

R18

Code No: 155AN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, January - 2025

COMPUTER NETWORKS

(Common to CSE, CE(SE), CSE(AI&ML), CSE(DS), CSE(IOT), AI&ML)

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) Differentiate between Arpanet and Internet. [2]
- b) What are the key characteristics of twisted-pair cables? [3]
- c) What is an Access Point (AP) in a WLAN? [2]
- d) Discuss parity check for error detection in data transfer. [3]
- e) How does store-n-forward technique work at network layer? [2]
- f) What is subnetting? Why is it required? [3]
- g) How is the encapsulation done in the transport layer? [2]
- h) Differentiate Congestion control and flow control. [3]
- i) Distinguish between www and internet. [2]
- j) What is the role of DNS? [3]

PART – B

(50 Marks)

- 2.a) Explain the concept of characteristic impedance in coaxial cables, and why it is important for signal transmission.
- b) What is the function of Network Operating Systems (NOS), and how do they manage network resources? [5+5]

OR

- 3.a) How does fiber optic cabling contribute to the development of modern internet infrastructures and data centers?
- b) Explain the concept of a hub. How does it work, and why has it been largely replaced by switches in modern networks? [5+5]

- 4.a) How the p-persistent is different from 1-persistent in CSMA/CD? Explain how the Backoff time is set in the case of collision.
- b) Explain about the simplex stop and wait protocol for an error free channel. [5+5]

OR

- 5.a) Explain the working mechanism of the binary countdown protocol. Which limitation of bitmap protocol is overcome by it?
- b) Discuss the working of slotted aloha along with its efficiency in terms of channel utilization. [5+5]

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6.a) Discuss the various measures which are used to compute the cost between two routers of the network.

b) What are the challenges involved in creating and maintaining an internetwork? [5+5]

QA QA QA QA QA QA QA G

7.a) Explain Link State routing protocol.

b) What are the key differences between hierarchical routing and distance-vector routing in terms of overhead and efficiency? [5+5]

8.a) Explain about the User Datagram Protocol.

b) What is process-to-process delivery in transport layer? Why do we require it though host-to-host delivery is provided by the network layer? [5+5]

QA QA QA QA QA QA QA G

9.a) What is flow control in transport services, and how does it help to manage data transmission between devices?

b) What is the role of checksum in transport protocols, and how do they detect data corruption during transmission? [5+5]

10.a) Explain MIME structure for electronic mail.

b) List out the challenges of video streaming. [5+5]

QA QA QA QA QA QA QA G

11.a) Explain the components of SNMP.

b) What is audio streaming? How does it works? [5+5]

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