

Code No: R1941042

**R19**

**Set No. 1**

**IV B. Tech I Semester Regular Examinations, November – 2022**  
**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) Draw and Explain Layers in OSI model. [7]  
b) Discuss the features of TCP/IP protocol. [8]  
(OR)
- 2 a) List out some of the data communication standards and outline their major functions. [7]  
b) Discuss the features of WiFi and brief the architectural functions of 802.11. [8]

**UNIT-II**

- 3 a) Discuss CRC. [6]  
b) Discuss (i) Fram (ii) Types of Errors. [9]  
(OR)
- 4 a) Discuss about time division multiple access scheme. [7]  
b) Write about ALOHA random access protocol schemes. [8]

**UNIT-III**

- 5 a) Outline the frame structure of ICMP protocol. [7]  
b) Explain with an example how packets are forwarded and routed from one network to another network. [8]  
(OR)
- 6 a) Discuss in brief the internal architecture of router. [7]  
b) Outline the functional behaviour of datagram switching networks. [8]

**UNIT-IV**

- 7 a) Outline the services of transport layer protocol. [7]  
b) Write about selective repeat protocol strategy. [8]  
(OR)
- 8 a) What are the services offered by UDP protocol. What are the drawbacks and applications of UDP protocol. [7]  
b) Explain what is congestion and how is it can be controlled. [8]



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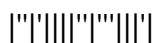
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**UNIT-V**

- 9 a) Explain the features of peer to peer and client server network architecture. [7]  
b) Write about DNS records and message. [8]  
(OR)
- 10 a) Compare SMTP and HTTP. [7]  
b) Brief the following [8]  
i) Reliable Data Transfer  
ii) Throughput  
iii) Timing  
iv) Security

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**Set No. 2**

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**UNIT-I**

- 1 a) Give the functional description of various types of computer networks. [7]  
b) Outline the functions of TCP/IP protocol suite. [8]  
(OR)
- 2 a) Write the silent features of classful addressing structure. [7]  
b) Outline the functions of OSI reference model. [8]

**UNIT-II**

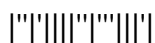
- 3 a) Discuss various types of errors in data communication and detection strategies. [7]  
b) Compare [8]  
i) Forward error correction & detection scheme  
ii) Retransmission error correction & detection scheme  
(OR)
- 4 a) Explain various fields of MAC Sublayer frame of IEEE 802.11. [7]  
b) Discuss about frequency division multiple access scheme. [8]

**UNIT-III**

- 5 a) What are the functions of various messages in ICMP protocol. [7]  
b) Give the differences between datagram switching and virtual circuit switching. [8]  
(OR)
- 6 a) Write about the input processing, switching and output processing inside a router. [7]  
b) Explain the frame structure of IPV4 protocol. [8]

**UNIT-IV**

- 7 a) Explain Multiplexing and demultiplexing service at transport layer. [7]  
b) Explain the UDP protocol frame structure. [8]



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(OR)

- 8 a) Outline the services and features of TCP protocol. [7]  
b) Discuss various approaches to control congestion over the networks. [8]

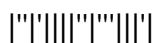
**UNIT-V**

- 9 a) Write about the transport services available to applications in application layer. [7]  
b) What are the functions of SMTP and HTTP. [8]

(OR)

- 10 a) Explain how processes communicate? [7]  
b) Write about FTP commands and replies. [8]

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**Set No. 3**

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**Max. Marks: 75**

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*ONE Question from Each unit*  
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**UNIT-I**

- 1 a) Write about the following organizations [7]  
i) IEEE  
ii) ANSI  
iii) ITU  
iv) EIA  
b) Give the differences between TCP and OSI reference models. [8]  
(OR)
- 2 a) Outline the features of Class A, Class B, Class C and Class D [7]  
addressing schemes.  
b) Explain the process of converting analog information into digital data. [8]

**UNIT-II**

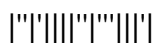
- 3 a) Outline the features of noiseless and noisy channels. [7]  
b) Explain HDLC protocol frame structure. [8]  
(OR)
- 4 a) Discuss about code division multiple access scheme. [7]  
b) Explain with an example about Cyclic Redundancy Check error [8]  
correction scheme.

**UNIT-III**

- 5 a) Explain IPv6 network protocol frame structure. [7]  
b) Outline the functional behaviour of virtual circuit networks. [8]  
(OR)
- 6 a) Write about queuing and routing control pane inside a router. [7]  
b) Explain the following services offered by network layer [8]  
i) forwarding  
ii) routing

**UNIT-IV**

- 7 a) Explain process to process communication service at transport layer. [7]  
b) Explain with example how UDP checksum field is calculated. [8]



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(OR)

- 8 a) Explain the frame structure of TCP protocol. [7]  
b) Write about flow control and TCP connection management. [8]

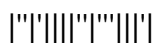
**UNIT-V**

- 9 a) What are the services offered by DNS. [7]  
b) Write about client server and P2P architectures. [8]

(OR)

- 10 a) Describe the various parts of e-mail address and show the process of sending and receiving e-mails. [7]  
b) Write about the various classes of DNS servers. [8]

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**UNIT-I**

- 1 a) Explain about data communication system components. [7]  
b) Give the advantages and disadvantage of various addressing schemes. [8]  
(OR)
- 2 a) Write about the following configurations [7]  
i) Point to Point  
ii) Multi Point  
b) Outline the functional details of LAN, WLAN, WAN, MAN. [8]

**UNIT-II**

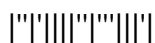
- 3 a) Explain 802.11 frame structure. [7]  
b) Outline the various error control techniques in data link layer. [8]  
(OR)
- 4 a) Outline the features of controlled access protocol schemes. [7]  
b) Write about CSMA/CD and CSMA/CA strategies. [8]

**UNIT-III**

- 5 a) Explain IPv4 network protocol frame structure. [7]  
b) Outline the functional behaviour of datagram switching networks. [8]  
(OR)
- 6 a) Write about ICMP protocol. [7]  
b) Outline the services offered by network layer. [8]

**UNIT-IV**

- 7 a) Outline the services of transport layer protocol. [7]  
b) Write about Go-Back-N protocol. [8]



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(OR)

- 8 a) What are the possible causes and costs of congestion? [7]  
b) Write about reliable data transfer protocols. [8]

**UNIT-V**

- 9 a) What is the use of DNS? Explain how it works? [7]  
b) Write about FTP commands and replies. [8]

(OR)

- 10 a) Explain DNS message format in brief. [7]  
b) Brief the following [8]  
i) Reliable Data Transfer  
ii) Throughput  
iii) Timing  
iv) Bandwidth

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