INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

COMPUTER SCIENCE AND ENGINEERING

DEFINITIONS AND TERMINOLOGY

Course Name	:	**COMPUTER NETWORKS**
Course Code	:	**AIT003**
Program	:	**B.Tech**
Semester	:	**VIII**
Branch	:	**Electronics and Communication Engineering**
Section	:	**A,B,C,D**
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Course Faculty	:	**Mr. G Kiarn Kumar, Assistant Professor** **Mr. B Santhosh Kumar, Assistant Professor**

OBJECTIVES

I	Recognize modern network architectures from a design and performance perspective.
II	Understand the basics and challenges of network communication.
III	Provide an opportunity to do network programming using TCP/IP.
IV	Interpret the operation of the protocols that are used inside the Internet.

DEFINITIONS AND TERMINOLOGYQUESTION BANK

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
UNIT - I						
1	What is network?	A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data.	Remember	CO 1	CLO1	AIT003.01
2	What is Internet?	A global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols.	Remember	CO 1	CLO3	AIT003.03
3	What is the difference between Internet and internet?	The Internet is an open, public space, while an intranet is designed to be a private space. An intranet may be accessible from the Internet, but as a rule it's protected by a password and accessible only to employees or other authorized users.	Remember	CO 1	CLO2	AIT003.02
4	What is Firewall?	A firewall is a software utility or hardware device that acts as a filter for data entering or leaving a network or computer.	Remember	CO 1	CLO3	AIT003.03
4	What is Bridge?	A bridge is a device that connects two LANs (local area networks), or two segments of the same LAN.	Remember	CO 1	CLO2	AIT003.02
5	What is Hub?	Hub is the most basic networking device that connects multiple computers or other network devices together.	Remember	CO 1	CLO3	AIT003.03
6	What is switch?	A switch is a hardware device that filters and forwards network packets	Remember	CO 1	CLO2	AIT003.02
7	What is repeater?	A repeater is an object that increases a signal's strength, so it can be transmitted and received over a greater distance without a loss in quality.	Remember	CO 1	CLO4	AIT003.04
8	What is DNS?	A DNS (Domain Name System) is a server that receives a request containing a domain name hostname, and responds with the corresponding IP address.	Remember	CO 1	CLO2	AIT003.02
9	What is router?	A router is hardware device designed to receive, analyze and move incoming packets to another network.	Remember	CO 1	CLO5	AIT003.05
10	What is data packet?	A data packet is a unit of data made into a single package that travels along a given network path.	Remember	CO 1	CLO5	AIT003.05
12	What is protocol?	A protocol defines rules and conventions for communication between network devices.	Remember	CO 1	CLO5	AIT003.05
13	What is encryption?	Encryption is the process of making data unreadable by other humans or computers for the purpose of preventing others from gaining access to its contents. Encrypted data is generated using an encryption program such as PGP, encryption machine, or a simple encryption key and appears as garbage until it is decrypted.	Remember	CO 1	CLO2	AIT003.02
14	What is decryption?	Decryption is the process of taking encoded or encrypted text or other data and converting it back into text that you or the computer can read and understand.	Remember	CO 1	CLO2	AIT003.02

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
15	What is OSI reference model?	OSI (Open Systems Interconnection) is a reference model for how applications communicate over a network.	Remember	CO 1	CLO2	AIT003.02
16	What is TCP/IP?	The TCP/IP (Transmission Control Protocol/Internet Protocol), is a suite of communication protocols used to interconnect network devices on the internet.	Remember	CO 1	CLO2	AIT003.02
17	What is IP Address?	A unique string of numbers separated by full stops that identifies each computer using the Internet Protocol to communicate over a network.	Remember	CO 1	CLO4	AIT003.04
18	What is throughput?	throughput is the amount of data moved successfully from one place to another in a given time period, and typically measured in bits per second (bps), as in megabits per second (Mbps) or gigabits per second (Gbps).	Remember	CO 1	CLO3	AIT003.04
19	What is network redundancy?	Network redundancy is a process through which additional or alternate instances of network devices, equipment and communication mediums are installed within network infrastructure.	Remember	CO 1	CLO4	AIT003.03
20	What is acknowledgement?	Acknowledgement is a signal passed between communicating processes, computers, or devices to signify acknowledgement, or receipt of message, as part of a communications protocol.	Remember	CO 1	CLO3	AIT003.03
21	What is Computer Network?	A computer network is a group of computer systems and other computing hardware devices that are linked together through communication channels to facilitate communication and resource-sharing among a wide range of users. Networks are commonly categorized based on their characteristics.	Remember	CO 1	CLO1	AIT003.01
22	What is the meaning of Hardwired?	This means that all the workstations in the office plug into a network outlet using physical cabling to transport data to and from the server.	Understand	CO 1	CLO3	AIT003.03
23	What is a Router?	This is your network's "air traffic controller." It routes all the data on your network to where it is supposed to go. It also assigns unique network addresses to all the computers (IP addresses). Routers can also hide the computer and devices that connect to it from the outside world (using Network Address Translation - NAT). To people on the Internet, your entire network looks like one computer (one IP address). This adds another layer of protection to the computers on your network. A router may contain a VPN server and/or a firewall. Read more about hubs, switches and routers.	Understand	CO 1	CLO2	AIT003.02
24	What is virtual private network?	Communications across the Internet are inherently insecure. A virtual private network is a secure connection between two computers (VPN server and VPN client) You can think of the connection as a tunnel across the Internet. Only the two computers on the ends of the tunnel can see what is being transported in the tunnel.	Understand	CO 1	CLO5	AIT003.05

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
25	What is protocol layering?	Protocol layering is a common technique to simplify networking designs by dividing them into functional layers, and assigning protocols to perform each layer's task. Protocol layering produces simple protocols, each with a few well-defined tasks. These protocols can then be assembled into a useful whole. Individual protocols can also be removed or replaced as needed for particular applications.	Remember	CO 1	CLO2	AIT003.02
26	What is a noise?	In a communication channel many signals transmits simultaneously, certain random signals are also present in the medium. Due to interference of these signals our signal gets disrupted a bit.	Understand	CO 1	CLO2	AIT003.02
27	What is transmission impairment?	In communication system, analog signals travel through transmission media, which tends to deteriorate the quality of analog signal. This imperfection causes signal impairment. This means that received signal is not same as the signal that was send.	Remember		CLO3	AIT003.03
28	Define network?	A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data.	Understand	CO 1	CLO2	AIT003.02
29	What is a protocol	protocol is a standard used to define a method of exchanging data over a computer network	Remember	CO 1	CLO3	AIT003.03
30	What is a work station?	This refers to each person's computer. Your front and back office staff computers and the machines in the examination room will be workstations on the network.	Understand	CO 1	CLO2	AIT003.02
31	What is Ethernet?	This is the backbone of your network. It consists of the cabling (called "cat 5" cable) and is typically able to transfer data at a rate of 100mb/s (read more about bandwidth). What is not shown here are the hubs and switches that are used to connect computers and other devices together?	Understand	CO 1	CLO3	AIT003.03
32	What is Half duplex communication?	Communication can take place in one direction at a time. Suppose node A and B are connected then half-duplex communication means that at a time data can flow from A to B or from B to A but not simultaneously. eg. two persons talking to each other such that when one speaks the other listens and vice versa.	Understand	CO 1	CLO2	AIT003.02
33	What is network interface?	In computing, a network interface is a system's (software and/or hardware) interface between two pieces of equipment or protocol layers in a computer network Network interfaces provide standardized functions such as passing messages, connecting and disconnecting, etc.	Remember	CO 1	CLO5	AIT003.05
34	What is the meaning of attenuation?	When a signal transmits in a network then the quality of signal degrades as the signal travels longer distances in the wire. This is called attenuation. To improve quality of signal amplifiers are used at regular distances.	Understand	CO 1	CLO2	AIT003.02
35	What is Distortion?	It means change in the shape of signal. This is generally seen in composite signals with different frequencies. Each frequency component has its own propagation speed travelling through a medium. Every component arrives at different time which leads to delay distortion. Therefore, they have different phases at receiver end from what they had at senders end.	Understand	CO 1	CLO5	AIT003.05

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
36	What is time division multiplexing?	Time division multiplexing is a technique used to transmit a signal over a single communication channel by dividing the time frame into slots – one slot for each message signal. Time-division multiplexing is primarily applied to digital signals as well as analog signals, wherein several low speed channels are multiplexed into high-speed channels for transmission. Based on the time, each low-speed channel is allocated to a specific position, where it works in synchronized mode. At both the ends, i.e., the multiplexer and demultiplexer are timely synchronized and simultaneously switched to the next channel.	Understand	CO 1	CLO5	AIT003.05
37	What is hub	a hub is the most basic networking device that connects multiple computers or other network devices together	Understand	CO 1	CLO5	AIT003.05
38	What is guided media	Which are those that provide a conduit from one device to another, include Twisted-Pair Cable, Coaxial Cable, and Fiber-Optic Cable	Understand	CO 1	CLO2	AIT003.02
39	What is bit stuffing	bit stuffing is the practice of adding extra information (bits) to a network or telecommunications data stream transmission.	Understand	CO 1	CLO4	AIT003.04
40	What is a server?	Also called "file server" and "network server" this term refers to the "nerve center" of your network. It typically needs to be much more high-powered than a regular desktop workstation. The server is home to hardware that is networked (allows more than one person to use it simultaneously). All of your data will typically be stored on this machine.	Understand	CO 1	CLO3	AIT003.03
41	What is a communication link?	In telecommunications a link is a communication channel that connects two or more devices. The term link is widely used in computer networking to refer to the communications facilities that connect nodes of a network.	Understand	CO 1	CLO2	AIT003.02
42	What is simplex communication?	Communication can take place only in one direction. Eg. T.V broadcasting.	Understand	CO 1	CLO4	AIT003.04
43	What is Full duplex communication?	Communication can take place simultaneously in both directions. eg. A discussion in a group without discipline.	Understand	CO 1	CLO5	AIT003.05
44	What are analog and digital signals?	An analog signal is a continuous wave that changes over a time period. An analog signal is represented by a sine wave. An analog signal is described by the amplitude, period or frequency, and phase. Analog signal has no fixed range. A digital signal is a discrete wave that carries information in binary form. A digital signal is represented by square waves. A digital signal is described by bit rate and bit intervals. Digital signal has a finite range i.e. between 0 and 1.	Understand	CO 1	CLO2	AIT003.02
45	What is the meaning of Bandwidth?	Bandwidth simply means how many bits can be transmitted per second in the communication channel. In technical terms it indicates the width of frequency spectrum.	Understand	CO 1	CLO4	AIT003.04
46	What is multiplexing?	In telecommunications and computer networks, multiplexing is a method by which multiple analog or digital signals are combined into one signal over a shared medium. The aim is to share a scarce resource.	Understand	CO 1	CLO5	AIT003.05

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
47	What is Bus topology	a bus topology is a network setup in which each computer and network device are connected to a single cable	Understand	CO 1	CLO 4	AIT003.04
48	What is TCP/IP?	Transmission control protocol/Internet protocol, TCP/IP is a set of rules (protocols) governing communications among all computers on the Internet.	Understand	CO 1	CLO 2	AIT003.02
49	What is Transmission medium?	Transmission medium is the means through which we send our data from one place to another.	Understand	CO 1	CLO 2	AIT003.02
50	What is a work station?	This refers to each person's computer. Your front and back office staff computers and the machines in the examination room will be workstations on the network.	Understand	CO 1	CLO 2	AIT003.02
UNIT – II						
1	What is ethernet?	Ethernet is a way of connecting computers together in a local area network or LAN.	Remember	CO 2	CLO 09	AIT003.09
2	What is MAC address?	The MAC (Media Access Control) address is your computer's unique hardware number. When you're connected to the Internet from your computer, a correspondence table relates your IP address to your computer's physical (MAC) address on the LAN.	Remember	CO 2	CLO 09	AIT003.09
3	What is flow control?	Flow control is the process of managing the rate of data transmission between two nodes to prevent a fast sender from overwhelming a slow receiver.	Remember	CO 2	CLO 8	AIT003.08
4	What is error control?	Error control is the process of detecting and correcting both the bit level and packet level errors	Remember	CO 2	CLO 7	AIT003.07
5	Define checksum.	A checksum is a small-sized datum derived from a block of digital data for the purpose of detecting errors which may have been introduced during its transmission or storage.	Remember	CO 2	CLO 09	AIT003.09
6	Define CRC.	A CRC (Cyclic Redundancy Check) code added to data which is used to detect errors occurring during transmission, storage, or retrieval.	Remember	CO 2	CLO 07	AIT003.07
7	What is ALOHA?	Aloha, also called the Aloha method, refers to a simple communications scheme in which each source (transmitter) in a network sends data whenever there is a frame to send	Remember	CO 2	CLO 06	AIT003.06
8	Define CSMA.	Carrier Sense Multiple Access (CSMA) is a network protocol that listens to or senses network signals on the carrier/medium before transmitting any data.	Remember	CO 2	CLO07	AIT003.07
9	Define CSMA/CA	CSMA/CA (Carrier Sense Multiple Access/Collision Avoidance) is a protocol for carrier transmission in 802.11 networks. Unlike CSMA/CD (Carrier Sense Multiple Access/Collision Detect) which deals with transmissions after a collision has occurred, CSMA/CA acts to prevent collisions before they happen.	Remember	CO 2	CLO08	AIT003.08
10	Define CSMA/CD	Carrier Sense Multiple Access/Collision Detect (CSMA/CD) is the protocol for carrier transmission access in Ethernet networks. If another device has tried to send at the same time, a collision is said to occur and the frames are discarded. Each device then waits a random amount of time and retries until successful in getting its transmission	Remember	CO 2	CLO09	AIT003.09

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		sent.				
11	What is DHCP?	Dynamic Host Configuration Protocol, DHCP is a protocol used to assign an IP address to a computer or device that has been connected to a network automatically. Routers, switches, or servers that use DHCP to assign addresses to other computers can make setup and management easier for the network administrator.	Remember	CO 2	CLO 06	AIT003.06
12	Define FDDI.	FDDI (Fiber Distributed Data Interface) is a set of ANSI and ISO standards for data transmission on fiber optic lines in a local area network (LAN) that can extend in range up to 200 km (124 miles).	Remember	CO 2	CLO 08	AIT003.08
13	What is NIC?	A network interface card (NIC) is a circuit board or card that is installed in a computer so that it can be connected to a network.	Remember	CO 2	CLO 05	AIT003.05
14	What is topology?	A network topology, a topology is the physical configuration of a network that determines how the network's computers are connected. Common configurations include the bus topology, linear bus, mesh topology, ring topology, star topology, tree topology and hybrid topology.	Remember	CO 2	CLO 06	AIT003.06
15	What is Pont to Point protocol?	Point-to-Point Protocol (PPP) is a data link layer (layer 2) communications protocol used to establish a direct connection between two nodes. It connects two routers directly without any host or any other networking device in between. It can provide connection authentication, transmission encryption, and compression.	Remember	CO 2	CLO 07	AIT003.07
16	What is an error?	A condition when the receiver's information does not matches with the sender's information. During transmission, digital signals suffer from noise that can introduce errors in the binary bits travelling from sender to receiver. That means a 0 bit may change to 1 or a 1 bit may change to 0.	Remember	CO 2	CLO 09	AIT003.09
17	What is sliding window protocol?	In this flow control mechanism, both sender and receiver agree on the number of data-frames after which the acknowledgement should be sent. As we learnt, stop and wait flow control mechanism wastes resources, this protocol tries to make use of underlying resources as much as possible.	Understand	CO 2	CLO 06	AIT003.06
18	State VT?	VT (Virtual tributary) is the company's hardware assistance for processors running virtualization platforms.	Remember	CO 2	CLO 08	AIT003.08
19	What is ADM?	ADM (Add/drop multiplexer) An add/drop multiplexer (ADM) is a critical element of an optical fiber network. It can combine several low-bandwidth streams of data into a single light beam and simultaneously.	Remember	CO 2	CLO 06	AIT003.06
20	Define SONET layer?	SONET(synchronous optical network) is originally designed to transport circuit mode communications	Remember	CO 2	CLO 06	AIT003.06

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
21	Define LOS?	LOS(Loss of signal)Short for loss of signal, LOS is an indicator on a networking device that shows a signal or connection has been dropped or terminated	Remember	CO 2	CLO 06	AIT003.06
22	What is channelization?	Channelization is a multiple-access method in which the available bandwidth of a link is shared in time, frequency, or through code, between different stations. The three channelization protocols are FDMA, TDMA, and CDMA.	Remember	CO 2	CLO 05	AIT003.05
23	What is point to point protocol?	In computer networking, Point-to-Point Protocol (PPP) is a data link layer communications protocol used to establish a direct connection between two nodes. It connects two routers directly without any host or any other networking device in between.	Understand	CO 2	CLO 06	AIT003.06
24	What is frequency division multiple access?	In frequency-division multiple access (FDMA), the available bandwidth is divided into frequency bands. Each station is allocated a band to send its data. In other words, each band is reserved for a specific station, and it belongs to the station all the time. Each station also uses a band pass filter to confine the transmitter frequencies. To prevent station interferences, the allocated bands are separated from one another by small guard bands. The following figure shows the idea of FDMA.	Understand	CO 2	CLO 06	AIT003.06
25	What are error detecting codes?	Whenever a message is transmitted, it may get scrambled by noise or data may get corrupted. To avoid this, we use error-detecting codes which are additional data added to a given digital message to help us detect if any error has occurred during transmission of the message. Basic approach used for error detection is the use of redundancy bits, where additional bits are added to facilitate detection of errors. Some popular techniques for error detection are: . Simple Parity check . Two-dimensional Parity check . Checksum . Cyclic redundancy check	Remember	CO 2	CLO 09	AIT003.09
26	What is forward error correction?	Forward error correction (FEC) is a method of obtaining error control in data transmission in which the source (transmitter) sends redundant data and the destination (receiver) recognizes only the portion of the data that contains no apparent errors. Because FEC does not require handshaking between the source and the destination, it can be used for broadcasting of data to many destinations simultaneously from a single source.	Remember	CO 2	CLO 09	AIT003.09
27	Define STM?	The STM is known as Synchronous Transport Signal (STS) in Synchronous Optical Network (SONET) terminology. Basic building block signal of SONET, operating at 51.84 Mbps. Faster SONET rates are defined as STS-n, where n is a multiple of 51.84 Mbps.	Remember	CO 2	CLO 06	AIT003.06
28	State UPSR?	UPSR(Uni directional path switching ring)We have discussed the demand for transport networks and have ... (OC) levels are also defined corresponding to electrical equivalent in STS.	Remember	CO 2	CLO 09	AIT003.09

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
29	What is APS?	APS (Automatic protection switching) n automatic service restoration function by which network senses a circuit or node failure and automatically switches traffic over an alternate path.	Remember	CO 2	CLO 09	AIT003.09
30	What is ANSI?	ANSI(American National standards institute) which define the set of transmission formats and transmission rates in the range above 51.840 Mbit/s.	Remember	CO 2	CLO 08	AIT003.08
31	What is Modulation?	Data is super imposed on a carrier current or wave by means of a process called Modulation.	Remember	CO 2	CLO 07	AIT003.07
32	Define AITS?	AITS (Acknowledged Information Transfer Service) AITS provides connection-oriented service. It establishes and maintains a logical connection between two NEs over a DCC point-to-point link, providing the means to reliably send and receive data.	Remember	CO 2	CLO 09	AIT003.09
33	What is media access control?	Media access control (MAC) is a sub layer of the data link layer (DLL) in the seven- layer OSI network reference model. MAC is responsible for the transmission of data packets to and from the network-interface card, and to and from another remotely shared channel.	Understand	CO 2	CLO 05	AIT003.08
34	What is time-division multiple access?	In time-division multiple access (TDMA), the stations share the bandwidth of the channel in time. Each station is allocated a time slot during which it can send data. Each station transmits its data in is assigned time slot.	Understand	CO 2	CLO 05	AIT003.05
35	What is checksum error detection method?	In checksum error detection scheme, the data is divided into k segments each of m bits.In the sender's end the segments are added using 1's complement arithmetic to get the sum. The sum is complemented to get the checksum.	Remember	CO 2	CLO 06	AIT003.06
		The checksum segment is sent along with the data segments. At the receiver's end, all received segments are added using 1's complement arithmetic to get the sum. The sum is complemented. If the result is zero, the received data is accepted; otherwise discarded.		CO 2		AIT003.07
36	Define SDH?	SDH (synchronous digital hierarchy) is originally designed to transport circuit mode communications	Remember	CO 2	CLO 07	AIT003.07
37	Define SPE?	SPE (synchronous payload envelope) The portion of a SONET or SDH frame that carries the user payload data.	Remember	CO 2	CLO 07	AIT003.06
38	What is virtual LAN?	A virtual local area network (VLAN) is a logical group of workstations, servers and network devices that appear to be on the same LAN despite their geographical distribution. A VLAN allows a network of computers and users to communicate in a simulated environment as if they exist in a single LAN and are sharing a single broadcast and multicast domain. VLANs are implemented to achieve scalability, security and ease of network management and can quickly adapt to changes in network requirements and relocation of workstations and server nodes.	Understand	CO 2	CL0 06	AIT003.06
40	What is ETSI?	ETSI (European telecommunication standards institute) is formalized as international	Remember	CO 2	CLO 05	AIT003.05

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
		Telecommunication Union.				
41	What is random access protocol	In this, all stations have same superiority that is no station has more priority than another station. Any station can send data depending on medium's state(idle or busy).	Remember	CO 2	CLO 08	AIT003.08
42	Define UITS?	UITS (Unacknowledged Information Transfer Service) UITS provides connection-less service. It transfers data without establishing a logical connection. With the connection-less mode service, there is no guarantee of data delivery or any indication of communication failure.	Remember	CO 2	CLO 06	AIT003.06
43	What is controlled access protocols?	In controlled access, the stations seek information from one another to find which station has the right to send. It allows only one node to send at a time, to avoid collision of messages on shared medium. The three controlled-access methods are:	Understand	CO 2	CLO 05	AIT003.05
44	What is code division multiple access?	CDMA simply means communication with different codes. CDMA differs from FDMA because only one channel occupies the entire bandwidth of the link. It differs from TDMA because all stations can send data simultaneously; there is no timesharing.	Understand	CO 2	CLO05	AIT003.05
45	What is checksum error detection method?	In checksum error detection scheme, the data is divided into k segments each of m bits. In the sender's end the segments are added using 1's complement arithmetic to get the sum. The sum is complemented to get the checksum. The checksum segment is sent along with the data segments. At the receiver's end, all received segments are added using 1's complement arithmetic to get the sum. The sum is complemented. If the result is zero, the received data is accepted; otherwise discarded.	Remember	CO 2	CLO06	AIT003.06
46	Define SDH?	SDH (synchronous digital hierarchy) is originally designed to transport circuit mode communications	Remember	CO 2	CLO07	AIT003.07
47	Define SPE?	SPE (synchronous payload envelope) The portion of a SONET or SDH frame that carries the user payload data.	Remember	CO 2	CLO07	AIT003.07

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48	What is virtual LAN?	A virtual local area network (VLAN) is a logical group of workstations, servers and network devices that appear to be on the same LAN despite their geographical distribution. A VLAN allows a network of computers and users to communicate in a simulated environment as if they exist in a single LAN and are sharing a single broadcast and multicast domain. VLANs are implemented to achieve scalability, security and ease of network management and can quickly adapt to changes in network requirements and relocation of workstations and server nodes.	Understand	CO 2	CL006	AIT003.06
49	What is BLSR?	BLSR (Bidirectional line switching ring) Understanding Sonet Blsrs. A ring is defined as a set of nodes interconnected to form a closed loop, where fiber cables serve as links	Remember	CO 2	CLO08	AIT003.08
50	What is ETSI?	ETSI (European telecommunication standards institute) is formalized as international Telecommunication Union.	Remember	CO 2	CLO 05	AIT003.05
		from TDMA because all stations can send data simultaneously; there is no timesharing.	Remember	CO 2		AIT003.08
UNIT – III						
1	Define routing algorithm?	The routing algorithm is that part of the network layer software responsible for deciding which output line an incoming packet should be transmitted on. If the network uses datagram's internally, this decision must be made a new for every arriving data packet since the best route may have changed since last time.	Remember	CO 3	CLO11	AIT003.11
2	Define forwarding in router?	Router is having two processes inside it. One of them handles each packet as it arrives, looking up the outgoing line to use for it in the routing tables. This process is forwarding. The other process is responsible for filling in and updating the routing tables.	Remember	CO 3	CLO11	AIT003.11
3	What is Non Adaptive Routing algorithm?	Non adaptive algorithms do not base their routing decisions on any measurements or estimates of the current topology.	Remember	CO 3	CLO11	AIT003.11
4	What is Adaptive Routing algorithms?	Adaptive algorithms, in contrast, change their routing decisions to reflect changes in the topology, and sometimes changes in the traffic as well.	Remember	CO 3	CLO11	AIT003.11
5	What is Dynamic Routing algorithms?	These dynamic routing algorithms differ in where they get their information (e.g., locally, from adjacent routers, or from all routers), when they change the routes(e.g.,	Remember	CO 3	CLO11	AIT003.11
6	Define flooding.	Flooding, in which every incoming packet is sent out on every outgoing line except the one it arrived on. Flooding obviously generates vast numbers of duplicate packets, in fact, an infinite number unless some measures are taken to damp the process.	Remember	CO 3	CLO12	AIT003.12

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
7	Define congestion and discuss which layer handles the responsibility of congestion	Too many packets present in (a part of) the network causes packet delay and loss that degrades performance. This situation is called congestion. The network and transport layers share the responsibility for handling congestion. Since congestion occurs within the network, it is the network layer that directly experiences it and must ultimately determine what to do with the excess packets.	Remember	CO 3	CLO12	AIT003.12
8	Explain the term Load Shedding	The network is forced to discard packets that it cannot deliver. The general name for this is load shedding. Good policy for choosing which packets to discard can help to prevent congestion collapse.	Remember	CO 3	CLO13	AIT003.13
9	Explain the term Leaky bucket	A commonly used descriptor that captures this effect is the leaky bucket or token bucket. A leaky bucket has two parameters that bound the average rate and the instantaneous burst size of traffic.	Remember	CO 3	CLO13	AIT003.13
10	Define Path Transmission Unit	A source does not usually know the path a packet will take through the network to a destination, so it certainly does not know how small packets must be to get there. This packet size is called the Path MTU (Path Maximum Transmission Unit).	Remember	CO 3	CLO12	AIT003.12
12	What does Border Gateway Protocol	Border Gateway Protocol (BGP) is a routing protocol used to transfer data and information between different host gateways, the Internet or autonomous systems. BGP is a Path Vector Protocol (PVP), which maintains paths to different hosts, networks and gateway routers and determines the routing decision based on that. It does not use Interior Gateway Protocol (IGP) metrics for routing decisions, but only decides the route based on path, network policies and rule sets.	Remember	CO 3	CLO11	AIT003.11
13	Define Tunneling	Tunneling is a protocol that allows for the secure movement of data from one network to another. Tunneling involves allowing private network communications to be sent across a public network, such as the Internet, through a process called encapsulation. The encapsulation process allows for data packets to appear as though they are of a public nature to a public network when they are actually private data packets, allowing them to pass through unnoticed.	Remember	CO 3	CLO12	AIT003.12
14	What is Open Shortest Path First?	Routers connect networks using the Internet Protocol (IP), and OSPF (Open Shortest Path First) is a router protocol used to find the best path for packets as they pass through a set of connected networks. OSPF is designated by the Internet Engineering	Remember	CO 3	CLO11	AIT003.11
15	What is Distance Vector Routing Protocol?	Distance Vector Routing Protocol (DVRP) is one of two major routing protocols for communications methods that use data packets sent over Internet Protocol (IP). DVRP requires routing hardware to report the distances of various nodes within a network or IP topology in order to determine the best and most efficient routes for data packets.	Remember	CO 3	CLO11	AIT003.11
16	What is Directed Acyclic Graph?	In computer science and mathematics, a directed acyclic graph (DAG) is a graph that is directed and without cycles connecting the other edges. This means that it is impossible to traverse the entire graph starting at one edge. The edges of the directed graph only go one way. The graph is a topological sorting, where each node is in a certain order.	Remember	CO 3	CLO11	AIT003.11

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
17	Define routing algorithm?	The routing algorithm is that part of the network layer software responsible for deciding which output line an incoming packet should be transmitted on. If the network uses datagram's internally, this decision must be made a new for every arriving data packet since the best route may have changed since last time.	Remember	CO 3	CLO11	AIT003.11
18	What are Adaptive Routing algorithms?	Adaptive algorithms, in contrast, change their routing decisions to reflect changes in the topology, and sometimes changes in the traffic as well.	Remember	CO 3	CLO11	AIT003.11
19	Define congestion and discuss which layer handles the responsibility of congestion?	Too many packets present in (a part of) the network causes packet delay and loss that degrades performance. This situation is called congestion. The network and transport layers share the responsibility for handling congestion. Since congestion occurs within the network, it is the network layer that directly experiences it and must ultimately determine what to do with the excess packets.	Remember	CO 3	CLO12	AIT003.12
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23	What is reliability?	Network channels and components may be unreliable, resulting in loss of bits while data transfer. So, an important design issue is to make sure that the information transferred is not distorted.	Remember	CO 3	CLO12	AIT003.12
24	What is resource allocation?	Computer networks provide services in the form of network resources to the end users. The main design issue is to allocate and deallocate resources to processes. The allocation/deallocation should occur so that minimal interference among the hosts occurs and there is optimal usage of the resources.	Remember	CO 3	CLO11	AIT003.11
25	What is intranet?	A selected Internetworking, consisting of a worldwide interconnection of governmental, academic, public, and personal networks based mostly upon the Advanced analysis comes Agency Network (ARPANET) developed by ARPA of the U.S. Department of Defense additionally home to the World Wide Web (WWW) and cited as the 'Internet' to differentiate from all different generic Internetworks. Participants within the web, or their service suppliers, use IP Addresses obtained from address registries that management assignment.	Remember	CO 3	CLO11	AIT003.11

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26	What are OSPF areas?	OSPF offers a very distinguishable feature named: Routing Areas. It means dividing routers inside a single autonomous system running OSPF, into areas where each area consists of a group of connected routers. The idea of dividing the OSPF network into areas is to simplify administration and optimize available resources. Resource optimization is especially important for large enterprise networks with a plethora of network and links. Having many routers exchange the link state database could flood the network and reduce its efficiency – this was the need that led to the creation of concept Areas.	Remember	CO 3	CLO12	AIT003.12
27	What is Non Adaptive Routing algorithm?	Non adaptive algorithms do not base their routing decisions on any measurements or estimates of the current topology.	Remember	CO 3	CLO11	AIT003.11
28	Define flooding.	Flooding, in which every incoming packet is sent out on every outgoing line except the one it arrived on. Flooding obviously generates vast numbers of duplicate packets, in fact, an infinite number unless some measures are taken to damp the process.	Remember	CO 3	CLO12	AIT003.12
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30	What is Tunneling?	Tunneling is a protocol that allows for the secure movement of data from one network to another. Tunneling involves allowing private network communications to be sent across a public network, such as the Internet, through a process called encapsulation. The encapsulation process allows for data packets to appear as though they are of a public nature to a public network when they are actually private data packets, allowing them to pass through unnoticed.	Remember	CO 3	CLO12	AIT003.12
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32	What are the network layer design issues?	Reliability addressing scalability Addressing Error Control. Flow Control. Resource Allocation. Statistical Multiplexing. Ro	Remember	CO 3	CLO11	AIT003.11

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
33	What is error control?	Unreliable channels introduce a number of errors in the data streams that are communicated. So, the layers need to agree upon common error detection and error correction methods so as to protect data packets while they are transferred.	Remember	CO 3	CLO12	AIT003.12
34	What are the units in internetworking?	Extranet , Intranet, Internet	Remember	CO 3	CLO12	AIT003.12
35	What is open shortest path first?	Routers connect networks using the Internet Protocol (IP), and OSPF (Open Shortest Path First) is a router protocol used to find the best path for packets as they pass through a set of connected networks. OSPF is designated by the Internet Engineering Task Force (IETF) as one of several Interior Gateway Protocols (IGPs) -- that is, protocols aimed at traffic moving around within a larger autonomous	Remember	CO 3	CLO11	AIT003.11
		system network like a single enterprise's network, which may in turn be made up of many separate local area networks linked through routers.		CO 3		
36	What is ICMP?	The Internet Control Message Protocol (ICMP) is a supporting protocol in the Internet protocol suite. It is used by network devices, including routers, to send error messages and operational information indicating, for example, that a requested service is not available or that a host or router could not be reached.	Understand	CO 3	CLO14	AIT003.13
37	Define forwarding in router?	Router is having two processes inside it. One of them handles each packet as it arrives, looking up the outgoing line to use for it in the routing tables. This process is forwarding. The other process is responsible for filling in and updating the routing tables.	Remember	CO 3	CLO11	AIT003.11
38	What is a Dynamic Routing algorithm?	These dynamic routing algorithms differ in where they get their information (e.g., locally, from adjacent routers, or from all routers), when they change the routes(e.g., when the topology changes or every T seconds as the load changes) and what metric is used for optimization (e.g., distance, number of hops, or estimated transit time).In the following sections, we will discuss a variety of routing algorithms. The algorithms cover delivery models besides sending a packet from a source to a destination. Sometimes the goal is to send the packet to multiple, all, or one of a set of destinations.	Remember	CO 3	CLO11	AIT003.11
39	Explain the term Load Shedding?	The network is forced to discard packets that it cannot deliver. The general name for this is load shedding. Good policy for choosing which packets to discard can help to prevent congestion collapse.	Remember	CO 3	CLO13	AIT003.13

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42	What is IPv4?	Internet Protocol version 4 (IPv4) is the fourth version of the Internet Protocol (IP). It is one of the core protocols of standards-based internetworking methods in the Internet, IPv4 is a connectionless protocol for use on packet-switched networks.	Remember	CO 3	CLO11	AIT003.11
43	What is addressing?	At a particular time, innumerable messages are being transferred between large numbers of computers. So, a naming or addressing system should exist so that each layer can identify the sender and receivers of each message.	Remember	CO 3	CLO11	AIT003.11
44	What is internetworking?	Internetworking is combined of 2 words, inter and networking which implies an association between totally different nodes or segments. This connection area unit is established through intercessor devices akin to routers or gateway. The first term for associate degree internetwork was catenet. This interconnection is often among or between public, private, commercial, industrial, or governmental networks. Thus, associate degree internetwork could be an assortment of individual networks, connected by intermediate networking devices, that functions as one giant network. Internetworking refers to the trade, products, and procedures that meet the challenge of making and administering internetworks.	Remember	CO 3	CLO12	AIT003.12
45	What is a MAC address?	Media Access management (MAC) addresses encompass a set of data-link layer addresses. MAC addresses establish network entities in LANs that implement the IEEE MAC addresses of the data-link layer. MAC addresses different area unit distinctively for every local area network interface.	Remember	CO 3	CLO12	AIT003.12
46	Define Border Gateway Protocol?	Border Gateway Protocol (BGP) is a standardized exterior gateway protocol designed to exchange routing and reach ability information among autonomous systems (AS) on the Internet. The protocol is classified as a path vector protocol. The Border Gateway Protocol makes routing decisions based on paths, network policies, or rule-sets configured by a network administrator and are involved in making core routing decisions.	Understand	CO 3	CLO13	AIT003.13

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
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	UNIT - IV					
1	What is congestion?	A state occurring in network layer when the message traffic is so heavy that it slows down network response time.	Remember	CO 4	CLO16	AIT003.16
2	Define Transmission Control Protocol?	TCP (Transmission Control Protocol) is a standard that defines how to establish and maintain a network conversation via which application programs can exchange data. TCP works with the Internet Protocol (IP), which defines how computers send packets of data to each other. Together, TCP and IP are the basic rules defining the Internet. TCP is defined by the Internet Engineering Task Force (IETF) in the Request for Comment (RFC) standards document number 793.	Remember	CO 4	CLO16	AIT003.16
3	What is a Fragmentation?	Fragmentation is done by the network layer when the maximum size of datagram is greater than maximum size of data that can be held a frame i.e., its Maximum Transmission Unit (MTU). The network layer divides the datagram received from transport layer into fragments so that data flow is not disrupted. • Since there are 16 bits for total length in IP header so, maximum size of IP datagram = 216 – 1 = 65, 535 bytes.	Remember	CO 4	CLO16	AIT003.16
4	Define Message Integrity?	Message Integrity describes the concept of ensuring that data has not been modified in transit. This is typically accomplished with the use of a Hashing algorithm. We learned earlier what a Hashing Algorithm does. Now we can take a look at how they are actually used to provide Message Integrity.	Remember	CO 4	CLO14	AIT003.14

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
5	What is Secure Sockets Layer?	Secure Sockets Layer (SSL) is a networking protocol designed for securing connections between web clients and web servers over an insecure network, such as the internet. After being formally introduced in 1995, SSL made it possible for a web server to securely enable online transactions between consumers and businesses. Due to numerous protocol and implementation flaws and vulnerabilities, SSL was deprecated for use on the internet by the Internet Engineering Task Force (IETF) in 2015 and has been replaced by the Transport Layer Security (TLS) protocol.	Remember	CO 4	CLO16	AIT003.16
6	What is a User Datagram Protocol?	User Datagram Protocol (UDP) is part of the Internet Protocol suite used by programs running on different computers on a network. UDP is used to send short messages called datagram's but overall, it is an unreliable, connectionless protocol. UDP is officially defined in RFC 768 and was formulated by David P. Reed.	Remember	CO 4	CLO16	AIT003.16
7	Define Stream Control Transmission Protocol?	SCTP (Stream Control Transmission Protocol) is a protocol for transmitting multiple streams of data at the same time between two end points that have established a connection in a network. Sometimes referred to as "next generation TCP" (Transmission Control Protocol) - or TCP, SCTP is designed to make it easier to support a telephone connection over the Internet (and specifically to support the telephone system's Signaling System 7 - SS7 - on an Internet connection). A telephone connection requires that signaling information (which controls the connection) be sent along with voice and other data at the same time. SCTP also is intended to make it easier to manage connections over a wireless network and to manage the transmission of multimedia data. SCTP is a standard protocol (RFC 2960) developed by the Internet Engineering Task Force (IETF).	Remember	CO 4	CLO15	AIT003.15
8	What is a Checksum?	A checksum is an error-detection method in a the transmitter computes a numerical value according to the number of set or unset bits in a message and sends it along with each message frame. At the receiver end, the same checksum function (formula) is applied to the message frame to retrieve the numerical value. If the received checksum value matches the sent value, the transmission is considered to be successful and error-free.	Remember	CO 4	CLO14	AIT003.14
9	Define Handshake?	Term used to describe the process of one computer establishing a connection with another computer or device. The handshake is often the steps of verifying the connection, the speed, or the authorization of the computer trying to connect to it. An example of handshaking is when a modem connects to another Modem; the tones heard after the dialing is the handshake and is how the computers greeting each other.	Remember	CO 4	CLO15	AIT003.15
10	Define the term Domain Name System?	Domain name system (DNS) is a hierarchical naming system built on a distributed database. This system transforms domain names to IP addresses and makes it possible to assign domain names to groups of Internet resources and users, regardless of the entities' physical location.	Remember	CO 4	CLO15	AIT003.15
11	Define Datagram?	A datagram is a unit of transfer associated with networking.	Remember	CO 4	CLO16	AIT003.16

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
12	What is Packet Filtering?	Packet filtering is a firewall technique used to control network access by monitoring outgoing and incoming packets and allowing them to pass or halt based on the source and destination Internet Protocol (IP) addresses, protocols and ports. Network layer firewalls define packet filtering rule sets, which provide highly efficient security mechanisms. Packet filtering is also known as static filtering.	Remember	CO 4	CLO15	AIT003.15
13	Define Protocol Data Unit?	A protocol data unit (PDU) is an open-system interconnection (OSI) term used in telecommunications that refers to a group of information added or removed by a layer of the OSI model. Each layer in the model uses the PDU to communicate and	Remember	CO 4	CLO15	AIT003.15
14	What is the use of Gateway?	A gateway is a data communication device that provides a remote network with connectivity to a host network. A gateway device provides communication to a remote network or an autonomous system that is out of bounds for the host network nodes.	Remember		CLO14	AIT003.14
15	What is a port number?	A port number is a way to identify a specific process to which an Internet or other network message is to be forwarded when it arrives at a server. For the Transmission Control Protocol and the User Datagram Protocol, a port number is a 16-bit integer that is put in the header appended to a message unit. This port number is passed logically between client and server transport layers and physically between the transport layer and the Protocol layer and forwarded on.	Remember	CO 4	CLO16	AIT003.16
16	What is a Firewall?	Firewall is a network security system that is used to protect computer networks from unauthorized access. It prevents malicious access from outside to the computer network. A firewall can also be built to grant limited access to the outside users.	Remember	CO 4	CLO16	AIT003.16
17	Define Message Integrity?	Message Integrity describes the concept of ensuring that data has not been modified in transit. This is typically accomplished with the use of a Hashing algorithm. We learned earlier what a Hashing Algorithm does. Now we can take a look at how they are actually used to provide Message Integrity.	Remember	CO 4	CLO14	AIT003.14
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20	Define Protocol Data Unit?	A protocol data unit (PDU) is an open-system interconnection (OSI) term used in telecommunications that refers to a group of information added or removed by a layer	Remember	CO 4	CLO15	AIT003.15
21	What are the elements of transport protocols?	1. Transport 2. Addressing 3. Establishing a connection 4. Releasing a connection 5. Flow control and buffering 6. Multiplexing 7. Crash recovery	Remember	CO 4	CLO16	AIT003.16
22	What is Dynamic Buffer Management?	Dynamic Buffer Management (DBM) is a tool of the Theory of Constraints, which allows to effectively managing the enterprise reserves by focusing on the actual consumer demand. DBM implementation enables to always have the right product in the right place at the right time.	Remember	CO 4	CLO15	AIT003.15
23	What are the UDP parameters?	1. Source Port 2. Destination Port 3. Length 4. Checksum	Remember	CO 4	CLO16	AIT003.16
24	What is congestion?	A state occurring in network layer when the message traffic is so heavy that it slows down network response time.	Remember	CO 4	CLO14	AIT003.14
25	What are network performance measures?	1. **Bandwidth** commonly measured in bits/second is the maximum rate that information can be transferred 2. **Throughput** is the actual rate that information is transferred 3. **Latency** the delay between the sender and the receiver decoding it, this is mainly a function of the signals travel time, and processing time at any nodes the information traverses 4. **Jitter** variation in packet delay at the receiver of the information 5. **Error rate** the number of corrupted bits expressed as a percentage or fraction of the total sent	Remember	CO 4	CLO14	AIT003.14

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31	What are the Source Port and Destination Port Numbers?	Summary of Port Numbers for Datagram Transmission and Reception: So, to summarize, here's the basics of how transport-layer addressing (port addressing) works in TCP and UDP: 1. **Sending Datagram's**: An application specifies the source and destination port it wishes to use for the communication. These are encoded into the TCP or UDP header, depending on which transport layer protocol the application is using. When TCP or UDP passes data to IP, IP indicates the protocol type (TCP or UDP) in the Protocol field of the IP datagram. The source and destination port numbers are encapsulated as part of the TCP or UDP message, Within the IP datagram's data area. 2. **Receiving Datagram's**: The IP software receives the datagram, inspects the Protocol field and decides to which protocol the datagram belongs (TCP or UDP). TCP or UDP receives the datagram and passes its contents to the appropriate process based on the destination port number.	Remember	CO 4	CLO16	AIT003.16

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
32	What are the features of UDP?	UDP is used when acknowledgement of data does not hold any significance. UDP is good protocol for data flowing in one direction. UDP is simple and suitable for query based communications. UDP is not connection oriented. UDP does not provide congestion control mechanism. UDP does not guarantee ordered delivery of data.	Remember	CO 4	CLO14	AIT003.14
33	What are the performance problems in networking?	Slowdown Disconnections Outage End-user complaints	Remember	CO 4	CLO14	AIT003.14
34	What are the congestion control algorithms?	Leaky Bucket Algorithm Token bucket Algorithm	Remember	CO 4	CLO15	AIT003.15
35	What is persist timer in TCP?	TCP session can be paused by either host by sending Window Size 0. To resume the session a host needs to send Window Size with some larger value. If this segment never reaches the other end, both ends may wait for each other for infinite time. When the Persist timer expires, the host re-sends its window size to let the other end know. Persist Timer helps avoid deadlocks in communication.	Remember	CO 4	CLO15	AIT003.15
36	Define Transmission Control Protocol?	TCP (Transmission Control Protocol) is a standard that defines how to establish and maintain a network conversation via which application programs can exchange data. TCP works with the Internet Protocol (IP), which defines how computers send packets of data to each other. Together, TCP and IP are the basic rules defining the Internet. TCP is defined by the Internet Engineering Task Force (IETF) in the Request for Comment (RFC) standards document number 793.	Remember	CO 4	CLO16	AIT003.16
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S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
39	What is a Datagram?	A datagram is a unit of transfer associated with networking. A datagram has the following characteristics:	Remember	CO 4	CLO16	AIT003.16
40	What is the use of Gateway?	A gateway is a data communication device that provides a remote network with connectivity to a host network. A gateway device provides communication to a remote network or an autonomous system that is out of bounds for the host network nodes. Gateways serve as the entry and exit point of a network; all data routed inward or outward must first pass through and communicate with the gateway in order to use routing paths. Generally, a router is configured to work as a gateway device in computer networks.	Remember	CO 4	CLO14	AIT003.14
41	Explain addressing in TCP and UDP in transport layer?	A typical host has many application processes running on it. These processes generate data that is sent to either TCP or UDP, which in turn passes it to IP for transmission. This multiplexed stream of datagram's is sent out by the IP layer to various destinations. Similarly, a device's IP layer receives datagram's, these datagram's need to be de-multiplexed, so they end up at the correct process on the device that receives them.	Remember	CO 4	CLO15	AIT003.15
42	What is user datagram protocol?	UDP (User Datagram Protocol) is an alternative communications protocol to Transmission Control Protocol (TCP) used primarily for establishing low-latency and loss-tolerating connections between applications on the internet.	Remember	CO 4	CLO15	AIT003.15
43	What are the applications where UDP is used to transmit data?	1. Domain Name Services 2. Simple Network Management Protocol 3. Trivial File Transfer Protocol 4. Routing Information Protocol 5. Kerberos	Remember	CO 4	CLO15	AIT003.15
44	What are the effects of congestion?	1. As delay increases, performance decreases. 2. If delay increases, retransmission occurs, making situation worse.	Remember	CO 4	CLO16	AIT003.16
45	What is the multiplexing in TCP?	The technique to combine two or more data streams in one session is called Multiplexing. When a TCP client initializes a connection with Server, it always refers to a well-defined port number which indicates the application process. The client itself uses a randomly generated port number from private port number pools.	Remember	CO 4	CLO16	AIT003.16
46	What is a Fragmentation?	Fragmentation is done by the network layer when the maximum size of datagram is greater than maximum size of data that can be held a frame i.e., its Maximum Transmission Unit (MTU). The network layer divides the datagram received from transport layer into fragments so that data flow is not disrupted. Since there are 16 bits for total length in IP header so, maximum size of IP datagram = 216 – 1 = 65, 535 bytes.	Remember	CO 4	CLO16	AIT003.16
47	What is a User Datagram Protocol?	User Datagram Protocol (UDP) is part of the Internet Protocol suite used by programs running on different computers on a network. UDP is used to send short messages called datagram's but overall, it is an unreliable, connectionless protocol. UDP is officially defined in RFC 768 and was formulated by David P. Reed.	Remember	CO 4	CLO16	AIT003.16

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48	Define Handshake?	Term used to describe the process of one computer establishing a connection with another computer or device. The handshake is often the steps of verifying the connection, the speed, or the authorization of the computer trying to connect to it. An example of handshaking is when a modem connects to another Modem; the tones heard after the dialing is the handshake and is how the computers greeting each other.	Remember	CO 4	CLO15	AIT003.15
49	What is Packet Filtering?	Packet filtering is a firewall technique used to control network access by monitoring outgoing and incoming packets and allowing them to pass or halt based on the source and destination Internet Protocol (IP) addresses, protocols and ports. Network layer firewalls define packet filtering rule sets, which provide highly efficient security mechanisms. Packet filtering is also known as static filtering.	Remember	CO 4	CLO15	AIT003.15
50	Define the term Domain Name System?	Domain name system (DNS) is a hierarchical naming system built on a distributed database. This system transforms domain names to IP addresses and makes it possible to assign domain names to groups of Internet resources and users, regardless of the entities' physical location.	Remember	CO 4	CLO16	AIT003.16
	UNIT - V					
1	What is FTP?	The File Transfer Protocol, which is used for interactive file transfer	Remember	CO 5	CLO18	AIT003.18
2	Define SMTP?	The Simple Mail Transfer Protocol, which delivers electronic mail	Remember	CO 5	CLO18	AIT003.18
3	What is HTTP?	The Hypertext Transfer Protocol, which delivers Web pages over the network.	Remember	CO 5	CLO19	AIT003.19
4	Define the term Domain Name Service (DNS)?	Also called name service, this application maps IP addresses to the names assigned to network devices. DNS is discussed in detail in this book.	Remember	CO 5	CLO20	AIT003.20
5	What is Uniform Resource Locater?	The URL is a standard for specifying any kind of information on the Internet.	Remember	CO 5	CLO21	AIT003.21
6	Define Network File system (NFS)?	This protocol allows files to be shared by various hosts on the network. Some protocols, such as telnet and FTP, can only be used if the user has some knowledge of the network.	Remember	CO 5	CLO21	AIT003.21
7	What is Network Performance Management main challenges ?	Identifying the data that needs to be collected Interpreting the collected data Disseminating the data and Presenting the data which helps in network Performance management.	Remember	CO 5	CLO20	AIT003.20
8	Define Periodic data collection?	Data Collection takes place at specified time intervals. Based on the time interval given, the Scheduler schedules the Data Collection process	Remember	CO 5	CLO19	AIT003.19
9	What is Filter?	The filter otherwise called as Poll Filter allows manipulation of Polled Data objects before they are added to the database. The manipulations will be some kind of addition, modification or deletion of Polled Data objects	Remember	CO 5	CLO19	AIT003.19

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
10	What is Decoder?	The data collected for the device can be converted into any other format and stored in database. This process of conversion is called Decoding and is taken care of by Data decoder.	Remember	CO 5	CLO20	AIT003.20
11	What is a Configuration file?	Configuration files are available in XML format You can modify configuration files before Server startup and see the changes These are stored under <Web NMS Home>/conf directory These are updated when settings are changed via Client User Interface.	Remember	CO 5	CLO20	AIT003.20
12	List out the API methods?	These are used when you want to configure Performance objects at runtime You are required to get the handle of the API to use it's methods PollAPI is the most importantly used interface to configure Data collection parameters PollAPI can be accessed through RMI. When RMI is enabled by running the RMI registry, it will be published with the RMI handle / PollAPI on the server.	Remember	CO 5	CLO20	AIT003.20
13	Define TELNET (Terminal Network)?	TELNET is client-server application that allows a user to log onto remote machine and lets the user to access any application program on a remote computer.	Remember	CO 5	CLO19	AIT003.19
14	What is Multipurpose Internet Mail Extensions?	It is an extension of SMTP that allows the transfer of multimedia messages	Remember	CO 5	CLO19	AIT003.19
15	Define Generic Domain?	The generic domain defines registered hosts according, to their generic behaviour. Each node in the tree defines a domain which is an index to the domain name space database.	Remember	CO 5	CLO18	AIT003.18
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21	Define World Wide Web?	WWW is a set of programs, standards and protocols that allow the text, images, animations, sounds and videos to be stored, accessed and linked together in form of web sites.	Remember	CO 5	CLO20	AIT003.20

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22	What is Generic Domain?	The generic domain defines registered hosts according, to their generic behavior. Each node in the tree defines a domain which is an index to the domain name space database.	Remember	CO 5	CLO20	AIT003.20
23	What are the System Design for Better Performance Rules?	CPU speed is more important than network speed. Reduce packet count to reduce software overhead. Minimize context switches. Minimize copying. You can buy more bandwidth but not lower delay. Avoiding congestion is better than recovering from it.• Avoid timeouts.	Remember	CO 5	CLO19	AIT003.19
24	What is a Scheduler	This component takes care of scheduling	Remember	CO 5	CLO17	AIT003.17
25	What is Tables clean up?	Specify the periodicity as to how often you want to delete the tables which hold collected data. If table clean up is not done then the number of tables will increase and soon database will be full	Remember	CO 5	CLO19	AIT003.19
26	What is HTTP?	The Hypertext Transfer Protocol, which delivers Web pages over the network.	Remember	CO 5	CLO19	AIT003.19
27	Define Network File system (NFS)?	This protocol allows files to be shared by various hosts on the network. Some protocols, such as telnet and FTP, can only be used if the user has some knowledge of the network.	Remember	CO 5	CLO21	AIT003.21
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30	Define Generic Domain?	The generic domain defines registered hosts according, to their generic behaviour. Each node in the tree defines a domain which is an index to the domain name space database.	Remember	CO 5	CLO18	AIT003.18
31	Describe Multipurpose Internet Mail Extensions	It is an extension of SMTP that allows the transfer of multimedia messages	Remember	CO 5	CLO19	AIT003.19
32	Define the Management Information Base	The MIB is a database that follows a standard that the manager and agents adhere to. It is a hierarchical structure that, in many areas, is globally standardized, but also flexible enough to allow vendor-specific additions. The MIB structure is best understood as a top-down hierarchical tree	Remember	CO 5	CLO19	AIT003.19
33	Define Data Collection Objects (Modeling Polling units)	Data collection process has been well-studied and modeled using objects that define what data to collect (Polling Objects and Polled Data) and where to store the collected data	Remember	CO 5	CLO17	AIT003.17

S No	QUESTION	ANSWER	Blooms Level	Course Outcome	CLO	CLO Code
34	What is Periodic Report generation	Based on the settings you specify i.e. which report should be generated when (day and time) and how often, the time of report generation will be scheduled and at the appropriate day and hour, the report will be produced.	Remember	CO 5	CLO19	AIT003.19
35	Define Threshold Notification	Whenever collected data exceeds Threshold value, a Threshold event is generated and sent to Fault module which handles it.	Remember	CO 5	CLO20	AIT003.20
36	Define SMTP?	SMTP (Simple Mail Transfer Protocol) is a TCP/IP protocol used in sending and receiving e-mail. However, since it is limited in its ability to queue messages at the receiving end, it is usually used with one of two other protocols, POP3 or IMAP, that let the user save messages in a server mailbox and download them periodically from the server. In other words, users typically use a program that uses SMTP for sending e-mail and either POP3 or IMAP for receiving e-mail. On Unix-based systems, send mail is the most widely-used SMTP server for e-mail.	Remember	CO 5	CLO18	AIT003.18
37	What is Uniform Resource Locater?	The URL is a standard for specifying any kind of information on the Internet. The URL consists of four parts: protocol, host computer, port and path. The protocol is the client or server program which is used to retrieve the document or file. The protocol can be ftp or http. The host is the name of computer on which the information is located. The URL can optionally contain the port number and it is separated from the host name by a colon. Path is the pathname of the file where the file is stored.	Remember	CO 5	CLO21	AIT003.21
38	Define Periodic data collection?	Data Collection takes place at specified time intervals. Based on the time interval given, the Scheduler schedules the Data Collection process	Remember	CO 5	CLO19	AIT003.19
39	What is a Configuration file?	Configuration files are available in XML format You can modify configuration files before Server startup and see the changes These are stored under <Web NMS Home>/conf directory These are updated when settings are changed via Client User Interface.	Remember	CO 5	CLO20	AIT003.20
40	What is Multipurpose Internet Mail Extensions?	MIME (Multi-Purpose Internet Mail Extensions) is an extension of the original Internet mail protocol that lets people use the protocol to exchange different kinds of data files on the Internet: audio, video, images, application programs, and other kinds, as well as the ASCIItext handled in the original protocol, the Simple Mail Transport Protocol (SMTP). In 1991, Nathan Borenstein of Bellcore proposed to the IETF that SMTP be extended so that Internet (but mainly Web) clients and servers could recognize and handle other kinds of data than ASCII text. As a result, new file types were added to "mail" as a supported Internet Protocol file type.	Remember	CO 5	CLO19	AIT003.19
41	What is SNMP?	Simple Network Management Protocol (SNMP) is a set of protocols for network management and monitoring. These protocols are supported by many typical network devices such as routers, hubs, bridges, switches, servers, workstations, printers, modem racks and other network components and devices.	Remember	CO 5	CLO19	AIT003.19

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42	What is client server programming?	The client-server programming model is a distributed computing architecture that segregates information users (clients) from information providers (servers). A client is an application that needs something like a web page or IP address from a server. Clients may contact a server for this information at any time.	Remember	CO 5	CLO21	AIT003.21
43	What is Data Collection service? (Protocol neutral Data collection)	This provides multi protocol Data collection support. Data can be collected from TL1 devices, CORBA devices etc. Default data collection takes place with respect to SNMP device. User can plug in his own Protocol provider to facilitate data collection for that protocol. Data collection process can be Customized to suit user requirements. Observers can be set to monitor data collection process and get notified	Remember	CO 5	CLO18	AIT003.18
44	What is Threshold Rules?	The collected data needs some kind of monitoring which is done by applying Threshold rules on the collected data	Remember	CO 5	CLO19	AIT003.19
45	What is Telnet?	Telnet is a network text-only protocol that provides bidirectional interactive communications facility using virtual terminal connection. Telnet is the method that allows connecting to a remote computer over Internet and using programs and data as if they were on your local machine.	Remember	CO 5	CLO18	AIT003.18
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