Total number of printed pages: **Programme(UG)/Semester VI/UECE602**

2024

Computer Network

Full Marks: 100

Time: Three hours

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

*Answer **any five** questions.*

1.	a)	Describe the persistent methods of CSMA with the help of flow diagram.	8
	b)	Explain the working of CSMA/CD.	5
	c)	What is HDLC? What are its modes of operation? Describe the frames defined by HDLC.	7
2.	a)	Draw a neat diagram of IPv4 datagram header format. Explain *Identification*, *source address*, *destination address* and *time to live* fields.	10
	b)	In an IPv4 datagram, the M bit is 0, the HLEN value is 5, the value of total length is 200, and the offset value is 200. What is the number of the first byte and the number of the last byte in this datagram? Is this the first, last or middle fragment?	5
	c)	Find the first address, last address and the size of the following address block- 123.56.77.32/29	5
3.	a)	What is Domain Name System (DNS)? Why do we need a DNS system when we can directly use an IP address? What are the different types of DNS used in internet?	7
	b)	Illustrate with a diagram the fragmentation of a 4000-byte datagram showing fragmentation offsets (MTU 1500 bytes). Consider the fragmentation of the second fragment again with MTU 576 bytes.	6
	c)	Describe the architecture of World Wide Web (WWW). Explain HTTP, HTML and URL in connection to WWW.	7
4.	a)	What is TCP. Write its salient features. Explain the services provided by TCP.	8
	b)	Describe the architecture of ATM (Asynchronous Transfer Mode)	3+6=9

		technology. What are its various layers. Elaborate their functions.	
	c)	Which fields of the IPv4 header do change from router to router?	3
5.	a)	What do you mean by resolution and resolver? Differentiate and explain recursive and iterative resolution.	4+8=12
	b)	Explain connection establishment of TCP using three-way handshaking.	6
	c)	What is piggybacking? What is its usefulness?	2
6.	a)	Draw a neat diagram of OSI reference model? Write down the responsibilities of presentation layer.	6
	b)	Explain the terms- i) encapsulation and decapsulation, ii) protocol and iii) services.	3+2+2=7
	c)	Describe a scenario of electronic mail exchange.	7
7.		Write short notes on -i) Asynchronous TDM, ii) Maximum Transfer Unit (MTU), iii) IPv4 classful addressing, iv) Inverse domain , v) ATM cell, VPI and VCI.	5*4=20

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