

United College of Engineering & Research, Prayagraj

Department of Computer Science & Engineering

B.Tech (CSE), 6th Semester

Question Bank

Unit -1

Course Name: Computer Networks

AKTU Course Code: KCS 603

Sr. No.	Question	CO	Level
1.	What are the number of cable links required for n devices connected in mesh , bus ,ring and star topology?	CO1	L1
2.	Differentiate Bit rate and Baud rate .	CO1	L2
3.	Calculate the required bandwidth, if in a communication channel the signal power is 10 W and the information transmission rate is 10 Kbps.	CO1	L3
4.	It is required to transmit a data at a rate of 64 kbps over a 3 kHz telephone channel What is the minimum SNR required to accomplish this?	CO1	L1
5.	What do you mean by service primitives?	CO1	L1
6.	Discuss the services of each layer of OSI reference model.	CO1	L1
7.	What are the applications of Computer Networks?	CO1	L2
8.	What is OSI model? Explain functions, protocols and services of each layer.	CO1	L3
9.	What is the total delay (latency) for a frame size of 10 million bits that is being set up on link with 15 routers, each having queuing time of 2 microsec and a processing time of 1 microsec ? The length of link is 3000 Km . The speed of light inside the link is $3 * 10^8$ m/sec. The link has bandwidth of 6 Mbps.	CO1	L1
10.	Write about user access in ISDN?	CO1	L2
11.	List the advantages and disadvantages of star topology.	CO1	L1
12.	Explain network topological design with necessary diagram	CO1	L2

	and brief the advantages and disadvantages of various topologies.		
13.	Explain functionalities of every layer in OSI reference model with neat block diagram.	CO1	L1
14.	What are the applications of Computer Networks?	CO1	L1
15.	List the advantages and disadvantages of ring topology.	CO1	L4
16.	If a binary signal is sent over a 3KHZ channel. Whose signal to noise ratio is 20db. What is the maximum achievable data rate?	CO1	L1
17.	What is OSI Model? Explain the functions; protocols and services of each layer?	CO1	L2
18.	Discuss the different physical layer transmission media.	CO1	L3
19.	Explain network topological design with necessary diagram and brief the advantages and disadvantages of various topologies.	CO1	L1
20.	Define topology. Explain the advantages and disadvantages	CO1	L2

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Unit -2

Course Name: Computer Networks

AKTU Course Code: KCS 603

Sr. No.	Question	CO	Level
1.	What are header and trailers? How do they get added and removed?	CO2	L1
2.	What is piggybacking?	CO2	L2
3.	Measurement of slotted ALOHA with infinite number of users show that 10 percent of slots are idle a. What is the Channel load? b. What is the throughput?	CO2	L1
4.	Compare ALOHA with Slotted ALOHA	CO2	L1
5.	State the requirement of CRC.	CO2	L2
6.	A pure ALOHA network transmits 200-bit frames on a shared channel of 200 kbps. What is the throughput if the system (all stations together) produces a. 1000 frames per second b. 500 frames per second c. 250 frames per second	CO2	L1
7.	Discuss the issues of Data Link Layer and about its protocol on the basis of layering principle.	CO2	
8.	A channel has a bit rate of 20 kbps . The stop and wait protocol with the frame size 4500 bits is used. The delay for error detection and sending ACK by the receiver is 0.25 seconds because of a fault. Find the maximum efficiency of the channel if the destination is 30000 km away and the speed of the propagation of the signal is $2 * 10^8$ m/s. Find the decrease in efficiency due to fault.	CO2	L3
9.	Discuss different carrier sense protocols. How they are different from collision protocols.	CO2	L1

10.	Consider the use of 10 K-bit size frames on a 10 Mbps satellite channel with 270 ms delay. What is the link utilization for stop-and-wait ARQ technique assuming $P=10^{-3}$?	CO2	L2
11.	Given a 10 bit sequence 1010011110 and divisor 1011. Find CRC.	CO2	L1
12.	What are header and trailers? How do they get added and removed?	CO2	L2
13.	What is piggybacking?	CO2	L1
14.	What is Ethernet LAN?	CO2	L1
15.	What is bit Stuffing?	CO2	L2
16.	Calculate the throughput for a pure ALOHA network if the offered traffic is 0.75.	CO2	L1
17.	If bandwidth of a channel is 10Mbps, round trip time is 100 micro second, frame size is 100 bits then calculate link utilization of a channel?	CO2	L1
18.	Write Nyquist theorem for noiseless channel. We need to send 280 kbps over a noiseless channel with a bandwidth of 20 kHz. How many signal levels do we need?	CO2	L2
19.	Calculate the throughput for a pure ALOHA network if the offered traffic is 0.75.	CO2	L1
20.	If bandwidth of a channel is 10Mbps, round trip time is 100 micro second, frame size is 100 bits then calculate link utilization of a channel?	CO2	L2

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Unit -3

Course Name: Computer Networks

AKTU Course Code: KCS 603

Sr. No.	Question	CO	Level
1.	Perform the subnetting of the following IP address 160.11.X.X. Original Subnet mask 255.255.0.0 and number of subnet is 6 (six).	CO3	L1
2.	Given an IP address 180.25.21.172 and the subnet mask 255.255.192.0, what is the subnet address?	CO3	L2
3.	What is count-to-infinity problem?	CO3	L1
4.	Define routing. In what way it is different from switching?	CO3	L1
5.	What is IP addressing? How it is classified? How is subnet addressing is performed?	CO3	L2
6.	Find the class of each address a) 140.213.10.80 b) 52.15.150.11	CO3	L5
7.	What is congestion? Name the techniques that prevent congestion.	CO3	L2
8.	With the given IP-address, how will you extract its net-id and host-id?	CO3	L1
9.	Describe the problem of count to infinity associated with distance vector routing technique.	CO3	L4
10.	What is count-to-infinity problem?	CO3	L2
11.	Given the IP address 180.25.21.172 and the subnet mask 255.255.192.0, what is the subnet address?	CO3	L4
12.	What is IP addressing? How it is classified? How is subnet addressing is performed?	CO3	L2
13.	What is unicast routing? Discuss unicast routing protocols.	CO3	L3

14.	If a class B network on the Internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?	CO3	L1
15.	What is count-to-infinity problem?	CO3	L2
16.	What is time-to-live or packet lifetime?	CO3	L4
17.	Write advantages of Next-generation IPV6 over IPV4.	CO3	L2
18.	The IP network 200.198.160.0 is using subnet mask 255.255.255.224. Design the subnets.	CO3	L1
19.	What is congestion? Name the techniques that prevent congestion.	CO3	L1
20.	With the given IP-address, how will you extract its net-id and host-id?	CO3	L2

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Question Bank

Unit -4

Course Name: Computer Networks

AKTU Course Code: KCS 603

Sr. No.	Question	CO	Level
1.	Enumerate how the transport layer ensure that the complete message arrives at the destination and in proper order.	CO4	L1
2.	Explain the three way handshaking protocol in establish the transport level connection.	CO4	L2
3.	.Explain about the TCP header with header diagram and working of TCP protocol and differentiate between TCP and UDP with frame format.	CO4	L1
4.	Explain TCP congestion control algorithm in internet. What is TCP segment header? Also discuss TCP connection management	CO4	L1
5.	.Write short note on RPC. Discuss RPC design and implementation issues	CO4	L2
6.	Discuss different steps of JPEG compression standards. (2014-15)	CO4	L5
7.	Write short note on voice over IP. What is the problems for full implementation of voice over IP	CO4	L2
8.	What is the total delay(latency) for a frame size of 10 million bits that is being setup on a link with 15 routers, each having queuing time of (2μ s) and a processing time of (1μs) ? the length of link is 3000 km. The speed of light inside the link 2X10 ⁸ m/sec. The link has bandwidth of 6 Mbps.	CO4	L1
9.	Enumerate how the transport layer ensure that the complete message arrives at the destination and in proper order.	CO4	L2
10.	Explain the three way handshaking protocol in establish the transport level connection.	CO4	L1

11.	Explain about the TCP header with header diagram and working of TCP protocol and differentiate between TCP and UDP with frame format.	CO4	L1
12.	Explain TCP congestion control algorithm in internet. What is TCP segment header? Also discuss TCP connection management.	CO4	L2
13.	Discuss RPC design and implementation issues.	CO4	L5
14.	Discuss different steps of JPEG compression standards.	CO4	L2
15.	What is the problems for full implementation of voice over IP.	CO4	L2
16.	What is the total delay (latency) for a frame size of 10 million bits that is being setup on a link with 15 routers, each having queuing time of (2μ s) and a processing time of (1μ s) ? the length of link is 3000 km. The speed of light inside the link 2×10^8 m/sec. The link has bandwidth of 6 Mbps.	CO4	L1
17.	Write short note on voice over IP.	CO4	L1
18.	Write short note on RPC.	CO4	L2
19.	Explain about the TCP header with header diagram	CO4	L5
20.	What is TCP congestion control?	CO4	L2

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B.Tech (CSE), 6th Semester

Question Bank

Unit -5

Course Name: Computer Networks

AKTU Course Code: KCS 603

Sr. No.	Question	CO	Level
1.	What is File Transfer Protocol(FTP). How does it works?	CO5	L2
2.	Explain POP3 in detail	CO5	L5
3.	How FTP is different from TFTP?	CO5	L2
4.	Write short note on MIME and TFTP. (2013-14)	CO5	L2
5.	What is DNS. How does DNS perform data name resolution. What are different types of name server.	CO5	L5
6.	What is the purpose of the Domain Name System? Discuss the three main divisions of the domain name space.	CO5	L2
7.	Explain electronic mail alongwith it's architechture and services.	CO5	L2
8.	Explain Telnet and its working procedure	CO5	L5
9.	What is HTTP and how HTTP differ from HTTPs?	CO5	L2
10.	Explain IMAP in detail	CO5	L5
11.	What is SMTP and SNMP?	CO5	L2
12.	What is the difference between an active web document and dynamic web page?	CO5	L2
13.	Also explain role of CGI.	CO5	L5
14.	What three functions can SNMP perform to manage network devices?	CO5	L2
15.	How is the BOOTP different from DHCP?	CO5	L2
16.	What is the difference between a user agent (UA) and a mail transfer agent (MTA)?	CO5	L5
17.	Differentiate between active and passive FTP.	CO5	L2

18.	Explain electronic mail alongwith it's architechture and services.	CO5	L5
19.	What is MIME?	CO5	L2
20.	Explain DNS in detail.	CO5	L2