Graphic Era
HILL UNIVERSITY

Mid Term (Odd) Semester Examination October 2024

Roll no.....

Name of the Course: BTech(CSE)- AI/ML semester: V
Name of the Paper: Computer Network
Paper Code: TCS - 511

Time: 1.5 hour Maximum Marks: 50

Note:

(i) Answer all the questions by choosing any one of the sub questions
(ii) Each question carries 10 marks.
(iii) Please specify COs against each question.

Q1. (10 Marks)

a. Compare and contrast Local Area Networks (LANs), Wide Area Networks (WANs), and Metropolitan Area Networks (MANs). Discuss their characteristics, typical uses, and advantages. [C01]

OR

b. Describe the different types of network topologies. What are the advantages and disadvantages of each topology? [C01]

Q2. (10 Marks)

a. Explain the main differences between circuit switching and packet switching with some examples. [C01]

OR

b. i) Define the different types of network delays. How does each type impact overall network performance? [C01]

ii) Calculate the Propagation time if the distance between two nodes is 12000 kms. Assume propagation speed is 2.4 x 10^8 m/s.

Q3. (10 Marks)

a. How do the layers of the OSI model interact with each other? Discuss the significance of layer encapsulation and decapsulation in data communication. [C02]

OR

b. Compare and contrast TCP (Transmission Control Protocol) and UDP (User Datagram Protocol). Discuss their differences in terms of reliability, connection orientation, and use cases. [C02]

Q4. (10 Marks)

a. What is an Email. Explain the Protocols associated with it and also Specify port number of each Protocols involved within Email. [C03]

OR

b. Identify three common application layer protocols and their associated port numbers. Discuss how these ports play a role in the operation of each protocol. [C03]

Q5. (10 Marks)

a. What is load balancing in the context of client-server architecture? Discuss its importance and the different techniques used for implementing load balancing. [C03]

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OR

b. Describe the structure and function of the Domain Name System (DNS). How does it facilitate the resolution of domain names to IP addresses? [C03]