	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Regular End Semester Examination – Summer 2024** **Course: B. Tech. Branch : Computer Engineering & Allied Semester : VI** **Subject Code & Name: Computer Networks (BTCOC602_Y23)** **Max Marks: 60** **Date:** 15/06/2024 **Duration: 3 Hr.**		
	Instructions to the Students: *1. All the questions are compulsory.* *2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.* *3. Use of non-programmable scientific calculators is allowed.* *4. Assume suitable data wherever necessary and mention it clearly.*		
		(BT Level)	Marks
Q. 1	**Solve Any Two of the following.**		12
A)	Match the following to one or more layers of the OSI model: a. Format and code conversion services b. Establishes, manages, and terminates sessions c. Ensures reliable transmission of data d. Log-in and log-out procedures e. Provides independence from differences in data representation	Understand	6
B)	What is the principal difference between connectionless communication and connection-oriented communication? Explain in brief.	Understand	6
C)	What is the length of a bit in a channel with a propagation speed of $2x\ 10^8$ m/s if the channel bandwidth is i. 1Mbps? ii. 10 Mbps? iii. 100 Mbps?	Understand	6
Q.2	**Solve Any Two of the following.**		12
A)	What is X.25? Explain X.25 layers and frame structure.	Understand	6
B)	Explain frame format of Ethernet IEEE 802.3	Understand	6
C)	Explain ATM layers and their functions. How is an ATM virtual connection identified? Explain in brief.	Understand	6
Q. 3	**Solve Any Two of the following.**		12
A)	The following character encoding is used in a data link protocol: A: 01000111 B: 11100011 FLAG: 01111110 ESC: 11100000 Show the bit sequence transmitted (in binary) for the four-character frame A B ESC FLAG when Flag bytes with byte stuffing farming methods is used.	Apply	6
B)	Calculate CRC code for Message "10001010111101010110011" if divisor polynomial	Apply	6

	is $X^3+ X^2 +1$		
C)	Explain Go-back-N ARQ. If a sender A sent 8 frames , it receives ACK with ACK number 6 , if A is using Go-back –N ARQ how many frames has to be retransmitted. Explain with diagram	Apply	6
Q.4	**Solve Any Two of the following.**		12
A)	Consider an IP packet with a length of 4,500 bytes that includes a 20-byte IPv4 header and a 40-byte TCP header. The packet is forwarded to an IPv4 router that supports a Maximum Transmission Unit (MTU) of 600 bytes. Assume that the length of the IP header in all the outgoing fragments of this packet is 20 bytes. Assume that the fragmentation offset value stored in the first fragment is 0. What is the fragmentation offset value stored in the third fragment? what are the total number of fragments ?	Apply	6
B)	The following is a dump of a UDP header in hexadecimal format. 0045DE00FE200058 a. What is the source port number? b. What is the destination port number? c. What is the total length of the user datagram? d. What is the length of the data? e. Is the packet directed from a client to a server or vice versa? f. What is the client process?	Apply	6
C)	What is count-to-Infinity problem in distance vector routing? How it can be solved? Explain with example.	Understand	6
Q. 5	**Solve Any Two of the following.**		12
A)	Explain FTP protocol and FTP connections.	Understand	6
B)	Can a machine with a single DNS name have multiple IP addresses? How could this occur.	Understand	6
C)	Explain three types of Firewalls.	Understand	6
	***** End *****		