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: 5010**

## B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024 Fifth Semester

# Computer Science and Engineering U19CS520 – COMPUTER NETWORKS

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

#### Answer ALL the questions

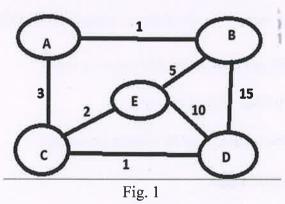
Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
()	K2 – Understanding	K4 – Analyzing	K6 - Creating

#### PART - A

		$(10 \times 2 = 20 \text{ Mark})$		
Q.No.	Questions	Marks	KL	CO
1.	Differentiate between Simplex, Half-Duplex and Full-Duplex.	2	K1	CO1
2.	Which layer implements the node to node channel connection in OS layered architecture?	2	K2	CO1
3.	What is the purpose of CSMA protocol? In which layer it is used?	2	K1	CO2
4.	Mention the purpose of bit stuffing with an example.	2	K1	CO2
5.	Identify and write down all the metrics used by routing protocols?	2	K3	CO3
6.	Sketch the format of IPv4 packet header.	2	K1	CO3
7.	"TCP is a reliable byte stream protocol" why it is mentioned so? Provide the reason.	2	K2	CO4
8.	How does UDP addresses flow control mechanism?	2	K2	CO4
9.	How would you express URL? Provide the format.	2	K2	CO5
10.	How many levels are entre in domain name space? Mention any three top level domains.	2	K2	CO5

#### PART – B

				$(5 \times 13)$	= 65  M	(arks
Q.N	lo.		Questions	Marks	KL	CO
11.	a)	i.	Explain in detail about network dependent and network independent layers of OSI reference model.	10	K2 K2	CO1
		ii.	List out the various approaches of switching? (OR)	3		
	b)	i.	Analyze the advantages of optical fiber over twisted pair and coaxial cable.	6	K4	CO1
		ii.	Explain the major component of a packet switch and their functions.	7	K3	
12.	a)	i.	State the physical properties of Ethernet 802.3 with necessary diagram of Ethernet transceiver and adaptor.	6	K4	CO2
		ii.	Assess and explain the Ethernet frame format.	7		
			(OR)			
	b)	i.	Elaborate process of Cyclic Redundancy Check, and illustrate with an example.	7	K3	CO2
		ii.	Depict the function of CRC division using polynomials with an example.	6	K3	
13.	a)	i. ii.	Analyze the Link State algorithm in detail.  Consider the network shown in Fig 1. Compute the shortest	5	К3	CO3
			path from C to all other nodes using Link-State algorithm. Also, update the forwarding table of node C.	8		



(OR) b) Explicate the functioning of the Border Gateway Protocol, which is

u	sed f	or Inter domain routing in internetwork.			
14. a)	i.	Compare the performance, working principles of and TCP.	7	K4	CO4
		Provide the application of these 2 protocols.			
	ii.	Provide the header format of TCP and UDP with a neat diagram.	6		

CO3

13 K3

(OR)

	b)	i.	Illustrate the establishment of a Three Way Handshake protocol, while the connection is established between Alice	7 6	K4	CO4
		ii.	and Bob.  Mention the reason for the occurrence of congestion in a network. Provide various solutions to overcome congestion.	O		51
15.	a)	i.	Explicate the functions of IMAP and MIME. How does MIME enhance SMTP? Mention the purpose of using IMAP protocol.	8	K3	CO2
		ii.	Discuss various functions performed by DNS. With example. (OR)	5		
	b)	i.	Tabulate the various HTTP request operations and the	7	K3	CO5
			responses.	6		
		ii.	Compare the function of IMAP from POP3. Why one might be chosen over the other? Mention few applications of IMAP. Whether IMAP is more secure? Justify your reason.			

### PART – C

			$(1 \times 1)$	5 = 151	Marks)
Q.No.		Questions	Marks	KL	CO
a)	i.	Classify types of parity check.  Original data transmitted:  11001100   10101010    Illustrate the 2 dimensional parity check for the given data.(EVEN PARITY IS PREFERED)	5	K3	CO1
<u> </u>	ii.	How does the guided media differ from unguided media classify three methods used for data communication using guided media and two methods used for data communication using unguided media.  (OR)	10	K6	14
		the given IP addresses. Categorize according the various es. Devise a method and criticize on that.  227.12.14.87  193.14.56.22  14.23.120.8  252.5.15.111  134.11.78.56	3 3 3 3	K5	CO3