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SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY

(Affiliated to JNTUA & Approved by AICTE and Accredited by NAAC with A Grade, Accredited by NBA(ECE,EEE,CSE))

Rotarypuram Village, B K Samudram Mandal, Ananthapuramu - 515701.

Department of Computer Science and Engineering

Course Title:	Computer Networks				Course Code:	R204GA05502
Class & Sem:	III B. Tech I Sem				Regulations:	SRIT-R20
Course Structure:	Theory	Tutorial	Lab	Credits	Core/Elective:	Core
	3	0	0	3		
Instructor 1:	C.Lakshminatha Reddy		Instructor 2:			AY: 2021-22

1. Prerequisites: Networks, Data Communications, network security mechanisms.

2. Course Description: This course deals with the concepts of computer network introduction, OSI layers, physical layer, Data link layer, communication layer, Network layer, Application layer, Network security & Cryptography.

3. Detailed Syllabus:

UNIT – I:

(16 Periods)

Introduction: Uses of Computer Networks, Network Hardware, Network Software, Reference Models.

Physical Layer: Theoretical basis for Data Communications, Transmission media, Circuit Switching and Packet Switching.

UNIT – II:

(12 Periods)

Data Link Layer: Design issues, Error Detection and Correction Layer, Elementary Data Link Protocols, Sliding Window Protocols, Example Data Link Protocols.

Medium Access Control Layer: Channel Allocation Problem, Multiple Access Protocols, Ethernet, Wireless LAN.

UNIT – III:

(11 Periods)

Network Layer: Design issues, Routing Algorithms, Congestion Control Algorithms, Quality of Service, Internetworking, and Network Layer in the internet.

Transport Layer: Transport Services, Elements of Transport Protocols, Congestion Control, UDP, TCP, Performance issues, Delay-Tolerant Networking.

UNIT – IV:

(10 Periods)

Application Layer: DNS, Remote Logging, File Transfer, Electronic-Mail, WWW, HTTP, Network Management Systems, SNMP, Streaming Audio and Video, Content Delivery.

UNIT – V:

(11 Periods)

Network Security: Cryptography, Symmetric-key Algorithms, Public-Key Algorithms, Digital Signatures, Management of Public keys, Communication Security, Authentication Protocols, Email Security, Web Security and Social issues.

Total Periods: 60

4. Text Books:

1. "Computer Networks", Andrew S. Tanenbaum and David J. Wetherall, Prentice Hall, fifth Edition, 2011.
2. "Data Communications and Networking", Behrouz A. Forouzon, Sophia Chung Fegan, McGraw Hill Higher Education fifth Edition, 2012.

5. Reference Books:

1. "Computer Networks: A Systems Approach", Larry Peterson and Bruce Davie, 5th Ed, The Morgan Kaufmann Series, Elsevier, 2011.
2. "Computer Networking: A Top-Down Approach Featuring the Internet", J.F. Kurose and K.W.Ross, 6th Ed., Pearson Education, 2012.
3. "Data and Computer Communications", William Stallings, Pearson Education, 10th Ed, 2013

6. Course Outcomes:

On successful completion of this course the students will be able to

S.No	Course Outcomes	Cognitive Level
1	Examine the different building blocks of Communication network and its architecture.	Understand
2	Contrast different types of networks and analyze the performance of network.	Understand
3	Identify and examine the various solutions in design issues of Data Link Layer.	Apply
4	Compare and Contrast various types of Routing Algorithms and Congestion Control Algorithms.	Apply
5	Illustrate fundamentals of transport services, protocols, congestion control implantation and its performance.	Understand
6	Illustrate Fundamental applications of Application Layer and its Security mechanisms.	Understand

7. Additional Topics:

Sr. No.	Topic	Course Outcome
1	Demonstrating how working packet tracer tool.	
2	Demonstrating session layer ,presentation layer.	

8. Course Assessment & Evaluation:

Mode of assessment	Frequency	Marks
Mid-Term Examinations (Internal)	Twice (80% weightage to the better mid exam and 20% to the other)	40
University Examinations (External)	Once	60
Total		100

9. Mapping(X) of Course Outcomes with Program Outcomes & Program Specific Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	X												X		
CO2	X	X											X		
CO3	X	X											X		
CO4	X	X											X		
CO5	X	X											X		
CO6	X				X								X		

Course Instructor**HOD**

University Calendar



**Srinivasa Ramanujan Institute of Technology
(AUTONOMOUS)**

Rotarypuram Village, B K Samudram Mandal, Ananthapuramu - 515 701

ACADEMIC CALENDAR

III B.Tech I Semester (A.Y: 2022-2023)

REGULATIONS: SRIT R20

Description	Duration	# Weeks/Days
I Spell of Instructions	22.08.2022 to 16.10.2022	8 Weeks
Continuous Internal Examinations-I	17.10.2022 to 23.10.2022	1 Week
II Spell of Instructions	24.10.2022 to 11.12.2022	7 Weeks
Continuous Internal Examinations-II	12.12.2022 to 18.12.2022	1 Week
Semester End Examinations - Practicals	19.12.2022 to 27.12.2022	2 Weeks
Semester End Examinations- Theory	28.12.2022 to 12.01.2023	2 Weeks
Commencement of Class work for III B.Tech II Semester for the AY 2022-2023	16.01.2023	


Controller of Examinations


Principal
Principal 24/6/22
Srinivasa Ramanujan Institute of
Technology (Autonomous)
Ananthapuramu - 515 701, A.P.

Copy to:
HODs, Principal, Academic Section, Exam Section



Q. No		Questions	Unit	Marks	CO	Cognitive Level
1	a)	Define Computer Network. List applications of Computer Networks.	1	2	CO1	Remember
	b)	What are the design issues of Data link layer?	2	2	CO1	Remember
	c)	Compare IP address Vs MAC address	3	2	CO1	Remember
UNIT-1						
2	a)	With a neat sketch, Explain OSI reference model.	5	CO2	Understand	
	b)	Distinguish among LAN, WAN, MAN.	3	CO2	Understand	
OR						
3	a)	Discuss about network topologies.	5	CO2	Understand	
	b)	Compare datagram switching and virtual circuit switching.	3	CO2	Understand	
UNIT-2						
4	a)	Explain error detection techniques with an example.	5	CO3	Apply	
	b)	Discuss sliding window protocols.	3	CO3	Understand	
OR						
5	a)	With a neat sketch, explain Ethernet with examples.	5	CO3	Understand	
	b)	Discuss ALOHA multiple access protocol.	3	CO3	Understand	
UNIT-3						
6	a)	Distinguish between TCP & UDP.	3	CO4	Understand	
	b)	Illustrate shortest path routing algorithm with suitable example.	5	CO4	Apply	
OR						
7	a)	Write the differences between IPv4 & IPv6	3	CO4	Understand	
	b)	Explain the general principles of congestion prevention policies.	5	CO4	Understand	

CAA-1

Continuous Alternate Assessment-I

Course Title:	COMPUTER NETWORKS				Course Code:	R204GA05502
Class & Sem:	III B.Tech I Sem				Regulations:	SRIT R20
Course Structure:	Theory	Tutorial	Lab	Credits	Core/Elective:	Core
	3	0	0	3		
Instructor 1:	C.LAKSHMINATHA REDDY					

Assignment Questions: Academic Year: 2022-23

Q. No.	Questions	Marks	CO	Cognitive Level
Unit-I				
1	Explain OSI Reference model	2	1	Understand
2	Define computer Network? Explain Transmission media with examples	2	1	Understand
Unit-II				
3	To solve Error detection and Error correction methods and examples.	2	2	Apply
4	Demonstrate Ethernet and wireless LAN with examples	2	2	Apply
Unit-III				
5	What is Network layer? Explain Routing algorithms	2	3	Understand

Remedial class time table:



Srinivasa Ramanujan Institute of Technology (AUTONOMOUS)

Rotarypuram Village, B K Samudram Mandal, Annanthapuramu - 515 701

AY-2022-2023(SEM-I) -TIME TABLE for Remedial classes

CLASS	SUBJECT	NAME OF THE FACULTY	SIGNATURE
III-I- CSE A&B	Web Development Application(WDA)	Dr.B.HariChadana	
	Computer Networks(CN)	Mr.C.Lakshminatha Reddy	
	Operating Systems(OS)	Mr.M.Narasimhulu	
	Data Warehouseing& Data Mining(DWDM)	Mrs.V.Kamakshamma	
	Managerial Economics&Financial Accounting (MEFA)	Mr.K. Satish Kumar	

Time Table for III - I SEM Remedial classes for Weak Students (for the students who secured less than 15marks in CIE -1).

DAY	TIMINGS:- 1:20 PM to 2:00 PM
	Weak students
MON	Web Development Application(WDA)
TUE	Computer Networks(CN)
WED	Operating Systems(OS)
THU	Data Warehouseing& Data Mining(DWDM)
FRI	Managerial Economics&Financial Accounting (MEFA)

CLASS TEACHER

Head
CSE-HOD

Dept. of Computer Science Enginee
Srinivasa Ramanujan Instituti
Technology (Autonomou
Annanthapuramu - 515 701.



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Department of Computer Science and Engineering

Methodology to support weak students & encourage bright students:

Course Title:	Computer Networks				Course Code:	204GA05502
Class & Sem:	III B. Tech I Sem				Regulations:	R20
Course Structure:	Theory	Tutorial	Lab	Theory	Core/Elective	Core
	3	1	-	3		
Instructor 1:	Mr.Lakshminatha Reddy		AY:	2022-2023		

Methodology to support weak students:

Student who scored less than 50% of marks in the internal assessment test will be considered as a slow learner or weak student.

Conducted special classes to improve their academic performance.

CSE-A & CSE-B:

S.No.	Hall Ticket No.	Name of the student	Mid-1
1	204G1A0527	DATTA KOUSHIK.S	14
2	204G1A0537	HARSHA VARDHAN.T	13
3	204G1A0562	MUHEETUR RAHMAN T.M.D	11
4	204G1A0585	SAI HARSHAVARDHAN.N	14
5	204G1A0593	SARANYA.M	14
6	204G1A05A1	SREEKAR VAMSI KRISHNA.G	12
7	204G1A05A3	SRINIVASA SREE SHARAN.A	12
8	204G1A05B7	VAMSHA VARDHAN REDDY.P	11
9	214G5A0508	MEHABOOB ARAB KHAN.P	13
10	214G5A0509	NAGA SIVA RAMAKRISHNA.S	14

Course Instructor

HOD

Time Table for Special Classes (for Weak Students):

S. No	Date	Time	Topics Discussed
UNIT-1			
1	08-11-2022	1:20 - 2:00	OSI Reference model
			Transmission media
			TCP/IP layers
			Network topologies
			Circuit switching, Packet switching.
UNIT-2			
2	15-11-2022	1:20 - 2:00	Design issues Data link layer
			Error correction & detection techniques
			MAC
			Ethernet ,slide window protocol
			Wireless LAN
UNIT-3			
3	22-11-2022	1:20 - 2:00	Congestion control algorithm
			TCP & UDP
			IPV4 & IPV6 format.
			Transport layer services
			Leak bucket algorithm
			IP header format
UNIT-4			
4	29-11-2022	1:20 - 2:00	DNS
			FTP
			WWW & HTTP
			E-mail
			TELNET
			SNMP
UNIT-5			
5	06-12-2022	1:20 - 2:00	Cryptography – encryption,descryption
			AES,DES algorithm
			RSA algorithm
			Digital signature algorithm
			E-mail security issues

Attendance for Special Classes:

S.No.	Hall Ticket No.	Name of the student	No. of special classes conducted	No. of special classes attended
1	204G1A0527	DATTA KOUSHIK.S	5	4
2	204G1A0537	HARSHA VARDHAN.T	5	3
3	204G1A0562	MUHEETUR RAHMAN T.M.D	5	4
4	204G1A0585	SAI HARSHAVARDHAN.N	5	3
5	204G1A0593	SARANYA.M	5	4
6	204G1A05A1	SREEKAR VAMSI KRISHNA.G	5	4
7	204G1A05A3	SRINIVASA SREE SHARAN.A	5	4
8	204G1A05B7	VAMSHA VARDHAN REDDY.P	5	4
9	214G5A0508	MEHABOOB ARAB KHAN.P	5	3
10	214G5A0509	NAGA SIVA RAMAKRISHNA.S	5	4

Course Instructor**HOD**

CIE-2

Q. No	Questions		Unit	Marks	CO	Cognitive Level
1	a)	Describe transport layer protocols.	3	2	CO1	Remember
	b)	What are the services are http protocol?	4	2	CO1	Remember
	c)	Compare Symmetric key and Asymmetric key.	5	2	CO1	Remember
UNIT-III						
2	a) Discuss transport layer, transport services.			5	CO4	Understand
	b) Explain elements of transport protocols.			3	CO4	Understand
OR						
3	a)	Discuss TCP and UDP format with example.	3	CO4	Understand	
	b)	Explain Congestion control with example.	5	CO4	Understand	
UNIT-IV						
4	a) Explain file transport protocol with example.			5	CO5	Understand
	b) Describe simple network management protocol.			3	CO5	Understand
OR						
5	a) Explain DNS types with example structure.			5	CO5	Understand
	b) Describe WWW and HTTP.			3	CO5	Understand
UNIT-V						
6	a)	Illustrate RSA algorithm two prime members p=3,q=5.	5	CO6	Apply	
	b)	Compare Asymmetric algorithm and Symmetric algorithm.	3	CO6	Understand	
OR						
7	a) Explain digital signature algorithm with example.			5	CO6	Understand
	b) Describe conversion of encryption and decryption.			3	CO6	Understand

CAA-2

Continuous Alternate Assessment-II

Course Title:	COMPUTER NETWORKS				Course Code:	R204GA05502
Class & Sem:	III B.Tech I Sem				Regulations:	SRIT R20
Course Structure:	Theory	Tutorial	Lab	Credits	Core/Elective:	Core
	3	0	0	3		
Instructor 1:	C.LAKSHMINATHA REDDY					

Assignment Questions: Academic Year: 2022-23

Q. No.	Questions	Marks	CO	Cognitive Level
Unit-III				
1	Explain Congestion Control in Transport layer	2	4	Understand
Unit-IV				
2	Explain DNS with examples	2	5	Understand
3	Explain Electronic – mail in Application layer	2	5	Understand
Unit-V				
4	Define Cryptography ? Explain AES,DES algorithim with example	2	6	Understand
5	Explain Digital Signature with example	2	6	Understand

Course Name: COMPUTER NETWORKS

Regulation :R20

Year & Sem: III-I CSE A&B

AY:2022-23

Special Classes - Improvement Analysis:

S.No.	Hall Ticket No.	Name of the student	Mid-1	Mid-2
1	204G1A0527	DATTA KOUSHIK.S	14	13
2	204G1A0537	HARSHA VARDHAN.T	13	11
4	204G1A0585	SAI HARSHAVARDHAN.N	14	23
5	204G1A0593	SARANYA.M	14	22
6	204G1A05A1	SREEKAR VAMSI KRISHNA.G	12	17
7	204G1A05A3	SRINIVASA SREE SHARAN.A	12	17
8	204G1A05B7	VAMSHA VARDHAN REDDY.P	11	16
9	214G5A0508	MEHABOOB ARAB KHAN.P	13	17
10	214G5A0509	NAGA SIVA RAMAKRISHNA.S	14	18

Course Instructor

HOD



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Department of Computer Science and Engineering

Methodology to support weak students & encourage bright students:

Course Title:	Computer networks				Course Code:	
Class & Sem:	III B. Tech I Sem				Regulations:	R20
Course Structure:	Theory	Tutorial	Lab	Theory	Core/Elective	Core
	3	1	-	3		-
Instructor 1:	Mr.Lakshminatha Reddy				AY:	2021-2022

Methodology to encourage bright students:

Student who scored more than 50% of marks in the I internal assessment test will be considered as a bright student. Conducted GATE orientation classes student.

CSE-A & CSE-B:

GATE online video links:

<https://youtube.com/watch?v=GFywKHYCKNk&si=EnSIkaIECMiOmarE>

<https://youtube.com/watch?v=6gDQfr7zSzw&si=EnSIkaIECMiOmarE>

<https://youtube.com/watch?v=i0vNXIgu208&si=EnSIkaIECMiOmarE>

https://youtube.com/watch?v=x4n_Auta4sI&si=EnSIkaIECMiOmarE

Course Instructor

HOD

Question Bank-Unit wise

SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY

(AUTONOMOUS)

III B. Tech I Sem – Question Bank

COMPUTER NETWROKS

[204GA05502]

(Computer Science & Engineering)

CO	COURSE OUTCOMES	BL
CO1	Demonstrate the different building blocks of Communication network and its architecture.	U
CO2	Choose different types of networks and calculate the performance of network.	A
CO3	Identify and examine design issues of Data Link Layer.	A
CO4	Compare and Contrast various types of Routing Algorithms and Congestion Control Algorithms.	A
CO5	Demonstrate fundamentals of transport services, protocols, and congestion control Algorithms and its performance.	An
CO6	Make use of fundamental applications of Application Layer and its Security mechanisms	A

*Note: 1.Remeber(R), 2.Understand (U), 3. Apply (A) 4. Analyze (An), 5. Evaluate (E), 6. Create(C)

UNIT – 1 (2 Marks)

#	Questions	CO	BL
1	Define Computer Network. List applications of Computer Networks.	CO1	R
2	What do you mean by computer network? List any two applications of computer networks.	CO1	R
3	Define topology? List its types.	CO1	R
4	Differentiate between internet and Intranet.	CO1	R
5	What is Transmission impairment?	CO2	R

6	Write the different types of networks.	CO1	R
7	Write the different types of Transmission media.	CO2	R
8	Define switching?	CO2	R
9	Write the differences between Data and Signals.	CO2	R
10	List the layers in OSI reference model.	CO1	R
11	List the layers in TCP/IP reference model.	CO1	R
12	List out the advantages and disadvantages of circuit switching.	CO2	R
13	A network with bandwidth of 10 Mbps can pass only an average of 12,000 frames per minute with each frame carrying an average of 10,000 bits. What is the throughput of this network?	CO2	A
14	Differentiate between guided and unguided transmission media	CO2	R

15	What is Attenuation?	CO2	R	
UNIT-1 (5 Marks)				
#	Questions	M	CO	BL
1	Define computer networks. Explain its types.	5	CO1	U
2	Explain the significance of Switching? What are different switching techniques used in computer networks? Discuss with a neat sketch.	10	CO2	U
3	Explain Layers in TCP/IP model.	10	CO1	U
4	Explain the different topologies of the network.	10	CO1	U
5	Explain the principal differences between connection-oriented communication and connectionless communication.	5	CO1	U
6	Define transmission medium. Explain different transmission medium with their advantages and disadvantages.	10	CO2	U
7	State the purpose of layering in networks. Explain different layers of OSI referential model with their functionality.	10	CO1	U

8	What do you mean by Protocol layering? Explain layered network architecture.	5	CO2	U
9	Compare Datagram switching Vs Virtual circuit switching.	5	CO2	U
10	With neat sketch explain Twisted pair cables, connectors of twisted pair cables with neat graph explain the performance of Twisted pair cables	10	CO2	U
11	Differentiate OSI reference model with the TCP/IP reference model.	5	CO1	U
12	Describe briefly about the circuit-switched networks.	5	CO2	U
13	What do you mean by computer network? Classify computer networks and explain them in brief.	10	CO1	U
14	Why twisted pair cables are preferable over coaxial cables? Explain	5	CO2	U
15	Explain detail about Network Hardware. How network hardware supports the communication of two systems?	10	CO1	U

UNIT – 2 (2 Marks)

#	Questions	CO	BL
1	A bit string 011110111101111110, needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing?	CO3	U
2	What are the responsibilities of data link layer?	CO3	R
3	List the design issues of data link layer?	CO3	R
4	What is mean by error control?	CO3	R
5	What are the functions of MAC?	CO3	R
6	Identify the class and default subnet mask of the IP address 217.65.10.7	CO3	U
7	What is Piggybacking.	CO3	R
8	What is an error? Write the types of errors.	CO3	R
9	What are the two sublayers of Data link layer?	CO3	R
10	List various framing methods in datalink layer.		

UNIT – 2 (5/10 Marks)

Questions M CO BL

1	What are the design issues of Data Link Layer? Explain	5	CO3	U
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2	Describe CSMA/CD protocol in Ethernet.	10	CO3	U
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3	Explain in detail about the Simplex Stop and Wait protocol.	5	CO3	U
4	Explain about ALOHA and CDMA protocols.	10	CO3	U
5	With neat sketch explain the Elementary data link layer Protocols.	10	CO3	U
6	With an example explain the sliding window Flow control mechanism.	5	CO3	U
7	What is the need of Flow control? Explain the common approaches for flow control in data link layer	10	CO3	U
8	Explain how slotted ALOHA solves the problem of Channel allocation.	5	CO3	U
9	What are the various types of error detection methods? Explain.	10	CO3	U
10	Explain about the carrier sense multiple access protocols.	5	CO3	U
11	Describe the working principle of Carrier sense multiple access with collision Detection (CSMA/CD).	5	CO3	U
12	What are the draw backs of stop and wait protocol? How can they overcome by sliding window protocol	5	CO3	U
13	Explain Go-Back- N ARQ protocol with an example.	5	CO3	A
14	Briefly explain about Wireless LAN.	5	CO3	U
15	Discuss about Ethernet.	5	CO3	U
16	Briefly explain about the framing methods in datalink layer.	10	CO3	U
17	With an example, Explain the following error detection techniques i) Cheksum ii) CRC	10	CO3	A

UNIT – 3 (2 Marks)

#	Questions	CO	BL
1	Define Congestion.	CO4	R
2	Differentiate the open loop congestion control and closed loop congestion control.	CO5	U

3	What are the responsibilities of Network Layer?	CO4	R
4	Define internetwork.	CO4	R
5	What are the types of class full addressing?	CO4	R
6	Define subnetting.	CO4	R
7	What is routing?	CO4	R
8	What are the salient features of IPv6?	CO4	R
9	What are the advantages of using UDP over TCP?	CO5	U
10	What is TCP?	CO5	R
11	What do you mean by QoS?	CO5	R
12	<u>What is a port?</u>	CO5	R
13	What are the functions of transport layer?	CO5	R
14	List the three types of addresses in TCP/IP.	CO5	R
15	Define jitter.	CO5	R

UNIT – 3 (5/10 Marks)

#	Questions	M	CO	BL
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1	Give the format of TCP header and discuss the relevance of various fields.	10	CO5	U
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2	How transport layer connection is established in TCP? Illustrate with state diagrams.	10	CO5	A
3	Illustrate shortest path routing algorithm with suitable example.	10	CO4	A
4	Explain the general principles of congestion prevention policies.	5	CO4	U
5	Draw and explain the header format for a user datagram protocol.	5	CO5	U
6	What is the format of IPv4 header? Describe the significance of each field.	10	CO4	U
7	Explain the Real Time Transport Protocol.	5	CO5	U
8	Discuss in detail about the connection establishment and release in TCP.	10	CO5	U
9	With an example explain the any one Dynamic routing algorithm used in computer networks.	10	CO4	A

10	Explain the Services of Transport layer.	5	CO5	U
11	Explain leaky bucket and token bucket algorithms.	10	CO5	U
12	With an example explain the distance vector routing algorithms used in computer networks	10	CO4	A
14	With an example explain the Flooding, Hierarchical routing algorithms used in computer networks.	10	CO4	U
15	Draw and explain each field in the TCP Segment header.	5	CO5	U
16	Classify the static and dynamic routing algorithms? Explain the basic concept of flooding.	10	CO4	U
17	How does UDP differ from TCP? List the applications of UDP.	5	CO5	U
18	Distinguish between Leaky Bucket algorithm and Token Bucket algorithm.	5	CO5	U
19	Explain in detail three-way handshaking for connection establishment in TCP.	10	CO5	U
20	What are the static routing algorithms? Explain the concept of flooding.	5	CO4	U
21	What are the functions of transport layer? State transport service primitives	5	CO5	U
22	Discuss various flow control mechanisms in transport layer	10	CO5	U
23	Explain the link-state routing protocol with an example.	10	CO4	U

UNIT – 4 (2 Marks)

#	Questions	CO	BL
1	What is DNS?	CO6	R
2	What is SMTP?	CO6	R
3	What is the goal of Domain name system?	CO6	R
4	List the basic functions of email.	CO6	R
5	What is web browser?	CO6	R
6	What do you mean by TELNET?	CO6	R
7	Write the responsibilities of Application Layer?	CO6	R

8	Write down the three types of WWW documents.	CO6	R
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9	What is fully Qualified Domain Name?	CO6	R
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10	What are the two types of connections in FTP?	CO6	R
11	What are the components of a browser?	CO6	R
12	What is POP?	CO6	R

UNIT – 4 (5/10 Marks)

#	Questions	M	CO	BL
1	Write about electronic mail in detail.	10	CO6	U
2	Explain the working of DNS.	10	CO6	U
3	What is DNS? What resource records are associated with it? Explain.	10	CO6	U
4	What are the five basic functions supported in e-mail systems? Explain.	5	CO6	U
5	Define FTP. Discuss in brief about FTP.	10	CO6	U
6	What is electronic E-mail? Describe in brief about the architecture of email.	10	CO6	U
7	Explain in brief about the formats of HTTP request and Response messages?	5	CO6	U
8	What is World Wide Web? Explain details about HTTP.	10	CO6	U
9	Describe importance of DNS in application layer.	5	CO6	U
10	How DNS service maps domain names to IP addresses? Explain with an example.	10	CO6	U
11	What is a URL and explain about its components?	5	CO6	U
12	Explain the functions of Network Management Systems.	5	CO6	U
13	Discuss in detail about SNMP.	10	CO6	U

UNIT – 5 (2 Marks)			
#	Questions	CO	BL

1	Distinguish between symmetric and asymmetric encryption.	CO6	U
2	What is meant by substitution ciphers?	CO6	R
3	What is meant by Transposition ciphers?	CO6	R
4	Define cipher.	CO6	R
5	Differentiate between symmetric and asymmetric key algorithms.	CO6	U
6	What are the two basic methods used in encryption algorithms?	CO6	R
7	List out the components of encryption algorithm.	CO6	R
8	Distinguish between symmetric and asymmetric encryption.	CO6	R
9	What is meant by substitution ciphers?	CO6	R
10	What is meant by Transposition ciphers?	CO6	R
11	Define cipher.	CO6	R
12	Write down the purpose of S-Boxes in DES?	CO6	R
13	What are disadvantages of double DES?	CO6	R
14	Brief the strength of triple DES.	CO6	R
16	What is cryptanalysis and cryptography?	CO6	R

UNIT – 5 (5/10 Marks)				
#	Questions	M	CO	BL
1	Compare Substitution and Transposition techniques.	5	CO6	U
2	Differentiate symmetric and asymmetric encryption.	5	CO6	U
3	What are the different modes of operation in DES? Explain.	10	CO6	U
4	What is the difference between diffusion and confusion?	5	CO6	U
5	What are the operations used in AES? Explain.	10	CO6	U
6	Difference between private key and public key algorithm	5	CO6	U
7	Explain in detail about DES and Triple DES	10	CO6	U
8	Explain about AES in detail.	10	CO6	U

9	Explain the RSA algorithm and explain the RSA with p=7,q=11,e=17,M=8. Discuss its merits.	10	CO6	A
10	Explain in detail about RSA.	10	CO6	U
11	How does simple columnar transposition work? Explain with an example.	10	CO6	U

Course Internal Marks: (CIE1,CAA1,CIE2,CAA2):

#	Roll No.	Attendance					Internal & External Marks					
		Period	Date	Month	TCH	TCA	%	CIE1 Mid 1 30	CIE2 Mid 2 30	CAA1 Final Internal Marks 10	CAA2 External Marks 10	40 Total Marks
								Mid 1 30	Mid 2 30	Final Internal Marks 10	External Marks 10	Total Marks
1.	204G1A0501				69	63	71.31	20	91	10	10	31
2.	204G1A0502				69	57	82.61	18	93	10	10	32
3.	204G1A0504				69	62	89.81	20	98	10	10	37
4.	204G1A0505				69	58	84.01	18	95	10	10	34
5.	204G1A0506				69	63	91.31	25	27	10	10	37
6.	204G1A0507				69	67	94.01	25	26	10	10	36
7.	204G1A0508				69	60	86.91	24	24	10	10	34
8.	204G1A0509				69	63	91.31	17	23	10	10	32
9.	204G1A0510				69	64	92.31	23	26	10	10	36
10.	204G1A0511				69	61	88.41	17	22	10	10	31
11.	204G1A0512				69	47	68.41	17	21	10	10	31
12.	204G1A0513				69	60	86.91	21	27	10	10	36
13.	204G1A0514				69	59	85.51	16	19	10	10	29
14.	204G1A0515				69	54	78.21	25	27	10	10	37
15.	204G1A0516				69	63	91.31	20	25	10	10	37
16.	204G1A0517				69	57	82.61	18	23	10	10	34
17.	204G1A0518				69	56	81.11	19	24	10	10	33
18.	204G1A0519				69	55	79.71	17	27	10	10	35
19.	204G1A0520				69	69	100.01	27	28	10	10	38
20.	204G1A0521				69	57	82.61	22	24	10	10	34
21.	204G1A0522				69	56	81.11	15	22	10	10	31
22.	204G1A0523				69	59	85.51	20	27	10	10	36
23.	204G1A0524				69	59	85.51	23	28	10	10	37
24.	204G1A0525				69	64	92.31	17	25	10	10	34
25.	204G1A0526				69	59	85.51	16	20	10	10	30
26.	204G1A0527				69	59	85.51	14	13	10	10	24
27.	204G1A0528				69	57	82.61	22	27	10	10	36
28.	204G1A0529				69	55	79.71	18	23	10	10	32
29.	204G1A0530				69	60	86.91	20	25	10	10	34
30.	204G1A0531				69	64	92.31	18	25	10	10	34

Faculty's Signature

Fortnightly monitoring & Authentication by HoD with Date

INSTITUTE OF TECHNOLOGY

Semester: IBranch: CSESubject Code: R204G-A05502Regulations: SRITR20 Instructor(S): C. Lakshmi Naidu Reddy

#	Roll No.	Period	Attendance					Internal & External Marks							
			86	87	88	89	90	TCH	TCA	%	CIE1 Mid 1 30	CIE2 Mid 2 50	CAA1 Final Internal Marks 10	CAA2 External Marks 10	40 Total Marks
31.	204GIA0532							69	56	81.11	19	28	10	10	37
32.	204GIA0533							69	61	88.41	18	24	10	10	33
33.	204GIA0534							69	65	94.21	25	21	10	10	35
34.	204GIA0535							69	01	1.41	AB	AB	0	0	00
35.	204GIA0536							69	50	72.41	18	15	10	10	28
36.	204GIA0537							69	61	88.41	13	11	10	10	23
37.	204GIA0538							69	53	76.81	16	18	10	10	28
38.	204GIA0539							69	61	88.41	17	16	10	10	27
39.	204GIA0540							69	57	82.61	22	16	10	10	31
40.	204GIA0541							69	61	88.41	18	26	10	10	35
41.	204GIA0542							69	45	65.21	18	22	10	10	32
42.	204GIA0543							69	64	92.71	18	18	10	10	28
43.	204GIA0544							69	56	81.11	19	26	10	10	35
44.	204GIA0545							69	60	86.91	28	29	10	10	39
45.	204GIA0546							69	57	82.61	20	24	10	10	34
46.	204GIA0547							69	60	86.91	21	26	10	10	35
47.	204GIA0548							69	60	86.91	25	26	10	10	36
48.	204GIA0549							69	58	84.01	21	24	10	10	34
49.	204GIA0551							69	54	78.21	19	24	10	10	33
50.	204GIA0552							69	64	92.71	18	25	10	10	34
51.	204GIA0553							69	57	82.61	15	16	10	10	26
52.	204GIA0554							69	61	88.41	19	19	10	10	29
53.	204GIA0555							69	61	88.41	26	27	10	10	37
54.	204GIA0556							69	62	89.81	20	22	10	10	32
55.	204GIA0557							69	63	91.31	25	26	10	10	36
56.	204GIA0558							69	58	84.01	23	24	10	10	34
57.	204GIA0559							69	64	92.71	18	26	10	10	35
58.	204GIA0560							69	56	81.11	17	20	10	10	30
59.	204GIA0561							69	60	86.91	19	21	10	10	31
60.	204GIA0562							69	39	56.01	11	A	10	0	14

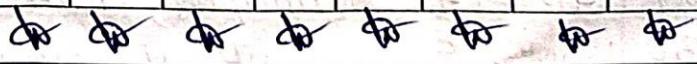
Faculty's Signature

INSTITUTE OF TECHNOLOGY

Semester : I Branch : CSE Subject Code : R204GIA05502
 Regulations : SRIT R20 Instructor(S) : C. Lakshmi Alatha Reddy

#	Roll No.	Period	Attendance			Internal & External Marks									
			86	87	88	89	90	TCH	TCA	%	CIE1 Mid 1	CIE2 Mid 2	CAA1 Final Internal Marks	CAA2 External Marks	40 Total Marks
61.	204GIA0563							69	61	88.41	24	26	10	10	36
62.	204GIA0564							69	56	81.11	18	21	10	10	31
63.	214GSA0501							69	59	85.51	21	24	10	10	34
64.	214GSA0502							69	63	91.31	20	23	10	10	33
65.	214GSA0503							69	56	81.11	20	22	10	10	32
66.	214GSA0504							69	63	91.31	21	25	10	10	35
67.	214GSA0505							69	62	89.81	27	29	10	10	39
68.	214GSA0506							69	53	76.81	23	28	10	10	37
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Faculty's Signature



Fortnightly monitoring & Authentication by HoD with Date

INSTITUTE OF TECHNOLOGY

Semester: I Branch: CSE Subject Code: R204GA05502

Regulations: SRIT R20

#	Date Month	Period	Attendance					Internal & External Marks				
			TCH	TCA	%	CIE1 Mid 1 30	CIE2 Mid 2	CAA1 Final Internal Marks	CAA2 External Marks	UO Total Marks		
	Roll No.		86	87	88	89	90					
1.	204G1A0565		83	73	87.91	27	27	10	10	37		
2.	204G1A0566		83	70	84.31	20	19	10	10	30		
3.	204G1A0567		83	74	89.11	27	23	10	10	37		
4.	204G1A0568		83	71	85.51	27	28	10	10	38		
5.	204G1A0569		83	71	85.51	21	24	10	10	34		
6.	204G1A0570		83	70	84.31	17	22	10	10	31		
7.	204G1A0571		83	69	83.11	24	19	10	10	33		
8.	204G1A0572		83	72	86.71	15	18	10	10	28		
9.	204G1A0573		83	75	90.31	18	23	10	10	32		
10.	204G1A0574		83	71	85.51	21	23	10	10	33		
11.	204G1A0575		83	73	87.91	26	19	10	10	35		
12.	204G1A0576		83	54	65.01	20	0(A)	10	10	26		
13.	204G1A0577		83	70	84.31	18	18	10	10	28		
14.	204G1A0578		83	65	78.31	18	15	10	10	28		
15.	204G1A0579		83	63	75.91	24	21	10	10	34		
16.	204G1A0580		83	73	87.91	15	20	10	10	29		
17.	204G1A0581		83	51	61.41	18	18	10	10	28		
18.	204G1A0582		83	64	77.01	18	20	10	10	30		
19.	204G1A0583		83	66	79.51	27	29	10	10	39		
20.	204G1A0584		83	62	74.61	18	22	10	10	32		
21.	204G1A0585		83	56	67.41	14	23	10	10	32		
22.	204G1A0586		83	69	83.11	21	27	10	10	36		
23.	204G1A0587		83	67	80.71	28	29	10	10	39		
24.	204G1A0588		83	62	74.61	18	24	10	10	33		
25.	204G1A0589		83	66	79.51	24	24	10	10	34		
26.	204G1A0590		83	55	66.21	22	20	10	10	32		
27.	204G1A0591		83	71	85.51	28	27	10	10	38		
28.	204G1A0592		83	72	86.71	27	27	10	10	37		
29.	204G1A0593		83	69	83.11	14	22	10	10	31		
30.	204G1A0594		83	71	85.51	20	22	10	10	32		

Faculty's Signature

✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

Fortnightly monitoring & Authentication by HoD with Date

INSTITUTE OF TECHNOLOGY

Semester: I Branch: CSE Subject Code: R204GA05502
 Regulations: SRITR20 Instructor(S): C. Lakshmi Natra Reddy

#	Roll No.	Period										
		Attendance			Internal & External Marks							
		TCH	TCA	%	CIE1 Mid 1 30	CIE2 Mid 2 30	CAA1 Final Internal Marks 10					
31.	204G1A0595				83	71	85.1.	26	28	10	10	38
32.	204G1A0596				83	50	60.21	20	24	10	10	34
33.	204G1A0597				83	55	66.21	21	23	10	10	33
34.	204G1A0598				83	66	79.51	18	25	10	10	34
35.	204G1A0599				83	65	78.31	26	28	10	10	38
36.	204G1A05A0				83	65	78.31	16	20	10	10	30
37.	204G1A05A1				83	57	68.61	12	17	10	10	26
38.	204G1A05A2				83	66	79.51	19	22	10	10	32
39.	204G1A05A3				83	60	72.21	12	17	10	10	26
40.	204G1A05A4				83	71	85.51	26	24	10	10	36
41.	204G1A05A5				83	66	79.51	29	28	10	10	39
42.	204G1A05A6				83	64	77.11	23	25	10	10	35
43.	204G1A05A7				83	70	84.31	24	28	10	10	38
44.	204G1A05A8				83	67	80.71	20	19	10	10	30
45.	204G1A05A9				83	67	80.71	24	22	10	10	34
46.	204G1A05B0				83	71	85.51	22	25	10	10	35
47.	204G1A05B1				83	59	71.81	19	18	10	10	29
48.	204G1A05B2				83	69	83.11	27	27	10	10	37
49.	204G1A05B3				83	61	73.41	17	25	10	10	34
50.	204G1A05B4				83	61	73.41	20	26	10	10	35
51.	204G1A05B5				83	70	84.31	22	25	10	10	35
52.	204G1A05B6				83	71	85.51	23	21	10	10	33
53.	204G1A05B7				83	67	80.71	11	16	10	10	25
54.	204G1A05B8				83	66	79.51	17	19	10	10	29
55.	204G1A05B9				83	50	60.21	24	0(A) 10	10	10	30
56.	204G1A05C0				83	70	84.31	23	23	10	10	33
57.	204G1A05C1				83	63	75.91	15	22	10	10	31
58.	204G1A05C2				83	69	83.11	18	28	10	10	36
59.	204G1A05C3				83	73	87.91	17	20	10	10	30
60.	204G1A05C4				83	68	81.91	27	29	10	10	39

Faculty's Signature

Fortnightly monitoring & Authentication by HoD with Date

INSTITUTE OF TECHNOLOGY

Semester: II-T Branch: CSE Subject Code: R204G A05502
 Regulations: SRITR20 Instructor(S): C-Lakshmi Nahra Reddy

#	Roll No.						Attendance		Internal & External Marks					
		86	87	88	89	90	TCH	TCA	%	CIE1 Mid 1	CIE2 Mid 2	CAM Final Internal Marks	CAM External Marks	40 Total Marks
61.	204G1A05C5						83	68	81.91	28	29	10	10	40
62.	204G1A05C6						83	66	79.51	21	24	10	10	39
63.	204G1A05C7						83	59	71.81	21	26	10	10	34
64.	204G1A05C8						83	74	89.11	22	24	10	10	35
65.	214G5A0507						83	69	83.11	24	25	10	10	35
66.	214G5A0508						83	59	71.01	13	17	10	10	27
67.	214G5A0509						83	58	69.81	14	18	10	10	28
68.	214G5A0510						83	66	79.51	18	18	10	10	28
69.	214G5A0511						83	68	81.91	15	16	10	10	28
70.	214G5A0512						83	74	89.11	20	21	10	10	31
71.	194G1A0528						83	51	61.44	18	15	10	10	28
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Faculty's Signature

Fortnightly monitoring & Authentication by HoD with Date

Course Google Class Room links :

<https://classroom.google.com/c/NDk3NTkzMzMDA1MDAy?cjc=yx6eqwv>

<https://classroom.google.com/c/NTM4ODA5MDg2NjY3?cjc=qetcely>

Previous year Question papers:

R13

Code: 13A05601

B.Tech III Year II Semester (R13) Regular & Supplementary Examinations May/June
2017 **COMPUTER NETWORKS**
(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70 **PART – A**
(Compulsory Question)

1 Answer the following: (10 X 02 = 20 Marks)

- (a) What do you mean by computer network? List any two applications of computer networks.
- (b) Define the following with reference to network performance: (i) Bandwidth. (ii) Latency. (c) Distinguish between error detection and error correction.
- (d) What is the working principle of CSMA/CD?
- (e) What are the design issues of network layer?
- (f) What is congestion? State general principles of congestion control.
- (g) List the elements of transport protocol.
- (h) Write the applications of UDP.
- (i) What is the purpose of DNS?
- (j) Give brief note on client server programming.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 What is layered network system? Describe layered network architecture.

OR

3 Compare and contrast OSI model and TCP/IP model.

UNIT – II

4 Explain how Hamming code is used to detect and correct one bit error with an example. **OR**

5 Draw HDLC frame format and explain each field.

UNIT – III

6 What is count-to-infinity problem? Discuss how it can be overcome.

OR

7 What is congestion control? Distinguish between leaky bucket algorithm and token budget algorithm. **UNIT**

- IV

8 Discuss TCP transmission policy in detail.

OR

9 Draw and discuss the goals of IPV6 with neat sketch.

UNIT – V

10 Describe e-mail architecture and services.

OR

11 Write short notes on the following:

- (a) WWW.
- (b) TELNET.
- (c) Secure shell.

R13

Code: 13A05601

B.Tech III Year II Semester (R13) Regular Examinations May/June 2016

COMPUTER NETWORKS

(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70 **PART – A**

(Compulsory Question)

1 Answer the following: (10 X 02 = 20 Marks)

- (a) What are the three types of redundancy checks used in data communications?
- (b) What is congestion control?
- (c) What is meant by flow control?
- (d) Define passive and active attack.
- (e) How is error controlled in data link controlled protocol?
- (f) State different categories of CSMA/CD.
- (g) Mention different random access techniques.
- (h) Write the classification of IP addresses.
- (i) What is the function of router?
- (j) How transport layer performs duplication control?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Discuss the ISO/OSI reference model in detail.

OR

3 Explain different network topologies in detail.

UNIT – II

4 Explain error detection and error correction techniques in detail.

OR

5 Explain about High-Level Data Link Control (HDLC) in detail.

UNIT – III

6 Write the network layer design issues in detail.

OR

7 What is routing? Explain the any three routing algorithms.

UNIT – IV

8 Write the finite state machine for stop-and-wait protocol with suitable example. OR

9 What is TCP? Explain the services, features, state transition diagram, flow control and error control. UNIT –

V

10 Describe the standard client-server applications provided by application layer. OR

11 Write a short note on:

- (a) DNS.
- (b) SNMP.
- (c) TELNET.



SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY

(Affiliated to JNTUA & Approved by AICTE and Accredited by NAAC with A Grade, Accredited by NBA(ECE, EEE, CSE))

Rotarypuram Village, B K Samudram Mandal, Ananthapuramu - 515701.

Department of Computer Science and Engineering

Course Title:	Computer Networks				Course Code:	204GA05502
Class & Sem:	III B. Tech I Sem				Regulations:	R20
Course Structure:	Theory	Tutorial	Lab	Theory	Core/Elective	Core
	3	-	-	3		
Instructor 1:	Mr.C.Lakshminatha Reddy			AY:	2022-2023	

S.No.	CO's	Target Level	Attained Level
1	C01	2.5	
2	C02	2.5	
3	C03	2.5	
4	C04	2.5	
5	C05	2.5	
6	C06	2.5	

Remarks:

1. _____
2. _____
3. _____
4. _____
5. _____

Course Instructor

HOD



SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY

(Affiliated to JNTUA & Approved by AICTE and Accredited by NAAC with A Grade, Accredited by NBA(ECE,EEE,CSE))

Rotarypuram Village, B K Samudram Mandal, Ananthapuramu - 515701.

Department of Computer Science and Engineering

Action taken report on Result Analysis

As per the discussion in department meeting on result analysis which is mentioned on minutes of meeting date: The following are the suggestions and methodologies in teaching and learning in brain storming session with all faculty members.

Best Practices:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Further Improvement:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Course Instructor

HOD

Pedagogy report:



Srinivasa Ramanujan Institute of Technology (AUTONOMOUS)

Rotarypuram Village, B K Samudram Mandal, Ananthapuramu - 515 701

Report on Role play -Classroom

1. Course Name	: Computer Networks
2. Course Coordinator	: C Lakshmi Natha Reddy
3. Pedagogy Technique Used	: Role-play Classroom
4. Class & Semester	: III B.Tech & I Semester (B-Section)
5. Date(s)	: 07/12/2022
6. No. of Participants	: 06
7. Brief Report on the event:	

The Role-play classroom sometimes referred to as the inverted classroom and it is a modern instructional strategy that offers student-centered peer-assisted learning.

Step 1: Packet Transmission

Step 2: sender receiver roles

Step 3: ACK status and NACK status Result.

Goals/ objective of methods:

- Create a collaborative learning environment in the classroom.
- Facilitate communication between Students.
- Increase student interest in content through motivation and active participation.

Sliding window protocols are data link layer protocols for reliable and sequential delivery of data frames. The sliding window is also used in Transmission Control Protocol.

In this protocol, multiple frames can be sent by a sender at a time before receiving an acknowledgment from the receiver. The term sliding window refers to the imaginary boxes to hold frames. Sliding window method is also known as windowing.

Working Principle:

In these protocols, the sender has a buffer called the sending window and the receiver has buffer called the receiving window.

The size of the sending window determines the sequence number of the outbound frames. If the sequence number of the frames is an n-bit field, then the range of sequence numbers that can be assigned is 0 to $2^n - 1$. Consequently, the size of the sending window is $2^n - 1$. Thus in order to accommodate a sending window size of $2^n - 1$, a n-bit sequence number is chosen.

The sequence numbers are numbered as modulo-n. For example, if the sending window size is 4, then the sequence numbers will be 0, 1, 2, 3, 0, 1, 2, 3, 0, 1, and so on. The number of bits in the sequence number is 2 to generate the binary sequence 00, 01, 10, 11.

The size of the receiving window is the maximum number of frames that the receiver can accept at a time. It determines the maximum number of frames that the sender can send before receiving acknowledgment.

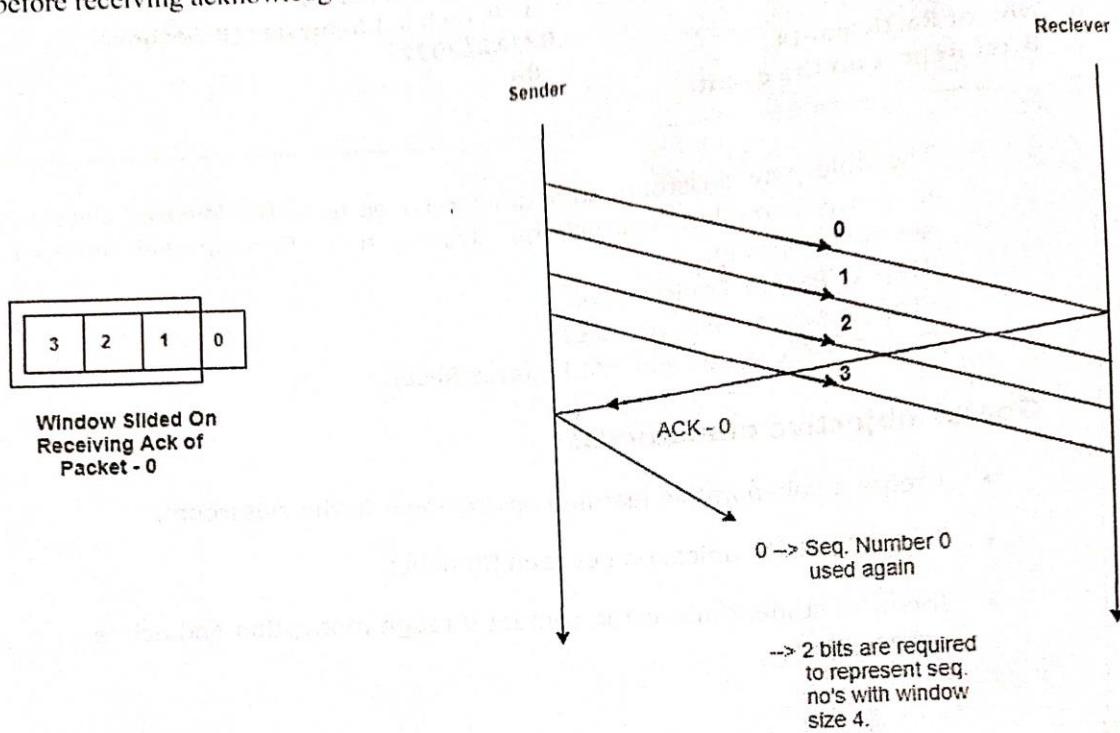


Fig 1: sliding window protocol

Event Photos:

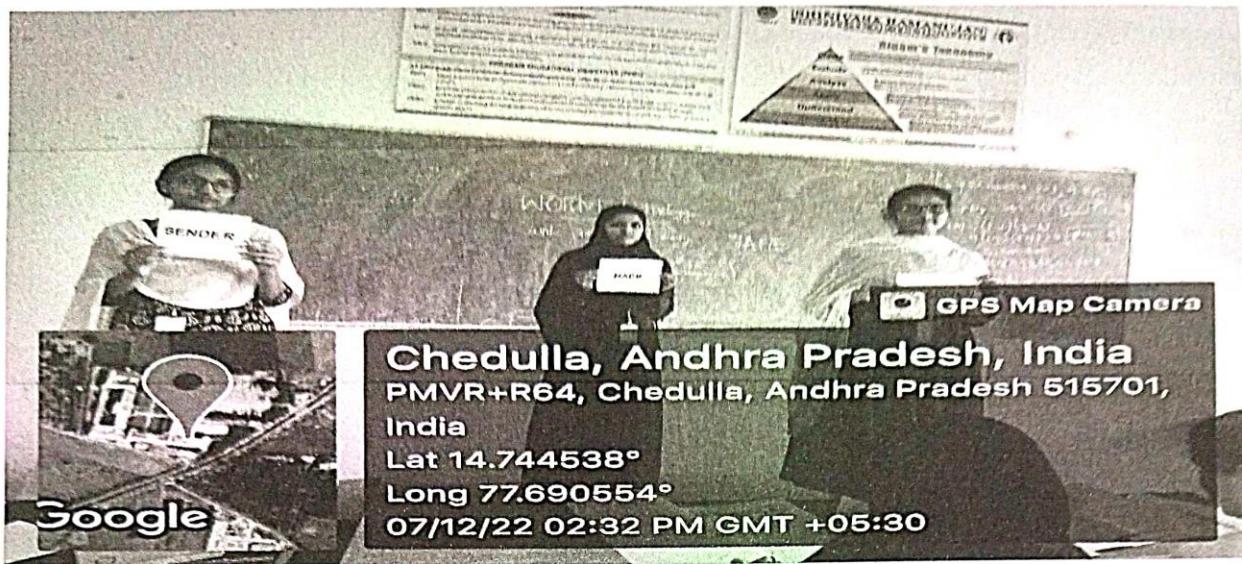


Figure 1.1: Packet transmission status

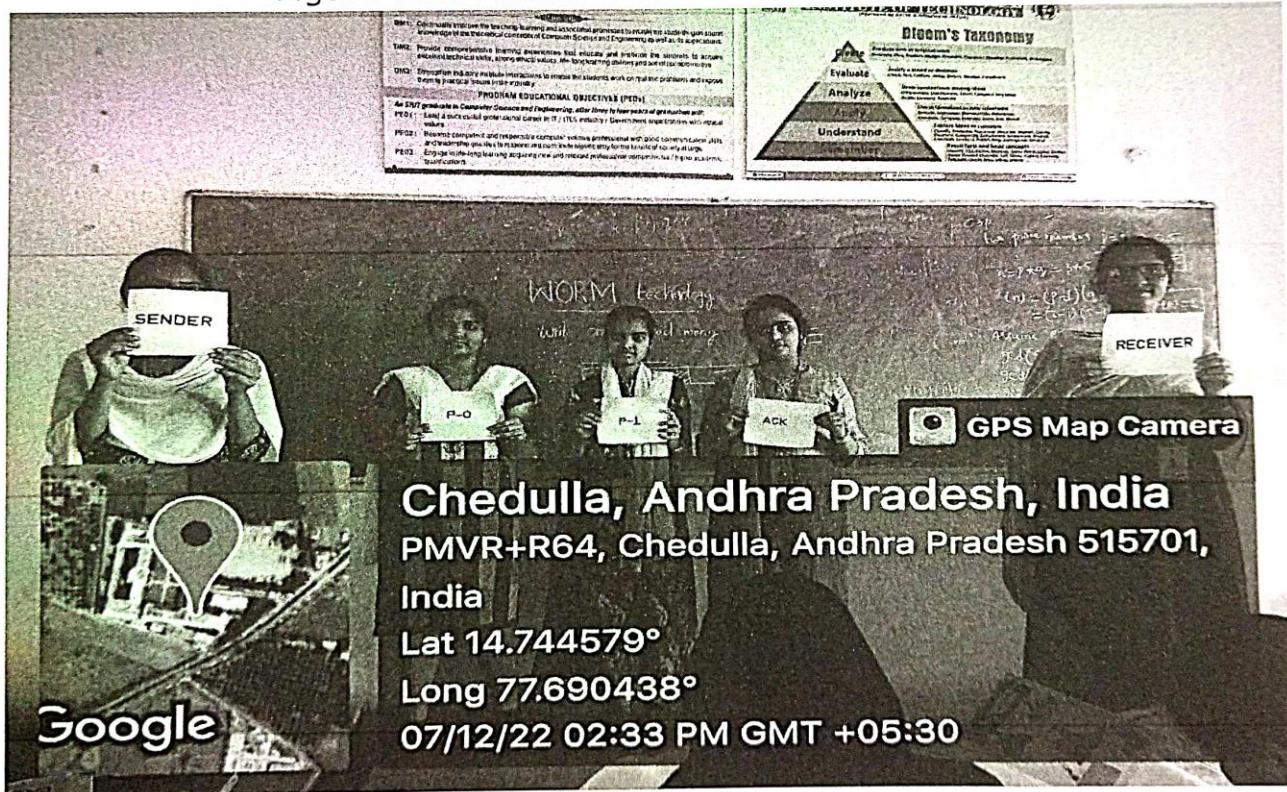


Figure 1.2: Packet transmission between sender and receiver

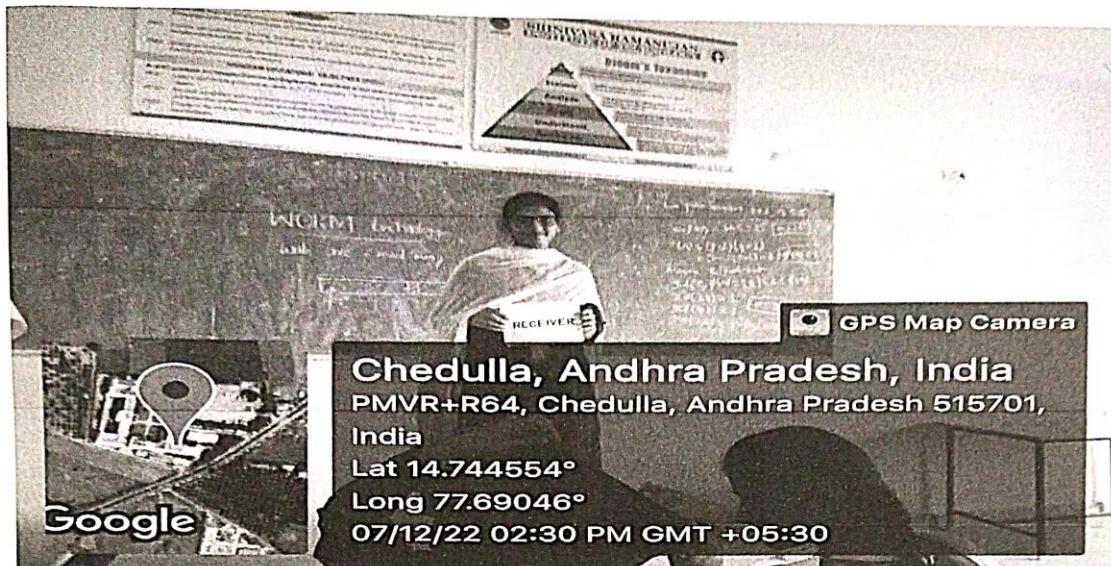


Figure 1.3: Receive the data packets

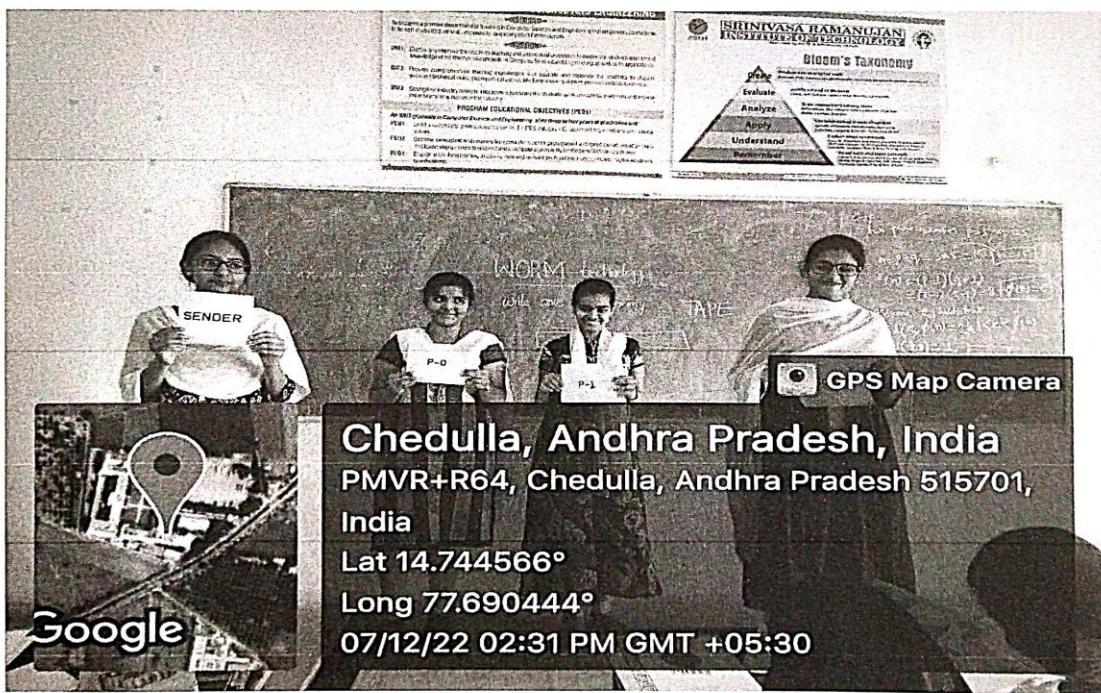


Figure 1.4: Packet 0,1 transfer data via sender and receiver

List of Students Participated:

S.No	Roll No	Student Name
1	204G1A0566	L.NAVYA
2	204G1A0568	R.Nithya
3	204G1A0595	S.Shabana
4	204G1A05A5	B.Supraja
5	204G1A05C8	P.Sowmitha
6	204G1A05C7	G.Akshaya Reddy


Signature of the faculty


Signature of the HoD

