Total number of printed pages: **Programme(D)/SemesterVI/DECE601**

2025

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)	Discuss the persistent methods of CSMA. Depict the efficiency versus load graphs for all these methods.	8
	b)	What is ATM switching? Describe the ATM architecture. Elaborate the ATM layers mentioning their respective functions.	2+5+5= 12
2.	a)	Explain the working of pure ALOHA and slotted ALOHA systems in detail. What is the efficiency of these systems?	7
	b)	Describe the functions of Repeaters, Switches, Routers, Bridges and Gateways.	10
	c)	Differentiate between point-to-point and broadcast communication.	3
3.	a)	Draw the TCP/IP protocol suite showing the protocols in each layer.	3
	b)	Draw a neat sketch of the OSI reference model. Discuss briefly the important features of each layer.	11
	c)	Find the first address, last address and block size of the following block-200.15.21.128/27.	6

4.	a)	Draw a mesh topology. How does it work? What is its major disadvantage?	8
	b)	Draw the Ethernet frame format. Elaborate the functions of each field.	2+5=7
	c)	What is CSMA/CD. How does it work?	5
5.	a)	What is SMTP? Explain Emailing technique using SMTP with the help of a diagram.	2+6=8
	b)	Discuss classful and classless addressing with the help of example. What is CIDR notation?	8
	c)	i) Change the following IP address from dotted-decimal notation to binary notation- 242.34.54.15 ii) Find the class of the following IP addresses- 129.14.6.8 and 237.14.2.1	2+2=4
6.	a)	Describe the architecture of World Wide Web (WWW) with a relevant diagram. Explain HTTP, HTML and URL.	4+6=10
	b)	What is an interface? Draw the pin-out diagram for RS-232C and label the signal names. State its electrical specifications.	10
7.		Write short notes on- i) EIA-449, ii) 10 Base 5, iii) UA, MTA and MAA in emailing, iv) Serial asynchronous transmission	5*4=20

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