

Code No: 155AU

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech III Year I Semester Examinations, January/February - 2023****DATA COMMUNICATION AND COMPUTER NETWORKS****(Common to IT, CSIT)****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 are the important components of any data communications systems? [2]
- b) What are the key elements of any network protocol? [3]
- c) List all the framing techniques. [2]
- d) What is TDMA? [3]
- e) Write the network id, host id and class of the ip address 125.125.125.125. [2]
- f) What is fragmentation? Write its significance. [3]
- g) What is a socket in transport layer? [2]
- h) List all QoS parameters of transport layer. [3]
- i) What is a hierarchical namespace in DNS? [2]
- j) Write a brief note on WWW. [3]

PART – B**(50 Marks)**

2. What is the need of a network standard? Explain various functions of each layer in OSI reference model in detail. [10]

OR

- 3.a) Brief explain about frame relay networks.
- b) Compare datagram networks and circuit switched networks. [5+5]
- 4.a) Calculate the Hamming code for the bits 10101010.
- b) Explain simple stop and wait protocol. [5+5]

OR

- 5.a) Write about the control frames of HDLC protocol.
- b) Explain the frame format of IEEE 802.3 standard. [5+5]
- 6.a) What do you understand about classfull IP addresses? Explain.
- b) Explain the significance of options field of IP packet. [5+5]

OR

- 7.a) Explain unicast routing protocol in detail.
- b) Consider a block of IP addresses with IP address 205.16.35.39/28 granted to a small organization and i) find the range of IP addresses ii) draw the LAN configuration. [5+5]

- 8.a) Write about the addressing mechanisms adopted by the transport layer.
b) Explain how a typical client and server communication takes place in a typical network. [5+5]

OR

- 9.a) Write a comparative notes on TCP and UDP protocols.
b) What is congestion? Explain any two methods of handling it. [5+5]

- 10.a) Explain the importance of a user agent.
b) Explain how a file transfer is done using FTP? [5+5]

OR

11. Explain DNS in internet in detail. [10]

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Used papers 2023