Total number of printed pages: 3 **D/4th/DCSE402**

2023

COMPUTER COMMUNICATION & NETWORKING

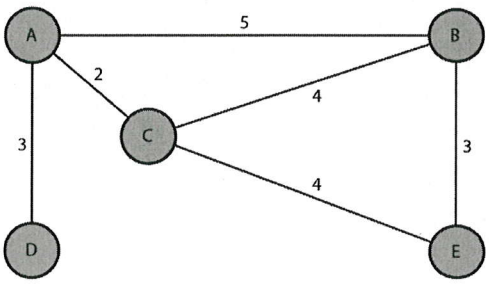
Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Fill in the blanks		5x1=5
		i.	Bridge operates at the _____ layer of the OSI model.	
		ii.	_____ is a device that connects networks with different protocols.	
		iii.	An IPv4 address is of _____ bits length.	
		iv.	Hardware address of a machine is also known as _____.	
		v.	HTTTP stands for _____.	
	b)	State True/False		5x1 = 5
		i.	A hub is also known as a multiport repeater.	
		ii.	Ethernet is an example of a broadband network technology.	
		iii.	Chances of collision is more in slotted ALOHA as compared to pure ALOHA.	
		iv.	IP is a connectionless protocol.	
		v.	TCP is a reliable transport layer protocol.	
	c)	Answer the following in brief.		5x2=10
		i.	State the difference between broadcast and multicast communication.	
		ii.	Write about the various classes of IP addresses.	
		iii.	What do you mean by flooding?	

		iv.	Define a socket address.	
		v.	What does a SYN flag used for?	
2.	a)	Explain the different layers of OSI model in brief.		10
	b)	State the differences between a hub, switch and a router.		6
	c)	Sliding Window Protocols are more efficient than Stop and Wait Protocols. Justify the statement.		4
3.	a)	What do you mean by framing?		3
	b)	Explain the internet checksum method of error control with the help of an example.		10
	c)	Compare Go-back-N ARQ with selective repeat/selective reject protocol with the help of an example.		7
4.	a)	What is the basic functionality of the MAC layer?		3
	b)	Explain the working principle of CSMA protocol. Discuss in brief how CSMA/CD can improve the performance of CSMA in terms of handling collision.		5+4=9
	c)	Write a brief note on FDMA and TDMA.		4+4=8
5.	a)	What are the two types of services provided by the network layer? Discuss in brief.		2+2=4
	b)	Consider the following system where nodes are representing routers and edges are representing links between them. Use distance vector routing to create the routing tables for the different routers. Show each step explicitly. 		12

	c)	What are the advantages of link state routing over distance vector routing?	4
6.	a)	What is multiplexing in transport layer?	3
	b)	Explain the various services of TCP.	8
	c)	Give some of the application areas where UDP is more preferable over TCP.	3
	d)	What do you mean by data compression? Discuss the two categories of compression techniques in brief.	2+4=6
7.	Write short notes on---------		4x5=20
	a)	Client Server model	
	b)	Domain Name System	
	c)	Remote Procedural Call	
	d)	Cryptography	