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

Question Paper Code: 50010

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

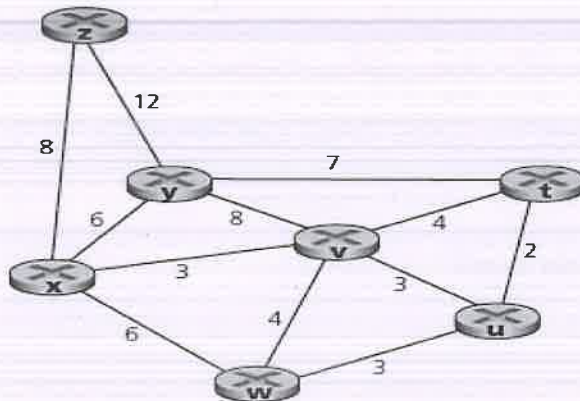
(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is meant by Full-Duplex communication? Show with a suitable diagram.	2	K1	CO1
2.	Differentiate between Bandwidth and Throughput with an example.	2	K1	CO1
3.	What is piconet? Show with a suitable architecture diagram.	2	K2	CO2
4.	What is meant by IPv4 addressing? List out the characteristics.	2	K2	CO2
5.	Differentiate between Switch and Bridge with an example.	2	K2	CO3
6.	What is OSPF protocol? List out the reason for its usage in data transmission.	2	K1	CO3
7.	Why an application developer might choose to run an application over UDP rather than TCP? List out the benefits.	2	K2	CO4
8.	What is QoS in Internet? List out the various QoS parameters.	2	K2	CO4
9.	What is the role of SNMP in network management?	2	K1	CO5
10.	Define the HTTP header format.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	The administrator of 'Computer- A' wishes to send a data to 'Computer B'. Explain the individual steps involved in the OSI layers for completing the task with a suitable diagram.	13	K3	CO1
(OR)				
b) i.	Explain different error detection and correction mechanisms with examples.	7	K2	CO2
ii.	Describe various services provided by link layer.	6	K2	CO2
12. a)	Compare and Contrast the Stop and Wait ARQ protocol with Go-Back-N ARQ Protocol. Explain with flow diagram.	13	K2	CO2
(OR)				
b)	ABC Internet Service Provider holds consecutive IP addresses starting from 198.16.0.0. The Classful IP addressing method is followed. The ISP got requests from four companies A,B,C, and D with 4000,2000,4000, and 8000 address respectively. Identify the class of network and state the first IP address and last IP address mentioned for each company.	13	K3	CO3
13. a) i.	Write short notes on DHCP and ICMP.	6	K2	CO3
ii.	Explain the operations and packet format of ARP in detail.	7	K2	CO3
(OR)				
b)	Consider the following network mentioned int the figure given below. With the indicated link costs, Use Dijkstra's shortest-path algorithm to compute the shortest path from the node x to all the remaining network nodes. Trace through the step involved in the process.	13	K3	CO3



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|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|
| 14. a) | Tom needs to identify two computer applications, that is dedicated to perform banking operations and online video streaming respectively. Suggest him with a suitable service based on the application requirement. List out the advantages of the respective service with the application. | 13 | K3 | CO4 |
| (OR) | | | | |
| b) | Explain about various TCP congestion avoidance mechanisms. | 13 | K2 | CO4 |
| 15. a) | Write short notes on SMTP and DNS. | 13 | K2 | CO5 |
| (OR) | | | | |
| b) | Write a note on persistent and non-persistent connections of HTTP. | 13 | K2 | CO5 |

PART – C

(1 x 15 = 15 Marks)

- | Q.No. | Questions | Marks | KL | CO |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|-----|
| 16. a) | Suppose an application entity generates 2904 bytes of data. Simultaneously, the data arrives at the data link layer, 96 bytes of header information has been added. At the data link layer, the maximum frame size is 1518 bytes, of which 18 bytes are its header. | | K3 | CO2 |
| | i. How many frames will be used? | 5 | | |
| | ii. How many total bytes must be transmitted? | 5 | | |
| | iii. What percentage of the transmitted bits are from the application layer? | 5 | | |
| (OR) | | | | |
| b) | Draw your campus network diagram with various networking elements (switches, Routers, Gateways, and Firewall). Allocates IP address with the following assumption. Your campus has 4 buildings, each building has 4 labs and each lab has 60 computers. In Classful IPV4 addressing, which Class would be chosen? Justify with suitable example. | 15 | K3 | CO4 |