Date: **Reg.No:**

FRANCIS XAVIER ENGINEERING COLLEGE
(An Autonomous Institution)
Tirunelveli-627003
Department of Computer Science and Engineering
CONTINUOUS ASSESSMENT TEST -II
Month & Year: November & 2022
Year/ Semester: Third Year/ Fifth Semester
Academic Year: 2022-2023/ODD
Course Code/Title: 19CS5602 COMPUTER NETWORKS
(Regulation 2019)

Time: Three hours **Maximum: 100 Marks**

Answer ALL Questions

PART – A (10 x 2 = 20 Marks)

Q.No	Question	Max. Marks	CO-K Level	PO-PI Code
1.	What do you mean by reliable flooding? It is the process of making sure that all the nodes participating in the routing protocol get a copy of the link state information from all the other nodes.	2	CO3-K2	2.2.4
2.	Explain why most of the addresses in class A are wasted. Explain why a medium-size or large-size corporation does not want a block of class C addresses.	2	CO3-K4	2.2.4
3.	What are the advantages of using UDP over TCP? • UDP does not include the overhead needed to detect reliability • It does not need to maintain the unexpected deception of data flow • UDP requires less processing at the transmitting and receiving of hosts. • It is simple to use for a network • The OS does not need to maintain UDP connection information	2	CO4-K2	1.3.1
4.	What do you mean by QoS? Also infer how to improve QoS. Quality of Service is used in some organizations to help	2	CO4-K2	1.3.1

	provide an optimal end user experience for audio and video communications. QoS is most commonly used on networks where bandwidth is limited with a large number of network packets competing for a relatively small amount of available and width. TECHNIQUES TO IMPROVE QoS 1. scheduling, 2. traffic shaping, 3. admission control, and 4. resource reservation.			
5.	Suppose a TCP connection is transferring a file of 5000 bytes. The first byte is numbered 10001. What are the sequence numbers for each segment if data is sent in five segments, each carrying 1000 bytes? Segment 1 Sequence Number: 10,001 (range: 10,001 to 11,000) Segment 2 Sequence Number: 11,001 (range: 11,001 to 12,000) Segment 3 Sequence Number: 12,001 (range: 12,001 to 13,000) Segment 4 Sequence Number: 13,001 (range: 13,001 to 14,000) Segment 5 Sequence Number: 14,001 (range: 14,001 to 15,000)	2	CO4-K3	2.2.3
6.	List the services of end to end services. • Guarantee message delivery. □ Delivery messages in the same order they are sent. □ Deliver at most one copy of each message. □ Support arbitrarily large message. □ Support synchronization.	2	CO4-K2	1.3.1
7.	Define Persistent and Non-persistent connections. □ A nonpersistent connection is the one that is closed after the server sends the requested object to the client. □ Persistent connections, the server leaves the TCP connection open after sending responses and hence the	2	CO5-K2	2.2.3

	subsequent requests and responses between the same client and server can be sent			
8.	Write short notes on the protocols used for email security. The standard email protocol list includes SMTP, POP3, and IMAP. Each of them operates differently and provides a different service for managing your email account. SMTP SMTP stands for Simple Mail Transfer Protocol, and it is responsible for sending email messages. This protocol is used by email clients and mail servers to exchange emails between computers. POP3 The POP3 abbreviation stands for Post Office Protocol version 3, which provides access to an inbox stored in an email server. It executes the download and delete operations for messages. IMAP The Internet Message Access Protocol (IMAP) allows you to access and manage your email messages on the email server. This protocol permits you to manipulate folders, permanently delete and efficiently search through messages.	2	CO5-K2	2.2.3
9.	Define DNS. DNS is a client/server application that identifies each host on the internet with a unique user friendly name.	2	CO5-K2	2.2.3
10.	Analyze the requirements of Cryptographic algorithms. Security Requirements Authentication Data integrity Confidentiality Non-repudiation Cryptographic algorithms - Symmetric	2	CO5-K4	2.2.4

	- assymmetric			

PART – B (5 x 13 = 65 Marks)

Q.No.	Question	Max. Marks	CO-K Level	PO-PI Code
11 (a)	Is RIP an interdomain or intradomain routing protocol? Explain. - Intradomain (2) - Format diagram (5) - Description (6)	13	CO3-K4	2.2.2
	(Or)			
(b)	Describe the message types of ICMP in detail with the message format. - Error reporting messages (4) - Query messages (4) Message format (5)			
12 (a)	Describe in detail the process of transition of IPv4 to IPv6. - Dual stack (5) - Tunneling (4) Header translation (4)	13	CO3-K2	2.2.4
	(Or)			
(b)	Illustrate the concept of reliable flooding and route calculation in detail. - Reliable flooding (3) - Route calculation (3) - Dijikstra algorithm (4) OSPF (3)	13	CO3-K2	2.2.4
13(a)	Define UDP. Discuss the operation and checksum of UDP with example.	13	CO4-K2	1.3.1

	- UDP definition (2) - Operation (5) - Checksum (6)			
	(Or)			
(b)	Explain in detail about the three way handshake protocol for connection establishment in TCP. - Connection establishment (5) - Data transfer (4) - Connection termination (4)	13	CO4-K2	1.3.1
14a)	Explain how flow control and error control can be achieved in TCP. - Flow control (7) - Error control (6)	13	CO4-K2	1.3.1
	(Or)			
(b)	Analyze the problems with Integrated services. Also Explain how to overcome these shortcomings. - problems with Integrated services (5) - Differentiated services (8)	13	CO4-K4	2.2.4
15 (a)	What do you mean by firewall? How the firewall works in computer networks? And also explain how it protects the network from unauthorized access by the intruder. - Firewall definition (2) - Packet-filter firewall (6) Proxy firewall (5)	13	CO5-K4	2.2.4
	(Or)			
(b)	Explain in detail about World Wide Web. - Architecture (7) - Web documents (6)	13	CO4-K2	1.3.1

PART – C (1 x 15 = 15 marks)

Q.No.	Question	Max. Marks	CO-K Level	PO-PI Code

16 (a)	Some application programs, such as FTP, need more than one connection when using TCP. Find how the multistream service of SCTP can help these applications establish only one association with several streams. - SCTP multistreaming ➔ Diagram (5) ➔ Description (8)	13	CO5-K4	2.2.4
(Or)				
(b)	Analyze the message format and the message transfer and the underlying protocol involved in the working of electronic mail. - Architecture (5) - SMTP (5) POP & IMAP (5)	15	CO5-K4	2.2.4

Bloom's Taxonomy Level wise Marks and Course Outcome wise Marks Distribution Analysis:

Competence level	**Blooms' Taxonomy**	**Question No.**	**Marks**	**BTL Contribution in %**	**Course Outcome**	**Marks**	**CO Contribution in %**
K1	Remember				CO1		
K2	Understand	**1,3,4,6,7,8,9,11b,12a,b, 13a,b, 14a, 15b**	**103**	**57.2**	CO2		
K3	Apply	**5**	**2**	**1.1**	CO3	56	31.1
K4	Analyse	**2,10,11a,14b, 15a,16a,b**	**75**	**41.7**	CO4	60	33.3
K5	Evaluate				CO5	64	35.6
K6	Create						
Total			**180**	**100**		**180**	**100**

Prepared By	Verified By	Approved By