



## NARASIMHA REDDY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad

Accredited by NAAC with A Grade, Accredited by NBA

### ELECTRONICS AND COMMUNICATION ENGINEERING

#### QUESTION BANK

**Course Title** :Data communications and networks

**Course Code** :EC3102PC

**Regulation** : NR20

#### **Course Objectives**

- 1.To introduce the Fundamentals of data communication networks
2. To demonstrate the Functions of various protocols of Data link layer.
3. To demonstrate Functioning of various Routing protocols.
4. To introduce the Functions of various Transport layer protocols.
5. To understand the significance of application layer protocols

#### **Course Outcomes (CO's)**

1. Know the Categories and functions of various Data communication Networks
2. Design and analyze various error detection techniques.
3. Demonstrate the mechanism of routing the data in network layer
4. Know the significance of various Flow control and Congestion control Mechanisms
5. Know the Functioning of various Application layer Protocols

your roots to success...

#### UNIT-I

#### **UNIT NAME**

S.No	Questions	BT	CO	PO
<b>Part – A (Short Answer Questions)</b>				
1	What are the components of data communication networks	L1	CO1	PO1
2	What is data representation	L1	CO1	PO1
3	What is data flow	L1	CO1	PO1
4	What are the network criteria	L1	CO1	PO1
5	What is physical topology and classify it	L1	CO1	PO1
6	What is elements of protocol			

7	What is Defacto and dejure in standard	L1	CO1	PO1	
8	What is wireless link characteristics	L2	CO1	PO1	
9	Write name of IEEE 802.11 wireless LAN standard	L1	CO1	PO1	
10	What is BSS and ESS	L1	CO1	PO1	
<b>Part – B (Long Answer Questions)</b>					
11	a)	Explain OSI model with architecture	L2	CO1	PO2
	b)	Write advantage and disadvantage of star and bus topology	L4	CO1	PO1
12	a)	Explain TCP /IP with diagram	L2	CO1	PO1
	b)	Write difference between OSI and TCP/IP	L4	CO1	PO5
13	a)	Explain all physical topology (star,mesh,bus ,ring)	L2	CO1	PO1
	b)	Write difference between LAN ,MAN,WAN	L1	CO1	PO3
14	a)	Explain LAN and MAN with diagram	L2	CO1	PO1
	b)	Write advantage and disadvantage of ring and mesh topology	L1	CO1	PO2
15	a)	Explain The 802.11 Architecture	L2	CO1	PO4
	b)	Explain wireless links characteristics	L2	CO1	PO1
16	a)	Explain protocol and standard	L2	CO1	PO1
	b)	Explain IEEE 802.11 wireless LAN standard	L2	CO1	PO5

**UNIT-II**  
**UNIT NAME**

S.No	Questions	BT	CO	PO	
<b>Part – A (Short Answer Questions)</b>					
1	Write difference between detection and correction	L4	CO2	PO1	
2	List the service provided by data link layer	L1	CO2	PO2	
3	State issue of data link layer	L1	CO2	PO1	
4	Define error detection and list the various error detection techniques	L1	CO2	PO1	
5	List the advantage of error CRC method of error detection	L1	CO2	PO3	
6	Define error correction and list the various error correction	L1	CO2	PO1	
7	What do you understand by CSMA protocol	L1	CO2	PO5	
8	Difine random access	L1	CO2	PO1	
9	What is burst error	L1	CO2	PO2	
10	Difine IEEE 802.11 standard	L1	CO2	PO1	
<b>Part – B (Long Answer Questions)</b>					
11	a)	What are the service provided by data link layer	L2	CO2	PO1
	b)	Explain in detail the types of error	L2	CO2	PO4
12	a)	Explain framing in data link layer	L2	CO2	PO2
	b)	Explain parity check techniques for detection and correction technique	L2	CO2	PO4
13	a)	Explain internet check sum	L2	CO2	PO1
	b)	Explain CRC with example	L2	CO2	PO3
14	a)	Explain in detail channelization access control	L2	CO2	PO1
	b)	Explain in detail random access control	L2	CO2	PO2
15	a)	Explain in detail controlled access	L2	CO2	PO5
	b)	Write difference between aloha and pure aloha	L4	CO2	PO2
16	a)	Explain sliding widow techniques in noisy channel	L2	CO2	PO1
	b)	Explain in detail noise less channel	L2	CO2	PO2

**UNIT-III**  
**UNIT NAME**

S.No	Questions	B T	CO	PO1	
<b>Part – A (Short Answer Questions)</b>					
1	Define routing	L1	CO3	PO1	
2	Differentiate between forwarding table and routing table	L4	CO3	PO1	
3	How do routers differentiate the incoming unicast and broadcast IP packets	L4	CO3	PO1	
4	List the advantage of connection oriented services over connectionless services	L1	CO3	PO1	
5	Write characteristics of datagram networks	L1	CO3	PO1	
6	What is an IP	L1	CO3	PO1	
7	What is IP4 addresses	L1	CO3	PO1	
8	Expand ICMP and its function	L1	CO3	PO1	
9	Write advantages of IP6 over IPV4	L1	CO3	PO1	
10	Write ICMP message format	L2	CO3	PO1	
<b>Part – B (Long Answer Questions)</b>					
11	a)	Explain forwarding and routing function of network layer	L2	CO3	PO1
	b)	Explain in detail network service model	L2	CO3	PO2
12	a)	List the services provided by network layer	L1	CO3	PO3
	b)	Explain in detail virtual circuits networks	L2	CO3	PO1
13	a)	Explain in detail datagram circuit networks		CO3	PO4
	b)	Write difference between virtual circuit and datagram circuit	L4	CO3	PO1
14	a)	Discuss the four components present inside a router	L1	CO3	PO3
	b)	Discuss evolution of virtual circuits and datagram networks	L1	CO3	PO3
15	a)	Describe the three switching techniques	L2	CO3	PO1
	b)	Explain the working of DHCP protocol	L2	CO3	PO3
16	a)	Explain in detail ICMP	L2	CO3	PO1
	b)	Compare IPV4 and IPV6	L4	CO3	PO3

**UNIT-IV**  
**UNIT NAME**

S.No	Questions	B T	CO	PO	
<b>Part – A (Short Answer Questions)</b>					
1	What is a transport layer	L1	CO4	PO1	
2	What are the various transport layer protocols	L1	CO4	PO1	
3	what you meant by port number	L1	CO4	PO1	
4	What are the service provided by transport layer	L1	CO4	PO1	
5	What is UDP	L1	CO4	PO1	
6	What is TCP	L1	CO4	PO1	
7	Differentiate between TCP and UDP	L1	CO4	PO1	
8	Difine congestion control	L1	CO4	PO1	
9	What is difference between congestion control and flow control	L1	CO4	PO1	
10	How fast do retransmits of TCP works	L1	CO4	PO1	
<b>Part – B (Long Answer Questions)</b>					
11	a)	What are the services responsibilities of transport layer	L2	CO4	PO1
	b)	Explain the relationship between network and transport layer	L4	CO4	PO2

12	a)	Explain transport layer in the internet	L2	CO4	PO1
	b)	What is UDP list its features and explain its header	L3	CO4	PO3
13	a)	What is the responsibility of reliable data transfer protocols	L1	CO4	PO5
	b)	Explain the three way handshaking protocols establish the transport level connection	L1	CO4	PO1
14	a)	How reliable data transfer in TCP	L3	CO4	PO3
	b)	Explain TCP connection management	L2	CO4	PO1
15	a)	Explain congestion control in traditional TCP	L2	CO4	PO4
	b)	Explain various approaches in congestion control	L2	CO4	PO2
16	a)	Describe the pipelined protocol for reliable data transfer protocols	L2	CO4	PO1
	b)	Define UDP check sum and discuss the operation of UDP	L1	CO4	PO1

**UNIT-V**  
**UNIT NAME**

S.No	Questions	BT	CO	PO1	
<b>Part – A (Short Answer Questions)</b>					
1	What is application layer paradigm	L1	CO5	PO1	
2	What is anonymous FTP	L1	CO5	PO1	
3	What are the different types of files that FTP can transfer	L4	CO5	PO1	
4	What is important difference between a request –response message and a trap message in SNMP	L1	CO5	PO1	
5	Define Email	L1	CO5	PO1	
6	Write the uses of HTTP	L1	CO5	PO1	
7	Mention the types of HTTP messages	L1	CO5	PO1	
8	What is DNS	L1	CO5	PO1	
9	Comparison between HTTP and SMTP	L4	CO5	PO1	
10	What is mixed paradigm	L1	CO5	PO1	
<b>Part – B (Long Answer Questions)</b>					
11	a)	Explain traditional paradigm /client- server	L2	CO5	PO1
	b)	Explain application programming interface	L2	CO5	PO5
12	a)	Discuss the TCP and UDP services provided by the internet to application layer	L3	CO5	PO4
	b)	Classify the possible service available to applications	L2	CO5	PO3
13	a)	What is resource record ? what its format and types	L1	CO5	PO1
	b)	Explain new paradigm /peer to peer	L2	CO5	PO5
14	a)	Discuss in detail about FTP	L3	CO5	PO1
	b)	Discuss the working of E mail in detail	L2	CO5	PO3
15	a)	Explain in detail SMTP	L2	CO5	PO4
	b)	What are the service provided by DNS	L1	CO5	PO3
16	a)	Explain in detail about DNS and working of DNS server	L2	CO5	PO1
	b)	Explain records and messages of DNS	L2	CO5	PO2

\* **Blooms Taxonomy Level (BT)** (L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analyzing; L5 – Evaluating; L6 – Creating)

**Course Outcomes (CO)**

**Program Outcomes (PO)**

**Prepared By:**

**HOD, ECE**