

Code No: 155EA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech III Year I Semester Examinations, August/September - 2024****ADVANCED COMPUTER NETWORKS****(Computer Science and Engineering - Networks)****Time: 3 Hours****Max. Marks: 75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) List the layers of the OSI model. [2]
- b) How does packet loss affect data transmission in networks? [3]
- c) Compare hubs and switches in terms of their functionality and efficiency. [2]
- d) What services does the link layer provide in network communication? [3]
- e) What are the advantages of IEEE 802.11 over traditional wired Ethernet networks? [2]
- f) Differentiate between infrastructure and ad-hoc modes in IEEE 802.11 wireless standards. [3]
- g) What are the characteristics of reliable communication in network protocols? [2]
- h) How do network applications utilize the transport layer for data transmission? [3]
- i) How does FTP facilitate file transfers over networks? [2]
- j) How does a simple web server work? [3]

PART – B**(50 Marks)**

- 2.a) Explain the functions and responsibilities of ISPs and Internet backbones in the global internet infrastructure.
- b) Discuss about delay and loss in packet-switched networks. [5+5]

OR

- 3.a) Differentiate IPv4 and IPv6 addressing schemes.
- b) State the access process in the access network with a neat sketch diagram. [5+5]

- 4.a) Discuss the functions and operation of multiplexers in telecommunications.
- b) Describe the internal structure of a typical router, including its components and how they consolidate to enable packet forwarding. [5+5]

OR

- 5.a) Explain how modems facilitate digital communication over analog telephone lines and how they have evolved with technology.
- b) Evaluate the different types of multiple access protocols used in LANs. [5+5]

- 6.a) Describe the evolution of wireless LAN technologies, focusing on IEEE 802.11 standards and their improvements over time.
- b) Explain the design principles and advantages of wireless mesh networks compared to traditional wireless LANs. [5+5]

OR

- 7.a) Explain the functions and differences between intra-domain routing protocols and inter-domain routing protocols.
- b) Explain the concept of mobile IP and how it enables seamless mobility for devices across different network domains. [5+5]

- 8.a) Explain TCP Tahoe and TCP Reno with suitable examples.
- b) Differentiate between pure P2P and hybrid P2P systems. [5+5]

OR

- 9.a) Evaluate the factors that influence the choice between TCP and UDP for different types of applications, considering performance, reliability, and efficiency.
- b) Discuss the challenges and solutions in developing and deploying mobile transport protocols. [5+5]

- 10.a) Compare and contrast socket programming with TCP and UDP.
- b) Describe the hierarchy and functions of the DNS, highlighting its role in Internet communication and service discovery. [5+5]

OR

- 11.a) What is LHP? Explain the different types of messages in http protocol.
- b) With an example, explain socket programming in TCP. [5+5]

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