Q.No.	Question	Chapter
	Unit-1	
1	Data communication and characteristics.	Introduction
2	Components of data communication.	Introduction
3	Topology and explain any one (mesh , star, bus, ring)	Introduction
4	RFC maturity levels	Introduction
5	RFC requirement levels	Introduction
6	Terms: LAN WAN Simplex Half-duplex Full-duplex Internet standard Draft RFC	Introduction
1	Explain OSI model.	Network Models
2	Explain any one layer of TCP/IP Model.	Network Models
3	Discuss following TCP/IP layers: i) Network ii) Transport	Network Models
1	Explain in short parameters of sine wave	Introduction to Physical Layer
2	What is a difference between period and frequency? Example to calculate period or frequency (E.g. Express a period of 100 ms in microseconds.)	Introduction to Physical Layer
3	Bandwidth. Problems of bandwidth calculation. (E.g. 3.10 to 3.12 in PDF)	Introduction to Physical Layer
4	A digital signal has 16 levels. How many bits are needed per level?	Introduction to Physical Layer
5	Decibel and problems on decibels (3.26 to 3.30 in PDF).	Introduction to Physical Layer
6	Noise and types of noise.	Introduction to Physical Layer
7	A nonperiodic composite signal has a bandwidth of 260 kHz, with a middle frequency of 160 kHz and peak amplitude of 20 V. The two extreme frequencies have an amplitude of 0. Draw the frequency domain of the signal. (Similar kind of examples)	Introduction to Physical Layer
8	The loss in a cable is usually defined in decibels per kilometer (dB/km). If the signal at the beginning of a cable with −0.3 dB/km has a power of 2 mW, what is the power of the signal at 5 km? (Similar kind of examples)	Introduction to Physical Layer
9	Terms: Periodic and nonperiodic signals Analog signal Digital signal simple and composite signal Period Frequency Phase Amplitude Wavelength Time-domain plot Frequency-domain plot Bit rate Baseband transmission Broadband transmission Low pass channel Band pass channel Attenuation Decibel Throughput Latency Propagation time Transmission Time Queing Time	Introduction to Physical Layer
1	Line coding and its characteristics.	Digital Transmission
2	What is a relationship between data rate and signal rate and example on it (Example 4.1 in PDF)	Digital Transmission
3	Self synchronization and problem on it (Example 4.2 in PDF)	Digital Transmission
4	Difference between Polar and Unipolar NRZ.	Digital Transmission
5	Discuss Manchester and differential manchester scheme.	Digital Transmission
6	Explain 4D-PAM5	Digital Transmission
7	Discuss Bipolar Schemes	Digital Transmission
8	Different transmission modes of binary data.	Digital Transmission
9	Terms: Line Coding Baseline Wandering Baud Rate / Signal Rate DC Components Self synchronization Unipolar NRZ Polar NRZ RZ PCM	Digital Transmission
1	Binary aplitude shift keying and example on it (E.g. 5.3 from PDF)	Analog Transmission
2	We have an available bandwidth of 100 kHz which spans from 250 to 350 kHz. What are the carrier frequency and the bit rate if we modulated our data by using ASK with d= 1? (Similar kind of examples)	Analog Transmission
3	Binary FSK . And example on it (E.g. 5.5 from PDF)	Analog Transmission
4	QPSK. And example on it (E.g. 5.7 from PDF)	Analog Transmission
5	Explain in short the types of analog to analog modulation.	Analog Transmission
6	Terms: ASK FSK PSK QPSK AM FM PM	Analog Transmission
1	FDM and problem on it E.g. problem on page no. 9 (guard band) in PDF)	Bandwidth Utilization: Multiplexing
2	What is TDM	Bandwidth Utilization: Multiplexing
3	Different techniques of data rate management.	Bandwidth Utilization: Multiplexing
4	Terms: Multiplexing link Channel FDM Guard band WDM TDM interleaving	Bandwidth Utilization: Multiplexing
1	Discuss Twisted pair cable (structure, performance, applications)	Transmission Media
2	Discuss Coaxial cable (structure, performance, applications)	Transmission Media
3	Discuss Fiber optic cable (Idea,structure, performance, applications,advantages, disadvantages)	Transmission Media
4	Unguided medium.The different ways unguided signals can travel from source to destination.	Transmission Media
5	Explain Radio Waves	Transmission Media
6	Terms: transmission medium unguided medium guided medium Radio waves Microwaves Infrared Waves	Transmission Media
1	Explain Circuit switched Network.	Switching
2	Explain Datagram network	Switching
3	Setup phase of VCI.	Switching
4	Terms: Circuit switched Network Datagram network Virtual Circuit Network VCI	Switching
	Unit-2	
1	Note on Pure ALOHA.	Media Access Control
2	Different types of persistence methods	Media Access Control
3	Explain reservation	Media Access Control
4	Explain polling	Media Access Control
5	Explain Token passing	Media Access Control
6	Note on FDMA	Media Access Control
7	Note on TDMA	Media Access Control
8	What is controlled access protocol? Explain the different techniques used in controlled access protocol of MAC.	Media Access Control
9	Diagrammatically explain the working of pure ALOHA protocol.	Media Access Control
10	Terms: CSMA/CD CSMA/CA PURE ALOHA Slotted ALOHA IFS Contention window FDMA TDMA CDMA	Media Access Control
1	MAC address and types of MAC addresses.	Introduction to Data-Link Layer
2	ARP	Introduction to Data-Link Layer
3	ARP Packet format	Introduction to Data-Link Layer
4	Terms: DLC MAC LINK-LAYER ADDRESSING ARP	Introduction to Data-Link Layer
1	Character oriented and bit oriented approach in frame synchronization.	Data Link Control (DLC)
2	Simple and stop-and-wait protocol of Data link layer.	Data Link Control (DLC)
3	Note on point to point protocol	Data Link Control (DLC)
4	Frame structure of PPP.	Data Link Control (DLC)
5	Brief explanation of HDLC.	Data Link Control (DLC)
6	Terms: PPP HDLC LCP PAP CHAP Connectionless and connection oriented protocol	Data Link Control (DLC)
1	Network layer and its services.	Introduction to Network Layer
2	IPv4 and problems on IPV4 binary to decimal conversion problems.	Introduction to Network Layer
3	Note on classful addressing	Introduction to Network Layer
4	Slash notation and problems on it. (E.g. on page no. 19 in PDF).	Introduction to Network Layer
5	Explain subnetting with example.	Introduction to Network Layer
6	Different types of special addresses.	Introduction to Network Layer
7	Note on DHCP	Introduction to Network Layer
8	Discuss NAT	Introduction to Network Layer
9	How the congestion control improves performance of network layer?	Introduction to Network Layer
10	Terms: IPv4 DHCP NAT	Introduction to Network Layer
1	Explain IP protocol	Network Layer Protocols
2	IP datagram header format	Network Layer Protocols
3	Datagram. Explain security in IPv4 datagram.	Network Layer Protocols
4	ICMPv4	Network Layer Protocols
5	Messages in ICMPv4	Network Layer Protocols
6	Mobile IP.	Network Layer Protocols
7	Terms: IP MTU	Network Layer Protocols
	Unit-3	
1	Explain WWW.	Standard Client-Server Protocols
2	Note on FTP	Standard Client-Server Protocols
3	Mail transfer process in detail	Standard Client-Server Protocols
4	mail transfer phases	Standard Client-Server Protocols
5	POP and IMAP difference	Standard Client-Server Protocols
6	Short note on SSH	Standard Client-Server Protocols
7	Explain TELNET	Standard Client-Server Protocols
1	Least cost routing. A problem to find least cost routing of any node from given graph. E.g. Refer E.G. on page no. 7 in PDF.	Unicast Routing
2	Distance vector routing with example.	Unicast Routing
3	Example on distance vector routing (E.g. How to find the updated vector of any node shown on page no 13 in PDF.)	Unicast Routing
4	Count to infinity problem and its solution	Unicast Routing
5	LSDB and A problem on to derive LSDB for all nodes from a given graph. (E.g. Refer page no. 18 from PDF).	Unicast Routing
6	Explain with example how each node updates its own vector depending on the vectorreceived from the neighbor node using distance vector algorithm?	Unicast Routing
1	Explain UDP (Definition, frame format, servies, Applications)	Transport Layer Protocols
2	UDP and frame format.	Transport Layer Protocols
3	Explain TCP (Defintion, servies)	Transport Layer Protocols
4	TCP segment format	Transport Layer Protocols
1	Different representation of IPv6 Addresses	Next Generation IP
2	IPv6 Protocol	Next Generation IP
3	IPv6 Packet format	Next Generation IP
4	ICMPv6 Protocol messages.	Next Generation IP
5	What are the techniques to embed host tol in link layer address in IPv6? (Example on page no. 9,10 in PDF)	Next Generation IP
1	QoS and flow characteristics	Quality of Services
2	QoS and flow classes	Quality of Services
3	Different flow control techniques to improve QoS.	Quality of Services
4	Explain any one flow control techniques to improve QoS in detail.	Quality of Services
5	Explain Resource Reservation Protocol (RSVP).	Quality of Services
6	traffic conditioners in DiffServ	Quality of Services
7	Note on INTEGRATED SERVICES (INTSERV).	Quality of Services