SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF

ELECTRONICS AND COMMUNICATION ENGINEERING

QUESTION BANK

V SEMESTER

1906502 COMMUNICATION NETWORKS

Regulation – 2019

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SUBJECT : 1906502 COMMUNICATION NETWORKS

SEM / YEAR : V SEMESTER / III YEAR

UNIT I -FUNDAMENTALS & LINK LAYER			
Overview of Data Communications- Networks – Building Network and its types– Overview of Internet - Protocol Layering - OSI Model – Physical Layer – Overview of Data and Signals - introduction to Data Link Layer - Link layer Addressing- Error Detection and Correction			
PARTA			
Q. No	**Questions**	**BT Level**	**Competence**
1.	Define Computer Network.	**BTL 1**	**Remembering**
2.	Outline the fundamental characteristics of data communication system.	**BTL 2**	**Understanding**
3.	List the criteria necessary for an effective and efficient network.	**BTL 1**	**Remembering**
4.	Sketch the four basic network topologies.	**BTL 3**	**Applying**
5.	State the function of WAN.	**BTL 1**	**Remembering**
6.	Interpret the responsibilities of data link layer.	**BTL 2**	**Understanding**
7.	Compare the packet-switched and circuit-switched networks.	**BTL 2**	**Understanding**
8.	What is an Internet?	**BTL 1**	**Remembering**
9.	Write about Protocol layering.	**BTL 1**	**Remembering**
10.	Identify the purpose of computer networks.	**BTL 2**	**Understanding**
11.	Write about the seven layers of OSI model.	**BTL 4**	**Analyzing**
12.	Express the role of LLC sub layer in data link layer?	**BTL 2**	**Understanding**
13.	Differentiate between half duplex and full duplex.	**BTL 3**	**Applying**
14.	Analyze the flow control and error control.	**BTL 4**	**Analyzing**
15.	Distinguish between Baseband transmission and Broadband transmission.	**BTL 4**	**Analyzing**
16.	Mention the responsibilities of Physical layer.	**BTL 2**	**Understanding**
17.	Define analog and digital signals.	**BTL 1**	**Remembering**
18.	Distinguish the difference between a port address, a logical address and a physical address.	**BTL 4**	**Analyzing**
19.	Illustrate error detection and correction.	**BTL 3**	**Applying**
20.	Consider that the data word to be transmitted is 100100 and key is 1101. Determine parity bits for the given data.	**BTL 3**	**Applying**

21.	Interpret the term checksum.	**BTL 3**	**Applying**
22.	Categorize the necessary criteria for an effective and efficient network.	**BTL 4**	**Analyzing**
23.	Interpret the purpose of Data Link layer?	**BTL 3**	**Applying**
24.	Explain how error detection and correction is done?	**BTL 4**	**Analyzing**

PART – B			
1.	Define data communications. Describe the five components of data communications system with necessary diagrams. (13)	**BTL 1**	**Remembering**
2.	Write brief note on the following: (i) Network criteria (5) (ii) Physical structures (4) (iii) Physical topology (4)	**BTL 1**	**Remembering**
3.	(i) What are the types of networks? Explain with necessary diagrams. (7) (ii) Two computers are connected by an Ethernet hub at home. Is this a LAN, a MAN, or a WAN? Explain the reason. (6)	**BTL 1**	**Remembering**
4.	Explain about data and signals and name three types of transmission impairment. (13)	**BTL 1**	**Remembering**
5.	Explain the overview of Internet architecture with necessary diagrams. (13)	**BTL 2**	**Understanding**
6.	Illustrate the mechanism of simple parity check code with your own example. (13)	**BTL 2**	**Understanding**
7.	Interpret the process of two-dimensional parity check with real time example. (13)	**BTL 2**	**Understanding**
8.	What kind of arithmetic is used to add data items in checksum calculation, explain with an example. (13)	**BTL 3**	**Applying**
9.	Given the data word 1010011110 and the divisor 10111, (i) generate the code word at the sender site (using binary division). (5) (ii) Show the checking of the code word at the receiver site (Assume no error). (4) (iii) Show the checking of the code word at the receiver site (Include error). (4)	**BTL 4**	**Analyzing**
10.	How can errors be detected by using block coding? Analyze the process of error detection and correction in block coding. (13)	**BTL 3**	**Applying**
11.	Inspect the responsibilities and concerns of physical layer with neat diagram. (13)	**BTL 4**	**Analyzing**
12.	How would you categorize the levels of addresses used in an internet employing the TCP/IP protocols? (13)	**BTL 4**	**Analyzing**
13.	Draw the structure of CRC encoder and decoder and explain its principle and operation. (13) (13)	**BTL 4**	**Analyzing**

14.	Describe in detail about the Forward Error Correction techniques. (13)	**BTL 3**	**Applying**
15.	Explain about the data communication and networks with appropriate diagrams. (13)	**BTL 4**	**Analyzing**
16.	Draw the OSI model and describe the responsibilities of each layer in the model. (13)	**BTL 2**	**Understanding**
17.	Elaborate the error detection and correction technique with suitable example. (13)	**BTL 3**	**Applying**
	PART – C		
1.	Describe the layered architecture of OSI model and assess the functions of each layer. (15)	**BTL 1**	**Remembering**
2.	For each of the following four networks, discuss the consequences if a connection fails. (i) Five devices arranged in a mesh topology (4) (ii) Five devices arranged in a star topology (not counting the hub) (4) (iii) Five devices arranged in a bus topology (4) (iv) Five devices arranged in a ring topology (3)	**BTL 2**	**Understanding**
3.	(i) How do you find the minimum distance for linear block codes? (5) (ii) Evaluate the performance of any two linear block codes with your own example. (10)	**BTL 3**	**Applying**
4.	In order to transmit the message M = 1 1 1 0 1 1 with divisor bit as C= 1 1 0 1 whose polynomial is given by C(x) = x3+x2+1, Formulate the message that should be transmitted using polynomial long division and predict the occurrence of errors in the receiver. (15)	**BTL 4**	**Analyzing**
5.	Determine the propagation time and the transmission time for a 2.5-kbyte message (an e-mail) if the bandwidth of the network is 1 Gbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at 2.4 x 10^8 m/s. (15)	**BTL 3**	**Applying**

UNIT II - MEDIA ACCESS & INTERNETWORKING			
Overview of Data link Control and Media access control - Ethernet (802.3) - Wireless LANs – Available Protocols – Bluetooth – Bluetooth Low Energy – WiFi – Low PAN–Zigbee - Network layer services – Packet Switching.			
PART – A			
Q. No	**Questions**	**BT Level**	**Competence**
1.	Mention the functions of data link layer.	**BTL 1**	**Remembering**
2.	Draw the Ethernet frame format.	**BTL 3**	**Applying**
3.	What is the need of escape character?	**BTL 4**	**Analyzing**
4.	Compare flow control and error control.	**BTL 3**	**Applying**

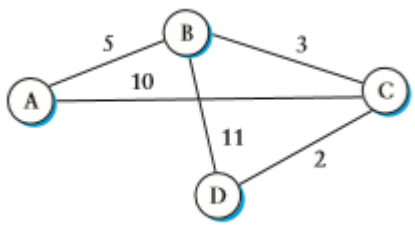
5.	State the working principle of stop-and-wait protocol.	**BTL 1**	**Remembering**
6.	Write the function of piggybacking.	**BTL 1**	**Remembering**
7.	Distinguish between fixed-size framing and variable-size framing.	**BTL 2**	**Understanding**
8.	How HDLC frame types differ from one another?	**BTL 4**	**Analyzing**
9.	Illustrate the Media access control.	**BTL 3**	**Applying**
10.	Summarize the different Ethernet generations.	**BTL 2**	**Understanding**
11.	Identify the goals of Fast Ethernet.	**BTL 2**	**Understanding**
12.	List out the advantages of WLAN.	**BTL 4**	**Analyzing**
13.	Define total delay in network layer services.	**BTL 1**	**Remembering**
14.	Write about Piconet and Scatternet.	**BTL 2**	**Understanding**
15.	What are the applications of Bluetooth.	**BTL 1**	**Remembering**
16.	Differentiate between basic service set and extended service set.	**BTL 4**	**Analyzing**
17.	Interpret the role of 6LoWPAN in network layer.	**BTL 3**	**Applying**
18.	Find the three different device types of Zigbee device.	**BTL 3**	**Applying**
19.	Categorize the types of packet switching.	**BTL 4**	**Analyzing**
20.	Sketch the subfields in IEEE 802.11 control frames.	**BTL 3**	**Applying**
21.	Enumerate the difference between Fast Ethernet and Gigabit Ethernet.	**BTL 1**	**Remembering**
22.	Express the purpose of Network Interface Card?	**BTL 2**	**Understanding**
23.	What is the most command kinds of Base band 802.3 LAN.	**BTL 4**	**Analyzing**
24.	Write the types of stations is HDLC.	**BTL 2**	**Understanding**
	PART – B		
1.	Explain the different frames and configuration of HDLC protocol. (13)	**BTL 2**	**Understanding**
2.	Describe the working principle of stop and wait and sliding window mechanism with an example of your own. (13)	**BTL 1**	**Remembering**
3.	What is CSMA/CD? Explain how it detects collisions with suitable diagrams? (13)	**BTL 1**	**Remembering**
4.	Write an algorithm of CSMA/CD with real time example and explain its functionality. (13)	**BTL 4**	**Analyzing**
5.	Discuss about CSMA/CA and explain its working principle. (13)	**BTL 1**	**Remembering**
6.	Analyze RTS/CTS protocol with a real time example. (13)	**BTL 4**	**Analyzing**
7.	Explain Ethernet standards with relevant examples. (13)	**BTL 4**	**Analyzing**
8.	Analyze the characteristics of fast Ethernet and Gigabit Ethernet. (13)	**BTL 3**	**Applying**
9.	Illustrate an architecture and MAC layers of IEEE 802.11 with necessary diagrams. (13)	**BTL 2**	**Understanding**
10.	Draw an architecture diagram for 6LowPAN technology and explain its layers. (13)	**BTL 1**	**Remembering**

11.	Discuss the working principle of Zigbee protocol with an architecture diagram. (13)	**BTL 2**	**Understanding**
12.	Interpret the design of Go-Back-N Automatic Repeat Request protocol with flow diagram. (13)	**BTL 2**	**Understanding**
13.	Identify the need for network layer and show the functionality of the Network layer at the source, router, and destination. (13)	**BTL 3**	**Applying**
14.	Explain the concept of datagram forwarding and virtual circuit network with an example. (13)	**BTL 2**	**Understanding**
15.	Describe about IP fragmentation and reassembly. (13)	**BTL 3**	**Applying**
16.	Explain the control frames and addressing mechanisms in IEEE802.11 with necessary diagram. (13)	**BTL 3**	**Applying**
17.	Analyze the flow and delivery of data in Selective Repeat ARQ Protocol. (13)	**BTL 4**	**Analyzing**
	PART- C		
1.	Compare and contrast byte-stuffing and bit-stuffing. Which technique is used in byte-oriented protocols and bit-oriented protocols? Justify your answer. (15)	**BTL 4**	**Analyzing**
2.	(i) Assess the two types of networks in Bluetooth architecture. (7) (ii) Show the functions of Bluetooth layers. (8)	**BTL 3**	**Applying**
3.	Explain the design of Stop-and-WaitARQ Protocol with Sender-site and Receiver-site algorithm. (15)	**BTL 1**	**Remembering**
4.	Discuss in detail about the common WiFi standards and types. Tabulate the Wifi characteristics and differences between the standards. (15)	**BTL 2**	**Understanding**
5.	Analyze the functionality of Zigbee protocol and also discuss about its types and limitations. (15)	**BTL 4**	**Analyzing**

UNIT III - LOGICAL ADDRESSING AND ROUTING			
Logical addressing: IPv4, IPv6 addresses, Internet Protocol: IPv4, IPv6 - Address mapping –DHCP, ICMP, IGMP, Routing - Unicast Routing – Algorithms – Protocols – Multicast Routing and its basics – Overview of Intradomain and interdomain protocols.			
Q. No	**Questions**	**BT Level**	**Competence**
1.	Write the purpose of Routing.	**BTL 2**	**Understanding**
2.	What do you mean by Unicast routing?	**BTL 1**	**Remembering**
3.	Interpret the algorithm of Least-Cost routing.	**BTL3**	**Applying**
4.	Define distance-vector routing.	**BTL 1**	**Remembering**
5.	Express the Bellman-Ford equation.	**BTL3**	**Applying**

6.	Point out the function of Autonomous system.	**BTL 4**	**Analyzing**
7.	Examine Global routing protocol.	**BTL 1**	**Remembering**
8.	Summarize the concepts of RIP.	**BTL 2**	**Understanding**
9.	How does OSPF routing protocol work?	**BTL 4**	**Analyzing**
10.	Which is faster IPv4 or IPv6?	**BTL 3**	**Applying**
11.	Express the benefits of Open Shortest Path First (OSPF) Protocol.	**BTL 2**	**Understanding**
12.	Differentiate Inter domain and Intra domain routing.	**BTL 4**	**Analyzing**
13.	State the concept of Multicast routing.	**BTL 1**	**Remembering**
14.	List the applications of Multicasting.	**BTL 2**	**Understanding**
15.	Why IPv6 is preferred than IPv4?	**BTL 1**	**Remembering**
16.	Distinguish between RIP and OSPF.	**BTL 4**	**Analyzing**
17.	Classify the destination address in IPv6.	**BTL 3**	**Applying**
18.	Identify the three packets in the DHCP process.	**BTL 2**	**Understanding**
19.	Find the type of the following destination addresses: a. 4A:30:10:21:1O:1A b. 47:20:1B:2E:08:EE c. FF:FF:FF:FF:FF:FF	**BTL3**	**Applying**
20.	Which protocol is used for mapping of logical address into physical address?	**BTL 3**	**Applying**
21.	What is ICMP?	**BTL 4**	**Analyzing**
22.	Mention the function of IGMP?	**BTL 1**	**Remembering**
23.	What is an IPv4 and its characteristics?	**BTL 4**	**Analyzing**
24.	What are the metrics used in determining the best path for a routing protocol?	**BTL 2**	**Understanding**

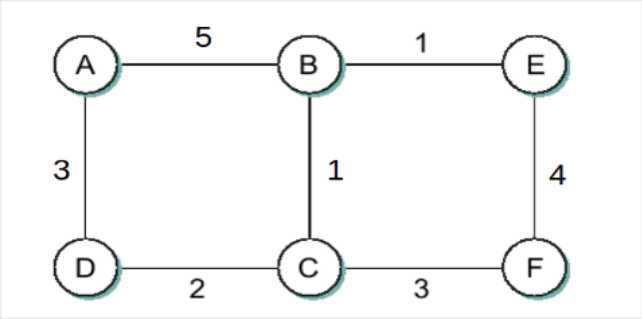
PART – B

1.	Describe the flow of Distance Vector Routing Algorithm with necessary diagrams. (13)	**BTL 1**	**Remembering**
2.	(i) Sketch the format of IPv4 datagram header. (7) (ii) Find the Net id and the Host id of the following IP addresses. (6) a. 114.34.2.8 b. 132.56.8.6 c. 208.34.54.12	**BTL 3**	**Applying**
3.	Identify the Link state routing algorithm for the given network and tabulate the steps for building routing table for node D. (13) 	**BTL 1**	**Remembering**

UNIT IV - TRANSPORT LAYER

4.	What is reliable flooding and explain how routing takes place in link state routing? (13)	**BTL 1**	**Remembering**
5.	Explain in detail about RIP with packet format and example network. (13)	**BTL 4**	**Analyzing**
6.	(i) Discuss about the format of BGPv4 update message. (7) (ii) Express the types of Autonomous System (AS) in internet. (6)	**BTL 2**	**Understanding**
7.	Describe different Datagram approaches. Also explain the advantages of LSR over DVR. List the limitations of Link State Routing Algorithm. (13)	**BTL 2**	**Understanding**
8.	Discuss the message types of Internet Control Message Protocol and High light the purpose of error reporting messages. (13)	**BTL 2**	**Understanding**
9.	Construct the header format of IPv6 and discuss each field in detail. (13)	**BTL 3**	**Applying**
10	Write a brief note on Mapping of Logical to Physical Address and Show the packet format of ARP. (13)	**BTL 1**	**Remembering**
11.	(i) Illustrate the packet format of Dynamic Host Configuration Protocol (DHCP). (7) (ii) Explain how DHCP sever dynamically assigns IP address to a host. (6)	**BTL 4**	**Analyzing**
12.	Analyze the operation of Protocol Independent Multicast (PIM) with neat diagram. (13)	**BTL 4**	**Analyzing**
13.	Interpret the DVMRP algorithm with a simple example of your choice. (13)	**BTL 3**	**Applying**
14.	Draw the model of interdomain routing and explain the working of Border Gateway Protocol. (13)	**BTL 4**	**Analyzing**
15	Explain in details about IP addressing methods. (13)	**BTL 2**	**Understanding**
16	Describe in detail about Internet Group Management Protocol (IGMP) with packet format. (13)	**BTL 3**	**Applying**
17	(i) Differentiate between Link-state and Distance-vector routing? (7) (ii) Explain IPv6 datagram format with suitable diagram (6)	**BTL 3**	**Applying**
	PART – C		
1.	Enumerate the operation of hierarchically structured OSPF protocol with header format and link state advertisement format. (15)	**BTL 1**	**Remembering**
2.	For the given network, find the global distance vector table when	**BTL 2**	**Understanding**

Introduction to Transport layer –Protocols- User Datagram Protocols (UDP) and Transmission Control Protocols (TCP) –Services – Features – TCP Connection – State Transition Diagram – Flow, Error and Congestion Control - Congestion avoidance (DECbit, RED) – QoS – Application requirements.
PART-A

	 (i) Each node knows only the distances to its immediate neighbors. (5) (ii) Each node has reported information it had in the preceding step (i) to its immediate neighbors. (5) (iii) step (ii)is repeated. (5)		
3.	(i) Illustrate the classes in classful addressing and define the application of each class with an example. (8) (ii) Find the class,net id and host id of the following IP addresses. a. 208.34.54.12 b. 238.34.2.1 c. 114.34.2.8 d. 129.14.6.8 (7)	**BTL 3**	**Applying**
4.	Explain the operation and message format of Internet Group Management Protocol (IGMP) with an example. (15)	**BTL 4**	**Analyzing**
5.	Describe about Link-state routing and routers. (15)	**BTL 1**	**Remembering**

Q. No	Questions	BT Level	Competence
1.	What is Transport layer?	**BTL 1**	**Remembering**
2.	Differentiate Flow control and Congestion control.	**BTL 4**	**Analyzing**
3.	Write about the Power of Network.	**BTL 3**	**Applying**
4.	Point out the responsibilities of error control in transport layer.	**BTL 4**	**Analyzing**
5.	Explain Socket Address.	**BTL 2**	**Understanding**
6.	Distinguish between UDP and TCP	**BTL 3**	**Applying**
7.	Summarize Stop-and-Wait protocol and Go-Back-N protocol.	**BTL 2**	**Understanding**
8.	Draw the TCP Header format.	**BTL 3**	**Applying**
9.	Compare RSVP and ATM signaling.	**BTL 4**	**Analyzing**
10.	State the features of TCP.	**BTL 1**	**Remembering**
11.	Construct the Three-way handshaking with an example.	**BTL 2**	**Understanding**
12.	Mention the approaches to improve the QoS.	**BTL 3**	**Applying**
13.	Write about SYN Flooding attack.	**BTL 1**	**Remembering**
14.	Name the general policies for handling congestion.	**BTL 1**	**Remembering**
15.	Assess the ways to deal with congestion.	**BTL 3**	**Applying**
16.	Write the concept of RED.	**BTL 4**	**Analyzing**

17.	Illustrate the services provided by UDP.	**BTL 2**	**Understanding**
18.	List the Quality of Service parameters of Transport layer.	**BTL 1**	**Remembering**
19.	Identify the ports used for UDP.	**BTL 2**	**Understanding**
20.	What is Slow start?	**BTL 1**	**Remembering**
21.	Mention the two categories of QoS attributes?	**BTL 2**	**Understanding**
22.	Compare the service point address, logical address and physical address?	**BTL 3**	**Applying**
23.	What are the services provided by Transport layer protocol?	**BTL 4**	**Analyzing**
24.	Define QoS.	**BTL 4**	**Analyzing**
	PART – B		
1.	Write short notes on: (i) Process-to-Process Communication (4) (ii) Addressing (5) (iii) Encapsulation and De capsulation (4)	**BTL 1**	**Remembering**
2.	Summarize the following: (i) Stop-and-Wait Protocol (7) (ii) Go-Back-N Protocol (6)	**BTL 2**	**Understanding**
3.	Illustrate the services provided by Transport layer protocol. (13)	**BTL 3**	**Applying**
4.	Describe the working principle of TCP congestion control. (13)	**BTL 1**	**Remembering**
5.	Explain the services offered by TCP to the process at the application layer. (13)	**BTL 2**	**Understanding**
6.	Analyze the TCP connection with its Three-Way Handshaking. (13)	**BTL 4**	**Analyzing**
7.	Examine the State Transition Diagram for TCP with neat diagrams. (13)	**BTL 1**	**Remembering**
8.	Manipulate the flow control mechanism of TCP with necessary illustrations. (13)	**BTL 3**	**Applying**
9.	(i) With neat sketches, evaluate the retransmission techniques in detail. (7) (ii) Discuss the events and transitions about the TCP state transition diagrams. (6)	**BTL 2**	**Understanding**
10.	Elaborate on TCP connection Management using neat diagrams. (13)	**BTL 3**	**Applying**
11.	Write in detail the principle of establishment of QoS through differentiated services. (13)	**BTL 1**	**Remembering**
12.	Examine the concept of congestion avoidance in TCP. (13)	**BTL 4**	**Analyzing**
13.	Illustrate the principle of flow control mechanism with an example. (13)	**BTL 2**	**Understanding**
14.	(i) Differentiate between UDP and TCP. (7) (6) (7) (ii) Explain the various Queuing Disciplines.	**BTL3**	**Applying**
15.	Define UDP. Discuss the operations of UDP. Explain UDP checksum with one example. (13)	**BTL 4**	**Analyzing**
16.	Explain congestion avoidance using random early detection in transport layer with an example. (13)	**BTL 2**	**Understanding**

17.	Discuss about the TCP Congestion control mechanisms. Also differentiate these mechanisms. (13)	**BTL 4**	**Analyzing**
	PART – C		
1.	(i) Draw the format of TCP packet header and explain each of its field. (10) (ii) Justify the allocation of variable field length for the fields in the TCP header. (5)	**BTL 1**	**Remembering**
2.	How is congestion controlled? Deduct various congestion control techniques in transport layer. (15)	**BTL3**	**Applying**
3.	Evaluate the services and Applications in User Datagram Protocol. (15)	**BTL 4**	**Analyzing**
4.	Enumerate the following: (i) Flow control (8) (ii) Error control (7)	**BTL 1**	**Remembering**
5.	(i) Explain the services offered by TCP to process at the application layer. (8) (ii) Describe the token bucket mechanism for congestion control. With which other technique is token bucket usually combined to achieve complete flow control? What problems in the simpler approach are addressed by using a token bucket mechanism? (7)	**BTL 2**	**Understanding**

UNIT V - APPLICATION LAYER			
Application Layer Paradigms – Client Server Programming – World Wide Web and HTTP - DNS- - Electronic Mail (SMTP, POP3, IMAP, MIME) – Introduction to Peer to Peer Networks – Need for Cryptography and Network Security – Firewalls.			
Q.No	**Questions**	**BT Level**	**Competence**
1.	Define Application layer protocol.	**BTL 1**	**Remembering**
2.	Distinguish between network applications and application-layer protocol.	**BTL 4**	**Analyzing**
3.	Mention the limitations of SMTP.	**BTL 3**	**Applying**
4.	Write the name of components used in e-mail system.	**BTL 1**	**Remembering**
5.	Illustrate the features of IMAP.	**BTL 2**	**Understanding**
6.	Why DNS Resolver bootstrap the domain name lookup process?	**BTL 3**	**Applying**
7.	Explain the function of User Agent.	**BTL 2**	**Understanding**
8.	Compare HTTP with persistent and Non-persistent Connection.	**BTL 4**	**Analyzing**
9.	List the types of documents in WWW.	**BTL 3**	**Applying**
10.	What is MIME?	**BTL 1**	**Remembering**
11.	Write the features of HTTP.	**BTL 2**	**Understanding**
12.	Asses the Application Programming Interface.	**BTL 4**	**Analyzing**
13.	Analyze the security goals in network security.	**BTL 4**	**Analyzing**

14.	How will you recognize the P2P networks?	**BTL 1**	**Remembering**
15.	Draw the general block diagram of cryptography.	**BTL 3**	**Applying**
16.	Explain the classification of cipher.	**BTL 4**	**Analyzing**
17.	Summarize the applications of RSA.	**BTL 2**	**Understanding**
18.	What is POP3 and IMAP4?	**BTL 1**	**Remembering**
19.	Express the classification of firewalls.	**BTL 2**	**Understanding**
20.	Describe the Pretty Good Privacy for E-mail security.	**BTL 1**	**Remembering**
21.	What is WWW and SMTP?	**BTL 4**	**Analyzing**
22.	Mention the different levels in domain name space.	**BTL 3**	**Applying**
23.	Draw a diagram that illustrate tunneling strategy.	**BTL 3**	**Applying**
24.	What is a URL, web browser and rlogin?	**BTL 2**	**Understanding**
	PART – B		
1.	(i) How would you transfer the message using Simple Mail Transfer Protocol? (7) (ii) Explain the final delivery of email to the end user using POP3. (6)	**BTL 1**	**Remembering**
2.	Write short notes on (i). Web services (7) (ii) SNMP (6)	**BTL 2**	**Understanding**
3.	With appropriate diagram describe (i) DNS (7) (ii) MIME (6)	**BTL 3**	**Applying**
4.	(i) Describe in detail about HTTP with neat diagram. (7) (ii)With relevant examples discuss how the domain space is divided.(6)	**BTL 1**	**Remembering**
5.	(i) Sketch the model of IMAP state transition diagram. (7) (ii) Outline the salient features of the SMTP protocol. (6)	**BTL 2**	**Understanding**
6.	(i) Illustrate the various steps involved in the use of non- persistent connection of HTTP. (7) (ii) Draw &explain the general format of a HTTP request message and a response message. (6)	**BTL 4**	**Analyzing**
7.	(i) Define MIME with neat a diagram. (7) (ii) Give the comparison between POP-3 and IMAP-4. (6)	**BTL 1**	**Remembering**
8.	(i) Describe the message format, the message transfer and the underlying protocol involved in the working of an electronic mail. (7) (ii) Analyze the architecture and services of an E-mail system. (6)	**BTL 3**	**Applying**
9.	Evaluate the model for network security with neat diagram. (13)	**BTL 3**	**Applying**

10.	(i) Write the Traditional application in computer networks. (7) (ii) Explain the role of a DNS on a computer network, including its involvement in the process of a User accessing a webpage. (6)		**BTL 4**	**Analyzing**
11.	Describe the encryption and decryption method used in DES.	(13)	**BTL 1**	**Remembering**
12.	Explain in detail about the AES with neat diagram.	(13)	**BTL 4**	**Analyzing**
13.	Summarize the Diffie-Helman Cryptosystem.	(13)	**BTL 2**	**Understanding**
14.	(i) Identify the following terms; SMTP, HTTP, DNS,SNMP (8) (ii) Examine WSDL in web services. (5)		**BTL 3**	**Applying**
15.	Explain the Domain Name Service protocol with an example	(13)	**BTL 4**	**Analyzing**
16.	(i)Differentiate between message authentication and entity authentication. (7) (ii) Differentiate between centralized and decentralized P2P networks. (6)		**BTL 4**	**Analyzing**
17.	Write your understanding on File Transfer Protocol	(13)	**BTL 2**	**Understanding**
PARTC				
1.	(i) Explain how SMTP Protocol is used in E-mail applications. (7) (ii) How would you elaborate Hypertext Transfer Protocol with an example? (8)		**BTL 3**	**Applying**
2.	Summarize the following in detail: (i) SMTP (5) (ii)MIME (5) (iii)POP3 (5)		**BTL 2**	**Understanding**
3.	Discuss the Data Encryption Standard with neat diagram.	(15)	**BTL 2**	**Understanding**
4.	Write the firewall and its types with neat diagram.	(15)	**BTL 1**	**Remembering**
5.	Explain in details how electronic mail application is carried out in a network. Also explain the protocols used in this application.	(15)	**BTL 4**	**Analyzing**