

Total number of printed pages: Programme(Diploma)/Semester VI/DECE601

2024

Computer networking and data communication

Full Marks: 100

Time: Three hours

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

Answer any five questions.

1.	a)	What is IPv4? What are the two notations used to express it? How does internetworking (internet) work? Explain with the help of a diagram?	2+2+3=7
	b)	What are the different network topologies? Discuss bus and star topology. State their merits and demerits.	8
	c)	Define simplex, half-duplex and full duplex transmission. Give example of each.	5
2.	a)	What are the different implementations of standard Ethernet. Discuss.	6
	b)	Draw the Ethernet frame format. Elaborate the functions of each field.	6
	c)	Discuss pure ALOHA and slotted ALOHA systems. What is the efficiency of each system? Discuss CSMA. Draw its flow diagram.	8
3.	a)	What is ATM networking? What is an ATM cell? Describe ATM architecture. What are the various ATM layers? Write their functions.	4+3+4=11
	b)	What is USART? Describe the different sections of 8251 USART with the help of a diagram. Draw its pin diagram.	2+5+2=9
4.	a)	What is a modem? Classify various modem standards. Discuss any two modem standards. Describe a modem connection over telephone network.	9
	b)	What do you mean by DTE and DCE? How does two DTEs communicate via DCEs? What are the mechanical and electrical specifications of EIA-232.	7
	c)	Draw the pin-out diagram of DB-9 implementation of EIA-232. What are the signal names associated with each pin?	4
5.	a)	Describe IPv4 classful addressing? What are the problems with this scheme? Express 207.3.54.12 in binary notation. What is classless	9

		addressing?	
	b)	Distinguish between TCP and IP.	4
	c)	What is UART? Describe the working of UART? What is an UART packet?	7
6.	a)	Explain the Null Modem concept with relevant diagram. Draw the null modem pin connections. What is the problem if two DTEs are connected directly?	10
	b)	Describe the working of CSMA/CD.	4
	c)	What is TCP? What are its important features? What are the TCP services?	6
7.	a)	Describe two applications of 8251 USART.	6
	b)	Explain World Wide Web (WWW), URL, HTTP and HTML.	9
	c)	Differentiate between i) passive hub and active hub, and ii) hub and switch.	5

