

S. No. of Question Paper : 13354

Unique Paper Code : 2344000025

Name of the Paper : Computer Networks

Name of the Course : B.Sc.(H) Computer Science

Type of Paper : GE

Semester : VII

Duration: 3 Hours

Maximum Marks: 90

(Write your Roll No. on the top immediately on receipt of this question paper.)

This question paper has two Section A and B.

Question 1 in Section-A is compulsory.

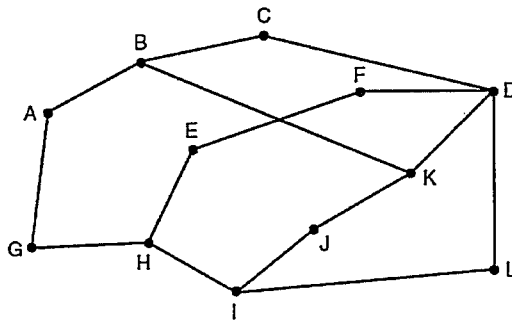
Attempt any four questions from Section-B.

Parts of a question must be attempted together.

Section A carries 30 marks and each question in Section B carries 15 marks.

Section A			
Q. 1	a)	When we use local telephones to talk to a friend, are we using a circuit switched network or a packet-switched network? Explain with suitable justification.	5
	b)	Give three examples of protocol parameters that might be negotiated when a connection is set up.	4
	c)	A nonperiodic composite signal contains frequencies from 10 to 30 KHz. The peak amplitude is 10 V for the lowest and the highest signals and is 30 V for the 20-KHz signal. Assuming that the amplitudes change gradually from the minimum to the maximum, draw the frequency spectrum.	5
	d)	Define FDM. How it is different from TDM explain with example	4
	e)	How do guided media differ from unguided media with example?	4
	f)	Explain the features of the Datalink layer and Transport layer.	4
	g)	Define Data Link Control. Explain different functions of DLC with example.	4
Section B			

Q. 2	a)	We have two computers connected by an Ethernet hub at home. Is this a LAN or a WAN? Explain the reason.	5
	b)	Name three types of transmission impairment. Explain each with suitable examples.	6
	c)	Define ICANN. When it was established? What is the use of a registrar in ICANN?	4
Q. 3	a)	Explain High-level Data Link Control (HDLC) with example. Explain different transfer modes with example.	5
	b)	Write short note on the following i) Piggybacking ii) Radio wave iii) ICMP	6
	c)	Define IPv6. Explain its header format with diagram.	4
Q. 4	a)	Define HTTP. Explain different methods used by HTTP.	4
	b)	What is the maximum overhead in a byte-stuffing algorithm?	5
	c)	Explain different services provided by the transport layer to its upper layers?	6
Q. 5	a)	Define the services and the Name the layer of the TCP/IP model which performs the following services: (i) Process-to-Process Delivery (ii) Source-to-Destination Delivery (iii) Framing.	6
	b)	Explain Carrier Sense Multiple Access Protocols. Differentiate between persistent and non persistent CSMA.	5
	c)	Compute a multicast spanning tree for router C in the following network for a group with members at routers A, B, C, D, E, F, I, and K.	4



Q. 6	a)	Explain the Coaxial cable, its uses and properties of the coaxial cable.	5
	b)	Describe the goals of multiplexing. List three main multiplexing techniques. Distinguish between a link and a channel in multiplexing.	5
	c)	Why DNS is used for. write different portions of an internet domain name space with suitable examples and explanations.	5
Q. 7	a)	Datagram networks route each packet as a separate unit, independent of all others. Virtual-circuit networks do not have to do this, since each data packet follows a predetermined route. Does this observation mean that virtual-circuit networks do not need the capability to route isolated packets from an arbitrary source to an arbitrary destination? Explain your answer.	5
	b)	We need to use synchronous TDM and combine 20 digital sources, each of 100 Kbps. Each output slot carries 1 bit from each digital source, but one extra bit is added to each frame for synchronization. Answer the following questions: a. What is the size of an output frame in bits? b. What is the output frame rate? c. What is the duration of an output frame? d. What is the output data rate? e. What is the efficiency of the system (ratio of useful bits to the total bits)?	5
	c)	What is Transmission Control Protocol. Explain TCP with the help of its header.	5