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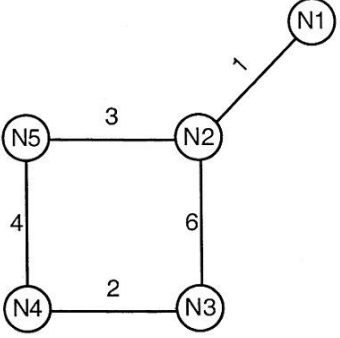
UPES
End Semester Examination, December 2023

Course: Networking and Technology Program: BCA Course Code: CSBC2027 Instructions: Attempt all Questions	Semester: III Time : 03 hrs. Max. Marks: 100
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SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Give a brief introduction of the Internet and its function as a worldwide computer network.	4	CO1
Q 2	Explain the operational mechanisms of a network switch and analyse its significance within a local network infrastructure.	4	CO1
Q 3	A file with a size of 5 megabytes (MB) needs to be transmitted over a network with a bandwidth of 10 megabits per second (Mbps). Calculate the time it will take to transmit the entire file.	4	CO2
Q 4	Describe scenarios where UDP is commonly used in networking.	4	CO3
Q 5	Discuss the effects of cloud computing on scalability, cost management, and data security within organizational structures, providing examples to illustrate each impact	4	CO5

SECTION B
(4Qx10M= 40 Marks)

Q 6	Describe the characteristics and advantages and disadvantages of the bus, star, ring, and mesh network topologies. Give practical examples of where these topologies might be used effectively.	10	CO1
Q 7	Describe the key differences between static and dynamic routing and provide scenarios where each routing method is preferred.	10	CO2
Q 8	<p>Consider a network with five nodes, N1 to N5, as shown below.</p>  <pre> graph TD N1((N1)) --- 1 N2((N2)) N2 --- 3 N5((N5)) N2 --- 6 N3((N3)) N4((N4)) --- 2 N3 N4 --- 4 N5 </pre> <p>The network uses a Distance Vector Routing protocol. Show the final routing table of each router</p>	10	CO2

Q 9	Compare cloud computing models such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). Provide examples of applications for each model.	10	CO5
SECTION-C (2Qx20M=40 Marks)			
Q 10	Define the CIA triad in network security. Explain how the confidentiality, integrity, and availability of data are interconnected and how they relate to network attacks. Use a columnar transposition cipher with a rectangular array and keyword “mathematician” to encrypt the following message: “Sample the electronic environment of the east coast of North Korea. Emphasis is intercepting coastal radars”.	20	CO4
Q 11	Explain the concept of real-time communication in the context of VoIP services. In what ways do VoIP and streaming services differ in terms of the data they transmit and the underlying technologies they use? OR Explain how FTP (File Transfer Protocol) works, including its main components such as the control connection and data connection. Additionally, describe some common use cases for FTP in the modern internet era, highlighting its practical applications.	20	CO3