SVKM'S NMIMS

MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT& ENGINEERING/

SCHOOL OF TECHNOLOGY MANAGEMENT

Academic Year: 2023-2024

Program: B.Tech /MBA Tech /B.Tech Integrated

Year: II /III/IV

Stream ;Computer/IT/EXTC/AI /CSE CS/CS/AIML/AIDS

Semesters: III/V/VII

Subject: Computer Networks

Time: 3 hrs (10.00 AM to 1.00 PM)

Date: 06/2/2024

No. of Pages:03

Marks: 100

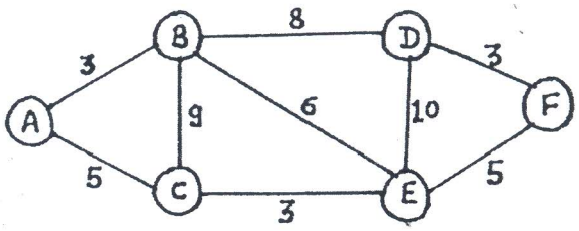
Re Examination (2022-23)

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

1) Question No. _1 is compulsory.
2) Out of remaining questions, attempt any __4___ questions.
3) **In all ___5_ questions to be attempted.**
4) All questions carry equal marks.
5) **Answer to each new question to be started on a fresh page.**
6) **Figures in brackets on the right hand side indicate full marks.**
7) **Assume Suitable data if necessary.**

Q1		Answer briefly:	[20]
CO-4 ; SO-6 ; BL-02	a.	Differentiate between Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). (Any 5 points each)	[05]
CO-1 ; SO-3 ; BL-02	b.	Describe briefly any two categories of guided transmission media. Write the advantages and disadvantages of each.	[05]
CO-2 ; SO-2 ; BL-03	c.	Compare and contrast 1 persistent and p persistent schemes in multiple access with flow diagrams.	[05]
CO-3 ; SO-2 ; BL-02	d.	Distinguish between circuit switching and packet switching (Any 5 points for each)	[05]
Q2 CO-4 ; SO-6 ; BL-02	a.	Explain briefly the characteristics used to analyse Quality of Service(QoS) of flow/traffic.(Any 4). Illustrate with diagrams the different types of scheduling used to improve QoS. Briefly explain each.	[10]
CO-2 ; SO-2 ; BL-03	b.	A slotted ALOHA network transmits 150-bit frames using a shared channel with a 400-kbps bandwidth. Calculate the throughput and how many frames will survive if the system (all stations together) produces i) 800 frames per second ii) 400 frames per second	[10]

Q3 CO-2 ; SO-2 ; BL-02	a.	Describe the working of CSMA/CA with the help of flow diagram.	[10]
CO-3 ; SO-2 ; BL-02,01	b.	Explain in detail the working of Routing Information Protocol(RIP). List and briefly explain the timers used in RIP.	[10]
Q4 CO-4 ; SO-6 ; BL-02	a.	Illustrate with suitable diagrams the TCP connection establishment and termination. Describe the steps involved in each case.	[10]
CO-4 ; SO-6 ; BL-02	b.	Explain in detail the steps involved in mapping www.xyz.com (domain name) to the corresponding IP address using DNS.	[10]
Q5 CO-2 ; SO-2 ; BL-02,BL-01	a.	Illustrate the working of Go-Back N ARQ with the help of frame transmission scenarios. Give any one advantage and disadvantage.	[10]
CO-4 ; SO-6 ; BL-02	b.	Distinguish between communication over control connection and communication over data connection in FTP.	[05]
CO-3 ; SO-2 ; BL-01	c.	Explain the working of DHCP protocol highlighting dynamic IP address allocation.	[05]
Q6 CO-3 ; SO-2 ; BL-04	a.	An ISP is granted a block of addresses starting with 190.20.10.0/16 (65,536 addresses). The ISP needs to distribute these addresses to two groups of customers as follows: a. The first group has 128 customers; each needs 256 addresses. b. The second group has 128 customers; each needs 128 addresses. Design the subblocks and find out how many addresses are still available after these allocations.	[10]
CO-4 ; SO-6 ; BL-02	b.	Illustrate how SMTP is used for sending email . Briefly explain.	[05]
CO-1 ; SO-3 ; BL-01	c.	Explain briefly the functionalities of layers of TCP/IP protocol suite.	[05]

Q7 CO-3 ; SO-2 ; BL-03	a.	Determine the shortest path and shortest distance from source vertex A to every other vertex in the following graph using Dijkstra's Algorithm. Illustrate step-by-step procedure and draw shortest path table.  	[10]
CO-1 ; SO-3; BL-01,BL-02	b.	Define network topology. Compare and contrast various network topologies (any 4) with the advantages and disadvantages of each. Draw diagram to illustrate each topology.	[10]