

Reg.No.:



VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 50006

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025

Fifth Semester

Computer Science and Engineering

U19CS520 – COMPUTER NETWORKS

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	A 20Kbps satellite link has a propagation delay of 400ms. The transmitter employs the "go back n ARQ" scheme with n set to 10. Assuming that each frame is 100 byte long, what is the maximum data rate possible?	2	K2	CO1
2.	For n devices in a network, what is the number of cable links required for a mesh and ring topology?	2	K1	CO1
3.	How to establish flow control using sequence numbers?	2	K1	CO2
4.	What are the responsibilities of network layer?	2	K1	CO2
5.	Identify the metrics used in determining the best path for a routing protocol.	2	K2	CO3
6.	Which LAN switching method is used in CISCO Catalyst 5000?	2	K2	CO3
7.	Compare connection less service & connection oriented service.	2	K1	CO4
8.	Predict the flow characteristics related to QoS.	2	K1	CO4
9.	Define the two types of user agents in the electronic mail system.	2	K1	CO5
10.	How does MIME enhance SMTP?	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11.	a) A bit stream 1111111 is transmitted using the standard CRC method. The generator polynomial is x^4+x^2+1 .			
	i. What is the result of receiver's calculation?	6	K2	CO1
	ii. How does the receiver know if an error occurred?	7		
	(OR)			
	b) Explain error control mechanism.		K2	CO1
	i. Stop and wait ARQ.	7		
	ii. Sliding window ARQ.	6		
12.	a) Compare and contrast Ethernet 802.3 and 802.11	13	K3	CO2
	(OR)			
	b) Interpret the following terms	13	K2	CO2
	a. Bridge			
	b. Router			
	c. Repeater			
	d. Switch			
	e. Ethernet			
13.	a) Illustrate the RIP routing table formation process with example updates between routers.	13	K2	CO3
	(OR)			
	b) Examine the function of the Border Gateway Protocol used for Inter domain routing in internet work.	13	K2	CO3
14.	a) i. Explain different quality of services parameters available in transport layer.	7	K2	CO4
	ii. What is TCP? Connection termination in TCP is symmetric, whereas connection establishment is not. Why?	6		
	(OR)			
	b) i. Examine the Three Way Handshake protocol to establish the transport level connection.	7	K2	CO4
	ii. Analyze the various duties of Transport Layer.	6		
15.	a) i. Explain how SMTP can handle transfer of videos and images? Also, explain the advantages of IMAP4 over POP3 mail access protocols.	7	K2	CO5
	ii. Write a short note on Voice over IP.	6		

- (OR)
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|----|-----|---|---|----|-----|
| b) | i. | Explain the simple network management protocol. List its various components and briefly explain each. | 7 | K2 | CO5 |
| | ii. | Write a short note on DNS(Domain Name System). Explain the concept of virtual terminal. | 6 | | |

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	i. List the requirements in building a computer networks.	5	K2	CO1
	ii. An organization has a main office and 5 branch offices. It is required to connect the offices with options of using leased lines and frame relay. Give one reason from a business perspective why the organization should use frame relay for its WAN design.	10		

(OR)

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|----|---|----|----|-----|
| b) | An organization requires a range of IP addresses to assign one to each of its 1500 computers. The organization has approached an Internet Service Provider (ISP) for this task. The ISP uses CIDR and serves the requests from the available IP address space 202.61.0.0/17. The ISP wants to assign address space to the organization which will minimize the number of routing entries in the ISP's router using route aggregation. To calculate the address spaces are potential candidates from which the ISP can allow any one of the organizations? | 15 | K3 | CO2 |
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