

**R16**

Code No: 135AE

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, July/August - 2023

DATA COMMUNICATION AND COMPUTER NETWORKS

(Common to CSE, IT)

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) What is Multiplexing? [2]
- b) Mention the need of Virtual Circuit Networks. [3]
- c) What is IEEE 802.5? [2]
- d) Differentiate Noiseless Channels and Noisy Channels. [3]
- e) Define Internetworking. [2]
- f) Discuss the concept of Tunneling. [3]
- g) Define QoS. [2]
- h) Sketch UDP Datagram. [3]
- i) What is the purpose of www? [2]
- j) Discuss the SMTP. [3]

**PART - B**

**(50 Marks)**

- 2.a) Differentiate Circuit Switching Networks and Packet Switching Networks.
- b) Explain about coaxial cable with neat sketch. [5+5]

**OR**

3. Examine the following Network Topologies:
  - a) Star Topology
  - b) Mesh Topology. [5+5]

4. A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is  $x^3+1$ .

- a) What is the actual bit string transmitted?
- b) Suppose the third bit from the left is inverted during transmission. How will receiver detect this error? [5+5]

**OR**

5. A 6 bit messages are transmitted using a hamming code. How many check bits are needed to ensure that the receiver can detect and correct single bit errors? Show the bit pattern transmitted for the message 1101001100110101. Assume that odd parity is used in the hamming code. [10]

QA QA QA QA QA QA QA G

6.a) Compare and contrast Uni-Cast Routing Protocols and Multicast Routing Protocols.

b) Explain about Address Resolution Protocol.

[5+5]

QA QA QA QA OR QA QA QA G

7.a) Explain the types of ICMP messages.

b) Explain about IGMP.

[5+5]

8. Explain about the QoS techniques in switched networks.

[10]

OR

9. Illustrate the TCP Congestion control techniques with example.

[10]

QA QA QA QA OR QA QA QA G

10. Inspect DNS protocol.

[10]

11. Examine the working of HTTP.

[10]

QA QA QA QA OR QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G