer Networks, Broadband Access Networks, Mobile and Wireless Access Networks, Content Provider Networks, Transit networks, Enterprise Networks, Network technology from local to global, Personal Area Networks, Local Area Networks, Home Networks, Metropolitan Area Networks, Wide Area Networks, Internetworks, Network Protocols, Design Goals, Protocol Layering, Connections and Reliability, Service Primitives, The Relationship of Services to Protocols, Reference Models, The OSI Reference Model, The TCP/IP Reference Model, A Critique of the OSI Model and Protocols, A Critique of the TCP/IP Reference Model and Protocols.

UNIT-2: THE DATA LINK LAYER - Guided Transmission Media, Persistent Storage, Twisted Pairs, Coaxial Cable, Power Lines, Fiber Optics, Data Link Layer Design Issues, Services Provided To The Network Layer, Framing Error Control, Flow Control, Error Detection And Correction, Error-Correcting Codes, Error-Detecting Codes, Elementary Data Link Protocols, Initial Simplifying Assumptions Basic Transmission And Receipt, Simplex Link-Layer Protocols, Improving Efficiency, Bidirectional Transmission, Multiple Frames In Flight, Examples Of Full-Duplex, Sliding Window Protocols, The Channel Allocation Problem, Static Channel Allocation, Assumptions For Dynamic Channel Allocation, Multiple Access Protocols, Aloha, Carrier Sense Multiple Access Protocols, Collision-Free Protocols, Limited-Contention Protocols, Wireless LAN Protocols, Ethernet, Classic Ethernet Physical Layer, Classic Ethernet Mac Sub layer Protocol, Ethernet Performance, Switched Ethernet, Fast Ethernet, Gigabit Ethernet, 10-Gigabit Ethernet, 40- And 100-Gigabit Ethernet, Retrospective On Ethernet.

UNIT-3: THE NETWORK LAYER - Network Layer Design Issues, Store-And-Forward Packet Switching, Services Provided To The Transport Layer, Implementation Of Connectionless Service, Implementation Of Connection Oriented Service, Comparison Of Virtual-Circuit And Datagram Networks, Routing Algorithms In A Single Network, The Optimality Principle, Shortest Path Algorithm, Flooding, Distance Vector Routing, Link State Routing, Hierarchical Routing Within a Network, Broadcast Routing, Multicast Routing, Anycast Routing, Traffic Management at The Network Layer, The Need for Traffic Management: Congestion, Approaches To Traffic Management, Internetworking, Internetworks: An Overview, How Networks differ, Connecting Heterogeneous Networks, Connecting Endpoints Across Heterogeneous Networks, Internetwork Routing: Routing Across Multiple Networks Supporting Different Packet Sizes: Packet Fragmentation, The Network Layer In The Internet, The IP Version 4 Protocol, IP Addresses, IP Version 6, Internet Control Protocols, Label Switching and MPLS, OSPF—An Interior Gateway Routing Protocol, BGP The Exterior Gateway Routing Protocol, Internet Multicasting.

UNIT-4: THE TRANSPORT LAYER - The Transport Service, Services Provided To The Upper Layers, Transport Service Primitives, Berkeley Sockets, An Example Of Socket Programming: An Internet File Server, Elements Of Transport Protocols, Addressing, Connection Establishment, Connection Release, Error Control And Flow Control, Multiplexing, Crash Recovery, Congestion Control, Desirable Bandwidth Allocation, Regulating The Sending Rate, Wireless Issues, The Internet Transport Protocols: UDP, Introduction To UDP, Remote Procedure Call, Real-Time Transport Protocols, The Internet Transport Protocols: TCP, Introduction To TCP, The TCP Service Model, The TCP Protocol, The TCP Segment Header, TCP Connection Establishment, TCP Connection Release.

UNIT-5: THE APPLICATION LAYER - Electronic Mail, Architecture and Services, The User Agent, Message Formats, Message Transfer, Final Delivery, The World Wide Web, Architectural Overview, Static Web Objects, Dynamic Web Pages and Web Applications, HTTP and HTTPS, Web Privacy, Content Delivery, Content and Internet Traffic, Server Farms and Web Proxies, Content Delivery Networks, Peer-to-Peer Networks, Evolution of The Internet



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**Max Marks: 10**

S.No	CO	Questions	BT
<b>Unit I: (Introduction to Computer Networks)</b>			
1	1	Explain about the OSI reference model.	L4
2	1	Summarize the home networks and personal area networks.	L3
3	1	Discuss about LAN, WAN networks in detail.	L4
4	1	Explain about the TCP reference model.	L3
5	1	Differentiate between OSI and TCP/IP reference model.	L5
6	1	What are the advantages and disadvantages of OSI reference model.	L4
7	1	Discuss about Broadband, Mobile and Wireless access WAN networks in detail.	L3
8	1	What are the advantages and disadvantages of TCP/IP reference model.	L5
9	1	Summarize the Wide area networks and Internetworks.	L4
10	1	Explain about Service primitives.	L3
S.No	CO	Questions	BT
<b>Unit II: (The Data Link Layer)</b>			
1	2	Discuss about Guided transmission media.	L4
2	2	What are the design issues of Data link Layer.	L3
3	2	Define error and Explain about CRC error detection method with example.	L4
4	2	Explain about Hamming code error correction method with example.	L3
5	2	Define Pipelining and Explain about stop and wait protocol with example.	L5
6	2	Briefly explain about sliding window protocol with example.	L4
7	2	Summarize the collision free protocols.	L3
8	2	Differentiate the Switched ethernet and Fast Ethernet.	L5
9	2	Describe CSMA/CD protocol and commit the performance for medium access.	L4



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10	2	Briefly explain about Ethernet specifications.	L3
S.No	CO	Questions	BT
<b>Unit III: (The Network Layer)</b>			
1	3	Discuss about design issues of Network Layer.	L4
2	3	Explain about shortest path first algorithm with example.	L3
3	3	Summarize distance Vector Routing algorithm with example.	L4
4	3	Briefly explain about Link state routing algorithm with example.	L3
5	3	Describe the Hierarchical routing.	L5
6	3	Discuss about congestion control algorithms.	L4
7	3	Briefly explain about IPV4 header format.	L3
8	3	Explain about IPV6 header format.	L5
9	3	Briefly explain about ICMP.	L4
10	3	Explain about border gateway protocol.	L3

S.No.	CO	Questions	BT
<b>Unit IV: (The Transport Layer)</b>			
1	4	Describe the element of transport layer.	L4
2	4	Briefly explain about internet protocol UDP.	L3
3	4	Discuss about TCP segment Header.	L4
4	4	Explain three-way handshake method for TCP connection with example.	L3
5	4	Explain about TCP sliding window protocol with example.	L5
6	4	What are the different types of TCP timer management.	L4
7	4	Summarize the TCP congestion control with example.	L3
8	4	Explain about TCP service model.	L5
9	4	What are the design issues of transport layer.	L4
10	4	Briefly explain about RPC and RTP.	L3



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S.No.	CO	Questions	BT
<b>Unit V: (The Application Layer)</b>			
1	5	Discuss about SMTP in detail.	L4
2	5	Summarize the final delivery of email to the end using POP3.	L3
3	5	Explain in detail about the message format and message transfer in electronic mail.	L4
4	5	Briefly explain the HTTP, give the uses and state strengths and weaknesses.	L3
5	5	Describe the example of HTTP.	L5
6	5	Write about the short notes of WWW and Web applications.	L4
7	5	Explain about the evolution of Internet.	L3
8	5	Discuss about World Wide Web? And write the short notes on URL.	L5
9	5	Explain about peer-to-peer networks.	L4
10	5	Briefly explain about Content Delivery Networks.	L3

Note: L1-Remembering, L2-Understanding, L3-Appling, L4-Analyzing, L5-Evaluating, and L6-Creating

**Instruction to Faculty Members:**

**The Six Levels of Bloom's Taxonomy:**

- Remembering:** Retrieving, recognizing, and recalling relevant knowledge from long-term memory (e.g., list, define, name, locate).
- Understanding:** Constructing meaning, explaining ideas, or concepts (e.g., summarize, interpret, classify, compare).
- Applying:** Using information in new situations or implementing procedures to solve problems (e.g., solve, use, demonstrate, implement).
- Analyzing:** Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure (e.g., contrast, categorize, distinguish, diagram).



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5. **Evaluating:** Making judgments based on criteria and standards through checking and critiquing (e.g., judge, critique, justify, defend, argue).
6. **Creating:** Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure (e.g., design, construct, develop, formulate).

SITAMS