DATA COMMUNICATION AND COMPUTER NETWORKS(IT503PC)
B.Tech. III Year I Sem
COURSE PLANNER

I.COURSE PURPOSE:
At the end of the course the student should be in a position to
1.Describe communication protocols and layered network architectures.
2.Explain convention computer system interfacing standards and peer to peer data link communication protocols
3.Design basis network systems.
4.Analyze data communication technology.

II.PRE-REQUISITES:
It's expected to have basis knowledge of logic circuits and their applications in digital system.

III. COURSE OBJECTIVIES:

1.To introduce the fundamental various types of computer networks.
2.To demonstrate the TCP/IP and OSI models with merits and demerits.
3.To explore the various layers of OSI Model.
4.To introduce UDP and TCP Models.

IV.COURSE COUCOMES:

S. No.	Course Outcomes	Bloom's Taxonomy Levels	PROGRAM OUTCOMES, PROGRAM SPECIFIC OUTCOMES
1.	understand and explore the basics of computer Networks	L2:Understand	PO1,PO2,PO3,PO4,PO11, PO12,PSO1,PSO2,PSO 3
2.	administrate a network and understand the concepts of network security , Mobile and adhoc networks	L2:Understand	PO1,PO2,PO3,PO4,PO11, PO12,PSO1,PSO2,PSO 3
3.	understand the concepts of unicast, multicast and networking area	L3:Analyzing	PO1,PO2,PO3,PO4,PO11, PO12,PSO1,PSO2,PSO 3
4	understand and implement the different types of protocols	L2:Understand	PO1,PO2,PO3,PO4,PO11, PO12,PSO1,PSO2,PSO 3
5	understand the World wide web Concepts.	L2:Understand	PO1,PO2,PO3,PO4,PO11 ,PO12,PSO1,PSO2,PSO3

V. COURSE CONTENT:

UNIT – I

Data Communications: Components – Direction of Data flow – Networks – Components and Categories – Types of Connections – Topologies –Protocols and Standards – ISO / OSI model, Example Networks such as ATM, Frame Relay, ISDN Physical layer: Transmission modes, Multiplexing, Transmission Media, Switching, Circuit Switched Networks, Datagram Networks, Virtual Circuit Networks.

UNIT – II

Data link layer: Introduction, Framing, and Error – Detection and Correction – Parity – LRC – CRC Hamming code, Flow and Error Control, Noiseless Channels, Noisy Channels, HDLC, Point to Point Protocols. 111 Medium Access sub layer: ALOHA, CSMA/CD, LAN – Ethernet IEEE 802.3, IEEE 802.5 – IEEE 802.11, Random access, Controlled access, Channelization.

UNIT – III

Network layer: Logical Addressing, Internetworking, Tunneling, Address mapping, ICMP, IGMP, Forwarding, Uni-Cast Routing Protocols, Multicast Routing Protocols.

UNIT – IV

Transport Layer: Process to Process Delivery, UDP and TCP protocols, Data Traffic,Congestion, Congestion Control, QoS, Integrated Services, Differentiated Services, QoS in Switched Networks.

UNIT – V

Application Layer: Domain name space, DNS in internet, electronic mail, SMTP, FTP, WWW, HTTP, SNMP.

GATE SYLLABUS

Concept of layering. LAN technologies (Ethernet).flow and error control techniques,switching.IPV4/IPV6, routers and routing algorithums(distance vector, link state).TCP/UDP and sockets,congestion control. Application layer protocols (DNS, SMTP, POP, FTP, HTTP).Basics of Wi-Fi.

TEXT BOOKS:

1. Data Communications and Networking, Behrouz A. Forouzan , Fourth Edition TMH,2006.
2. Computer Networks, Andrew S Tanenbaum, 4th Edition. Pearson Education, PHI.

VI. LESSON PLAN:

S.NO	Week	Unit	TOPICS	Content to be covered under each topic	Link for PPT	Link for PDF	Course Learning Outcomes	Teaching methodologies	References
1	1	1	INTRODUCTION TO DATA COMMUNICATION	• Understand: DATA COMMUNICATION	https://drive.google.com/file/d/1qXxGbcO3gbhsUw3b8sjlAbS_lkPeG4kw/view?usp=shar	https://drive.google.com/file/d/1qXxGbcO3gbhsUw3b8sjlAbS_lkPeG4kw/view?u	Understand	CHALK BOARD ,PPT PRESENTAION	T1
2			INTRODUCTION TO COMPUTER NETWORK	• Describe: COMPUTER NETWORK	https://drive.google.com/file/d/1qXxGbcO3gbhsUw3b8sjlAbS_lkPeG4kw/view?usp=shar	https://drive.google.com/file/d/1qXxGbcO3gbhsUw3b8sjlAbS_lkPeG4kw/view?u	Describe		T1
3			Data Communications: Components	• Define: Data Communications: Components	https://drive.google.com/file/d/1qXxGbcO3gbhsUw3b8sjlAbS_lkPeG4kw/view?usp=shar	https://drive.google.com/file/d/1qXxGbcO3gbhsUw3b8sjlAbS_lkPeG4kw/view?u	Define		T1
4	2		Direction of Data flow	• Understand: Direction of Data flow	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/view?usp=	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/vi	Understand		T1
5			Networks	• Describe: Networks	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/view?usp=	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/vi	Describe		T1
6			Components and Categories	• Describe: Components and Categories	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/view?usp=	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/vi	Describe		T1
7	3		Types of Connections	• Understand: Types of Connections	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/view?usp=	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/vi	Understand		T1
8	3	1	Topologies	• Define: Topologies	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/view?usp=	https://drive.google.com/file/d/1WjKEJnwKz89uUzpRQdho3CyGvQ7zO_xG/vi	Define		T1

9			Protocols and Standards – ISO / OSI MODEL	• Understand: Protocols and Standards – ISO / OSI MODEL	https://drive.google.com/file/d/1qXxGbcO3gbhsUw3b8sjlAbS_lkPeG4kw/view?usp=shar	https://drive.google.com/file/d/1qXxGbcO3gbhsUw3b8sjlAbS_lkPeG4kw/view?u	Understand.		T1
1			Example Networks such as ATM,Frame Relay	• Understand: Example Networks such as ATM	https://drive.google.com/file/d/1udbQmhpJZMVryZK5leLLl2Rtkn72x1DC/view?usp=s	https://drive.google.com/file/d/1udbQmhpJZMVryZK5leLLl2Rtkn72x1DC/view?	Understand		T1
1			ISDN Physical layer: Transmission modes	• Describe: Frame Relay	https://drive.google.com/file/d/1E7tGqdZuTI-O8y_noxPmBpK2w3MvmR	https://drive.google.com/file/d/1E7tGqdZuTI-O8y_noxPmBpK2w3Mv	Describe		T1
1	4		Multiplexing	• Describe: ISDN Physical layer: Transmission modes	https://drive.google.com/file/d/1WtaQwKMYcK2efeD6rtWjX5Zzrr1vPorK/view?usp	https://drive.google.com/file/d/1WtaQwKMYcK2efeD6rtWjX5Zzrr1vPorK/view	Describe		T1
1			Transmission Media	• Describe: Multiplexing	https://drive.google.com/file/d/1dH23OrvPZoHM_H1Nre6NZKzvyKZ1gy5U/view?usp	https://drive.google.com/file/d/1dH23OrvPZoHM_H1Nre6NZKzvyKZ1gy5U/vie	Describe		T1
1			Switching, Circuit Switched Networks,Datagram Networks,Virtual Circuit Networks.	• Understand: Transmission Media	https://drive.google.com/file/d/1hM8xoePiT6YfumY2OAFOOmGRB71aaobk/view?usp	https://drive.google.com/file/d/1hM8xoePiT6YfumY2OAFOOmGRB71aaobk/vie			
1	5		MOCK TEST-1						
1	6		UNIT-1 GROUP PRESENTATION						
1			Data link layer: Introduction,Framing	• Understand: Data link layer: Introduction,	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand.	CHALK BOARD ,PPT PRESENTAION	T1,T2
1	6		Error – Detection and Correction	• Understand: Error – Detection and Correction	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2

1			Parity – LRC– CRC Hamming code	• Describe: Parity – LRC– CRC Hamming code	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe		T1,T2
2	7		Flow and Error Control	• Define: Flow and Error Control	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Define		T1,T2
2			Noiseless Channels,Noisy Channels	• Understand: Noiseless Channels, Noisy Channels	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
2			HDLC, Point to Point Protocols	• Describe: HDLC, Point to Point Protocols	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe,		T1,T2
2	8		111 Medium Access sub layer: ALOHA,CSMA/CD	• Describe: 111 Medium Access sub layer: ALOHA	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe		T1,T2
2			LAN– Ethernet IEEE 802.3	• Understand: CSMA/CD	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
2			Random access,Controlled access,Channelization.	• Understand: LAN– Ethernet IEEE 802.3	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
2			UNIT-2 GROUP PRESENTATION						
2		2	UNIT-2 GROUP PRESENTATION						
2	9	3	Network layer: Logical Addressing	• Understand: Network layer: Logical Addressing	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand	CHALK BOARD ,PPT PRESENTAION	T1,T2

2			Internetworking	• Describe: Internetworking	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe,		T1,T2
3			Tunneling,Address mapping	• Describe: Tunneling	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe		T1,T2
3			ICMP,	• Understand: Address mapping • Understand: ICMP,IGMP	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
3	1		,IGMP	• Understand: ICMP,IGMP	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe,		T1,T2
3			Forwarding	• Describe: Forwarding	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe		T1,T2
3			Forwarding	• Describe:Uni-Cast Routing Protocols	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe,		T1,T2
3	1		Uni-Cast Routing Protocols	• Describe: Multicast Routing Protocols	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe		T1,T2
3			Uni-Cast Routing Protocols	• Describe: Multicast Routing Protocols	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe		T1,T2
3			Multicast Routing Protocols	Definition Steps Algorithms Examples	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
3	1		UNIT-3 GROUP PRESENTATION						

3			Transport Layer: Process to Process Delivery	• Understand: Transport Layer: Process to Process Delivery	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
4			UDP and TCP protocols	• Describe: UDP and TCP protocols	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe,		T1,T2
4	1		Data Traffic,Congestion	• Describe: Data Traffic, Congestion	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe		T1,T2
4			Congestion Control,	• Understand: Congestion Control	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand	CHALK BOARD ,PPT PRESENTAION	T1,T2
4			QoS,	• Understand:QoS, Integrated Services	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
4	1		Integrated Services,	• Describe: Differentiated Services	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Describe,		T1,T2
4			Differentiated Services	• Describe: QoS in Switched Networks	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
4			QoS in Switched Networks.	Describe: QoS in Switched Networks	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
4	1	4	UNIT-4 GROUP PRESENTATION						
4	1	5	Application Layer	• Describe: Application Layer	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand	CHALK BOARD ,PPT PRESENTAION	T1,T2

4			Domain name space	• Discus: Domain name space	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
5			DNS in internet	• Describe: DNS in internet	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
5	1		electronic mail	• Explain: electronic mail	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
5			MOCK TEST-2						
5			SMTP	• Analyze: FTP	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
5	1		FTP	• Analyze: WWW	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
5			WWW	• Analyze: HTTP	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
5			HTTP	• Analyze: SNMP	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2
5	1		SNMP		https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foomH	https://drive.google.com/drive/folders/1lEipwK-r40zsmmWpw5prUZ4foo	Understand		T1,T2

TEXT BOOKS:

1. Data Communications and Networking, Behrouz A. Forouzan , Fourth Edition TMH,2006.
2. Computer Networks, Andrew S Tanenbaum, 4th Edition. Pearson Education, PHI.

REFERENCES:

1. Data communications and Computer Networks, P.C .Gupta, PHI.
2. An Engineering Approach to Computer Networks, S. Keshav, 2nd Edition, PearsonEducation.
3. Understanding communications and Networks, 3rd Edition, W.A. Shay, CengageLearning.
4. Computer Networking: A Top-Down Approach Featuring the Internet. James F.Kurose& Keith W. Ross, 3 rd Edition, Pearson Education.
5. Data and Computer Communication, William Stallings, Sixth Edition, PearsonEducation, 2000.

VII.HOW PROGRAM OUTCOMES ARE ASSESSED:

Program Outcomes (PO)		Level	Proficiency assessed by
PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineeringfundamentals, and an engineering specialization to the solution of complex engineering problems related to Computer Science and Engineering.	2.6	Mini Projects
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complexengineering problems related to Computer Science and Engineering and reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	1.4	Lectures, Assignments, Exams
PO3	**Design/development of solutions**: Design solutions for complex engineering problems related to Computer Science and Engineering anddesign system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	2.4	Mini Projects
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and researchmethods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	2	--
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modernengineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	-	--
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assesssocietal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the Computer Science and Engineering professional engineering practice.	-	--
PO7	**Environment and sustainability**: Understand the impact of the Computer Science and Engineering professional engineering solutionsin societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	-	Lectures, Assignments, Exams

Program Outcomes (PO)		Level	Proficiency assessed by
PO8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms ofthe engineering practice.	-	
PO9	**Individual and team work**: Function effectively as an individual, and as a member or leader indiverse teams, and in multidisciplinary settings.	-	Mini Projects
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineeringcommunity and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	-	--
PO11	**Project management and finance**: Demonstrate knowledge and understanding of theengineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	2.2	Lectures, Assignments, Exams
PO12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage inindependent and life-long learning in the broadest context of technological change.	2.2	Lectures, Assignments, Exams

VIII.HOW PROGRAM SPECIFIC OUTCOMES ARE ASSESSED:

Program Specific Outcomes (PSO)		Level	Proficiency assessed by
PSO1	**Foundation of mathematical concepts:** To use mathematical methodologies to crack problem using suitable mathematical analysis, data structure and suitable algorithm.	2.4	Mini Project
PSO2	**Foundation of Computer System:** The ability to interpret the fundamental concepts and methodology of computer systems. Students can understand the functionality of hardware and software aspects of computer systems.	2.6	Lectures, Assignments, Exams
PSO3	**Foundations of Software development:** The ability to grasp the software development lifecycle and methodologies of software systems. Possess competent skills and knowledge of software design process. Familiarity and practical proficiency with a broad area of programming concepts and provide new ideas and innovations towards research.	2	Mini Project

.MAPPING COURSE OUTCOMES LEADING TO THE ACHIEVEMENT OFPROGRAM OUTCOMES AND PROGRAM SPECIFICOUTCOMES:

Course Outcomes	Program												Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	1	2	2	-	-	-	-	-	-	2	3	2	3	2
2	2	2	3	2	-	-	-	-	-	-	3	3	3	2	2
3	3	1	2	2	-	-	-	-	-	-	3	2	2	3	2
4	3	2	3	2	-	-	-	-	-	-	2	2	3	3	2
5	2	1	2	2	-	-	-	-	-	-	1	1	2	2	2
AVG	2.6	1.4	2.4	2	-	-	-	-	-	-	2.2	2.2	2.4	2.6	2

DESCRIPTIVE QUESTIONS

UNIT-1

Short Answer Questions

QUESTIONS	Blooms taxonomy level	Course outcomes
1.Explain different type of networks?.	Understand	1
2.Describe what is a protocol?	Understand	1
3.Define redundancy?.	Knowledge	1
4.Describe an internet and intranet?.	Knowledge	1
5.List the different types of transmission media?.	Knowledge	1
6.Define network?.	Knowledge	1

Long Answer Questions

1.Explain how are OSI and ISO related to each other	Understand	1
2.Explain ISO/OSI reference model with neat diagram?.	Understand	1
3.Define topology and explain and explain the topologies of networks?.	Knowledge	1
4.Explain the transmission modes in details?.	Understand	1
5.Define circuit switching networks in details?.	Knowledge	1
6.Define virtual circuit networks in details?.	Knowledge	1

UNIT-2

Short Answer Questions

QUESTIONS	Blooms taxonomy level	Course outcomes
1.Define ALOHA?.	Knowledge	2
2.Define MAC?.	Knowledge	2
3.Definebridge,hub,router?.	Knowledge	2
4.List the network applications?.	Knowledge	2
5.Define VRC,LRC,CRC?.	Knowledge	2
6.Define checksum?.	Knowledge	2

Long Answer Questions

1.State the functions of MAC?.	Knowledge	2
2.How performance is improved in CSMA/CD protocol compared to CSMA protocol?Explain?.	Understand	2

3.How CSMA/CA differ from CSMA/CD .explain in brief?.	Understand	2
4.Discuss the MAC layer functions of IEEE 802.11?.	Understand	2
5.Explain the frames format,operation and ring maintenance frature of IEEE 802.5 MAC protocol	Understand	2

UNIT-3

Short Answer Questions

QUESTIONS	Blooms taxonomy level	Course outcomes
1.Explain design issues of network layer?.	Understand	3
2.Illustrate shortest path?.	Apply	3
3.Define flooding?.	Knowledge	3
4.Explain congestion control?.	Understand	3
5.Define virtual circuit?.	Knowledge	3
6.State circuit switching?.	Knowledge	3

Long Answer Questions

1.Explain network layer logical addressing?.	Understand	3
2.Illusrtrate internetworking and tunneling?.	Knowledg	3
3.Explain in details of ICMP,IGMP?	Understand	3
4.Explainuni-cast routing protocols in details?.	Understand	3
5.Explain multicast routing protocols in details?.	Understand	3

UNIT-4

Short Answer Questions

QUESTIONS	Blooms taxonomy level	Course outcomes
1.List out functions of transport layer?.	Knowledge	4
2.List out duties of the transport layer?.	Knowledge	4
3.Define quality of services?.	Knowledge	4
4.Explain how checksum is calculated in tcp?.	Understand	4
5.Explain about transport layer services?.	Understand	4

Long Answer Questions

1.Explain in detail about process to process delivery?.	Understand	4
2.Diffrence between UDP and TCP protocols?.	Knowledg	4
3.Illustrate the congestion control in details?.	Understand	4
4.Explain quality of services in switching networks?.	Understand	4
5.Explain data traffic congestion in detail?.	Understand	4

UNIT-5

Short Answer Questions

QUESTIONS	Blooms taxonomy level	Course outcomes
1.State advantages of stateless server of HTTP?.	Knowledge	5

2.Diffrence between FTP&HTTP?.	APPLY	5
3.Explain DNS name space?.	Knowledge	5
4.Define SMTP?.	Understand	5
5.Define FTP?.	Understand	5

Long Answer Questions

1.Explain in details of domain name space?.	Understand	5
2.Explain in details of electronic mails?.	Understand	5
3.Explain in details of SMTP?.	Understand	5
4.Explain in details of WWW?.	Understand	5
5.Explain in details of SNMP?.	Understand	5

UNIT-1

1.Protocols are?

(a)Agreements on how communication components and DTE's are to communicate
(b)Logical communication channels for transferring data
(c)Physical communication channels sued for transferring data
(d)None of above

ANS:A

2.Computer Networkis

A. Collection of hardware components andcomputers
B. Interconnected by communicationchannels
C. Sharing of resources andinformation
D. All of theAbove

3.What is a Firewall in ComputerNetwork?

A. The physical boundary ofNetwork
B. An operating System of ComputerNetwork
C. A system designed to prevent unauthorizedaccess
D. A web browsingSoftware

4.How many layers does OSI Reference Modelhas?

A. 4
B. 5
C. 6
D. 7

5.DHCP is the abbreviationof

A. Dynamic Host ControlProtocol
B. Dynamic Host Configuration Protocol
C. Dynamic Hyper ControlProtocol
D. Dynamic Hyper Configuration Protocol

6.IPV4 Addressis

A. 8bit
B. 16bit
C. 32bit
D. 64bit

7.DNS is the abbreviationof

A. Dynamic NameSystem
B. Dynamic NetworkSystem
C. Domain NameSystem
D. Domain NetworkService

8.What is the meaning of Bandwidth inNetwork?

A. Transmission capacity of a communicationchannels
B. Connected Computers in theNetwork
C. Class of IP used inNetwork
D. None ofAbove

9.ADSL is the abbreviationof

A. Asymmetric Dual SubscriberLine
B. Asymmetric Digital SystemLine
C. Asymmetric Dual SystemLine
D. Asymmetric Digital SubscriberLine

10.What is the use of Bridge inNetwork?

A. to connectLANs
B. to separateLANs
C. to control NetworkSpeed
D. All of theabove

11.Router operates in which layer of OSI Reference Model?

A. Layer 1 (PhysicalLayer)
B. Layer 3 (NetworkLayer)
C. Layer 4 (Transport Layer)
D. Layer 7 (ApplicationLayer)

Click Here for Answers

1 – D / 2 – C / 3 – D / 4 – B / 5 – C / 6 – C / 7 – A / 8 – D / 9 – A / 10 – B

UNIT-2

1.Each IP packet mustcontain

A. Only Sourceaddress
B. Only Destinationaddress
C. Source and Destinationaddress
D. Source or Destinationaddress

2.Bridge works in which layer of the OSImodel?

A. Applicationlayer
B. Transportlayer
C. Networklayer
D. Datalinklayer

3. provides a connection-oriented reliable service for sendingmessages

A. TCP
B. IP
C. UDP
D. All of theabove

4.Which layers of the OSI model are host-to-host layers?

A. Transport, Session, Presentation, Application
B. Network, Transport, Session,Presentation
C. Data link, Network, Transport,Session
D. Physical, Data link, Network,Transport

5.Which of the following IP address class isMulticast

A. Class A
B. ClassB
C. Class C
d.Class D

6.Which of the following is correct regarding Class B Address of IPaddress

A. Network bit – 14, Host bit –16
B. Network bit – 16, Host bit –14
C. Network bit – 18, Host bit –16
D. Network bit – 12, Host bit –14

7.The last address of IP addressrepresents

A. Unicastaddress
B. Networkaddress
C. Broadcastaddress
D. None ofabove

8.How many bits are there in the Ethernetaddress?

A. 64bits
B. 48bits
C. 32bits
D. 16bits

9.How many layers are in the TCP/IP model?

A. 4layers
B. 5layers
C. 6layers
D. 7layers

10.Which of the following layer of OSI model also called end-to-endlayer?

A. Presentationlayer
B. Networklayer
C. Sessionlayer
D. Transportlayer

Click Here for Answers

1 – C / 2 – D / 3 – A / 4 – A / 5 – D / 6 – A / 7 – C / 8 – B / 9 – A / 10 – D

UNIT-3

3-1. Why IP Protocol is considered as unreliable?

A. A packet may belost
B. Packets may arrive out oforder
C. Duplicate packets may begenerated
D. All of theabove

3-2. What is the minimum header size of an IP packet?

A. 16bytes
B. 10bytes
C. 20bytes
D. 32bytes

3-3. Which of following provides reliable communication?

A. TCP

B. IP
C. UDP
D. All of theabove

3-4. What is the address size of IPv6 ?

A. 32bit
B. 64bit
C. 128bit
D. 256bit

3-5. What is the size of Network bits & Host bits of Class A of IP address?

A. Network bits 7, Host bits24
B. Network bits 8, Host bits24
C. Network bits 7, Host bits23
D. Network bits 8, Host bits23

3-6. What does Router do in a network?

A. Forwards a packet to all outgoinglinks
B. Forwards a packet to the next free outgoinglink
C. Determines on which outing link a packet is to beforwarded
D. Forwards a packet to all outgoing links except the originatedlink

3-7. The Internet is an example of

A. Cell switchednetwork
B. circuit switchednetwork
C. Packet switchednetwork
D. All ofabove

3-8. What does protocol defines?

A. Protocol defines what data iscommunicated.
B. Protocol defines how data iscommunicated.
C. Protocol defines when data iscommunicated.
D. All ofabove

3-9. What is the uses of sub netting?

A. It divides one large network into several smaller ones
B. It divides network into networkclasses
C. It speeds up the speed ofnetwork
D. None ofabove

3-10. Repeater operates in which layer of the OSI model?

A. Physicallayer
B. Data linklayer
C. Networklayer
D. Transportlayer

Click Here for Answers

1 – D / 2 – C / 3 – A / 4 – C / 5 – A / 6 – C / 7 – C / 8 – D / 9 – A / 10 – A

UNIT-4

4-1. What is the benefit of the Networking?

A. FileSharing
B. Easier access toResources
C. EasierBackups
D. All of theAbove

4-2. Which of the following is not the Networking Devices?

A. Gateways
B. Linux
C. Routers
D. Firewalls

4-3. What is the size of MAC Address?

A. 16-bits
B. 32-bits
C. 48-bits
D. 64-bits

4-4. Which of the following can be Software?

A. Routers
B. Firewalls
C. Gateway
D. Modems

4-5. What is the use of Ping command?

A. To test a device on the network isreachable
B. To test a hard diskfault
C. To test a bug in aApplication
D. To test a PinterQuality

4-6. MAC Address is the example of

A. TransportLayer
B. Data LinkLayer
C. ApplicationLayer
D. PhysicalLayer

4-7. Routing tables of a router keeps track of

A. MAC AddressAssignments
B. Port Assignments to networkdevices
C. Distribute IP address to networkdevices
D. Routes to use for forwarding data to itsdestination

4-8. Layer-2 Switch is also called

A. Multiport Hub
B. MultiportSwitch
C. MultiportBridge
D. Multiport NIC

4-9. Difference between T568A and T568B is

A. Difference in wirecolor
B. Difference in number ofwires
C. Just different length ofwires
D. Just different manufacturer standards

4-10. The meaning of Straight-through Cable is

A. Four wire pairs connect to the same pin on eachend
B. The cable Which Directly connects Computer toComputer
C. Four wire pairs not twisted with eachother
D. The cable which is nottwisted

Click Here for Answers

1 – D / 2 – B / 3 – C / 4 – B / 5 – A / 6 – B / 7 – D / 8 – C / 9 – D / 10 – A

UNIT-5

1.Which of the following is not the External SecurityThreats?

A. Front-doorThreats
B. Back-doorThreats
C. UndergroundThreats
D. Denial of Services

2.What is the DemilitarizedZone?

A. The area between firewall & connection to an externalnetwork
B. The area between ISP to Militaryarea
C. The area surrounded by securedservers
D. The area surrounded by theMilitary

3.What is the full form of RAID?

A. Redundant Array of IndependentDisks
B. Redundant Array of ImportantDisks
C. Random Access of IndependentDisks
D. Random Access of ImportantDisks

4.What is the maximum header size of an IPpacket?

A. 32bytes
B. 64bytes
C. 30bytes
D. 60bytes

5.What is the size of Host bits in Class B of IPaddress?

A. 04
B. 08
C. 16
D. 32

6.What is the usable size of Network bits in Class B of IPaddress?

A. 04
B. 08
C. 14
D. 16

7.In which type of RAID, data is mirrored between twodisks.

A. RAID0
B. RAID1
C. RAID2
D. RAID3

8.What do you mean by broadcasting inNetworking?

A. It means addressing a packet to all machine
B. It means addressing a packet to somemachine
C. It means addressing a packet to a particularmachine
D. It means addressing a packet to except a particularmachine

9.Which of the following is/are Protocols ofApplication?

A. FTP
B. DNS
C. Telnet
D. All ofabove

10.Which of the following protocol is/are defined in Transportlayer?

A. FTP

B. TCP
C. UDP
D. B &C

Click Here for Answers
1 – C / 2 – A / 3 – A / 4 – D / 5 – C / 6 – C / 7 – B / 8 – A / 9 – D / 10 – D

Fill in the blanks:

1. ---------- bridge operates in promiscuous mode
2. Source routing bridges in the same LANs must have --------- bridge number
3. To create a ---------- , combine crossbar switches in stages.
4. Local cable TV Network is an example for ----------
5. ----------transmission has more suitable for indoor wireless LANs.
6. The physical layer of Novell Netware consists of---------- protocol.
7. The connection oriented transport protocol in Novell Netware is----------
8. When packets are small and all are equal sized then they are called---------.
9. Accounting functions are responsibility of ---------- Layer.
10. ----------layer contains network

WEBSITES:
1.WWW.acm.org/sigcomm/sos.html.
2.WWW.ietf.org/
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JOURNALS:

- 1.ELSEVER.COM(INTERNATIONAL JOURNAL OF COMPUTER AND COMMUNICATION
- NETWORKING)
  IAENG (International Association of Engineers)
- www.iaeng.org

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LIST OF THE SEMINAR TOPICS:

1. Internet

2. Network security
3. www and http
4. network management system
5. Organization of networks
6. Wireless Wans: Cellular Telephone and virtual networks.
7. SONET
8. Layered architectures(OSI and TCP/IP)
9. Multiple acess techniques in networks
10. Wireless Lans.
11. Network models
12. Ethernet
13. Switching
14. HTTP
15. FTP
16. Satellite networks
17. SNMP
18. Global systems for mobile applications
19. Application layer
20. Transport layer