Code No: **R1941042** **R19** **Set No. 1**

**IV B.Tech I Semester Advance Supplementary Examinations, March - 2023**

# DATA COMMUNICATIONS & COMPUTER NETWORKS

**(Electronics and Communication Engineering)**

**Time: 3 hours** **Max. Marks: 75**

***Answer any FIVE Questions***
***ONE Question from Each unit***
***All Questions Carry Equal Marks***

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## UNIT-I

| | | | |
|---|---|---|---|
| 1 | a) | Describe the types of transmission modes? | [7] |
| | b) | Explain the functions and protocols and services of each layer in OSI reference model? | [8] |
| | | (OR) | |
| 2 | a) | What is TCP/IP model? Describe the functions and protocols and services of each layer? | [7] |
| | b) | Classify the following:1.LAN 2.WAN 3.MAN | [8] |

## UNIT-II

| | | | |
|---|---|---|---|
| 3 | a) | Illustrate the channelization protocol with the required diagrams? | [7] |
| | b) | Differentiate between the pure Aloha and slotted Aloha by considering the delay of both at low load. Which one is less? | [8] |
| | | (OR) | |
| 4 | a) | Interpret the Shannon channel capacity for a noisy channel? | [7] |
| | b) | Compare the following CSMA protocols:1.1-persistent 2.Non-persistent 3.P-persistent | [8] |

## UNIT-III

| | | | |
|---|---|---|---|
| 5 | a) | What are the major design issues of network layer? Discuss distance vector routing algorithm. | [7] |
| | b) | What is IPv6? summarize its advantages over Ipv4 along with its frame format? | [8] |
| | | (OR) | |
| 6 | a) | What are various classes of internet addresses in Ipv4? mention their range format and usage? | [7] |
| | b) | What is shortest path routing?What major steps are followed in this algorithm? Illustrate with an example. | [8] |

## UNIT-IV

| | | | |
|---|---|---|---|
| 7 | a) | Elucidate congestion control in datagram subnets. | [7] |
| | b) | Describe the following:1.TCP 2.UDP | [8] |
| | | (OR) | |
| 8 | a) | What are the various fields of TCP Header Format? Clearly explain the meaning of each field. | [7] |
| | b) | Write short notes on congestion control and routers? | [8] |

## UNIT-V

| | | | |
|---|---|---|---|
| 9 | a) | What is FTP? What are the three transmission modes in FTP? Discuss it. | [7] |
| | b) | What is an Electronic mail? Explain the two scenarios of architecture of E-Mail. | [8] |
| | | (OR) | |
| 10 | a) | What is the use of DNS? Explain how it works? | [7] |
| | b) | What are various stages in the delivery of an email message from the sender to the receiver? Describe with a block diagram. | [8] |