

**R18**

**Code No: 155AV**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

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

**DATA COMMUNICATIONS AND NETWORKS**

**(Electronics and Communication Engineering)**

**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 protocol and list the elements of protocol? [2]
- b) List out different kinds of addresses that are employed in TCP/IP model. [3]
- c) What are the responsibilities of data link layer? [2]
- d) What is slotted ALOHA? Mention its advantages. [3]
- e) What is the need for Classless addressing? [2]
- f) What is an IP address? [3]
- g) Identify when can an application make use of UDP? [2]
- h) What do you mean by socket? Explain. [3]
- i) What is the importance of DNS records? [2]
- j) What are the functions of e-mail? [3]

**PART - B**

**(50 Marks)**

2. Explain ISO OSI Reference model with neat sketch. [10]  
**OR**
- 3.a) List the benefits of network.  
b) What is network topology? Explain the different network topologies. [5+5]
- 4.a) Discuss in detail about the Frequency Division Multiple Access.  
b) Discuss sliding window protocol using Go back n. [5+5]  
**OR**
- 5.a) Explain about CSMA/CD protocol.  
b) Explain about Cyclic Redundancy Check. [5+5]
- 6.a) Explain about IPv6? Compare IPv4 and IPv6.  
b) Explain in detail about message format and different types of error reporting messages of ICMP. [5+5]  
**OR**
- 7.a) Why subnetting is necessary? With suitable example, develop the concept of subnetting in class-B network.  
b) Describe in detail the operation of Virtual-Circuit Approach, Connection-Oriented Service. [5+5]

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- 8.a) Classify the advantages of connection-oriented services over Connection less services.
- b) Define UDP. Discuss the operations of UDP. Explain UDP Checksum with one example. [5+5]

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- 9.a) Will you state or interpret in your own words about flow control in TCP and UDP with an example.
- b) Explain the various fields of TCP header and the working of the TCP protocol. [5+5]

- 10. Discuss the File Transfer Protocol (FTP) with a neat diagram. [10]

**OR**

- 11. Explain about HTTP in detail. [10]

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