

III B. Tech I Semester Regular Examinations, Dec/Jan -2022-23
COMPUTER NETWORKS
(Common to CSE&IT)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I

1. a) Compare and contrast the OSI and TCP/IP reference models. [7M]
b) Explain about Fiber optic cable? What are the types of Fiber optic cable? [7M]

(OR)

2. a) What is Network topology? List any 3 network topologies. [7M]
b) Explain the functionality of each layer in OSI reference model. [7M]

UNIT-II

3. a) What are the different types of error detection methods? Explain the CRC error detection technique using generator polynomial x^4+x^3+1 and data 11100011. [7M]
b) Explain about The Data Link Layer Frame and Frame Fields. [7M]

(OR)

4. a) What is meant by Error in data link layer? Discuss about Error Detection and Correction in Data link Layer. [7M]
b) Discuss about working Principle of a One-Bit Sliding Window Protocol with example. [7M]

UNIT-III

5. a) Write in detail on Time-Division Multiplexing and Frequency-Division Multiplexing. [7M]
b) Explain the Code Division Multiple Access. [7M]

(OR)

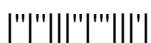
6. a) What is the purpose of CSMA with Collision Detection? Explain it. [7M]
b) Write about Standard Ethernet, Fast Ethernet and Gigabit Ethernet. [7M]

UNIT-IV

7. a) Describe the problem and solutions associated with Distance vector routing. [7M]
b) Draw the IPV4 Header format and explain the fields. [7M]

(OR)

8. a) Explain any three Congestion prevention policies. [7M]
b) Explain the following protocols: [7M]
i) ARP ii) DHCP.



UNIT-V

9. a) Illustrate the connection establishment and release in TCP. [7M]
b) What is DNS? What are the services provided by DNS and explain how it works. [7M]
- (OR)
10. a) Explain about UDP services and its applications. [7M]
b) Write short notes on the following: [7M]
i) SNMP ii) WWW.



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UNIT-I

1. a) Explain the layers of TCP/IP reference model. [7M]
b) Differentiate Radio waves and Microwaves in details. [7M]
(OR)
2. a) Explain about various transmission media in physical layer with a neat sketch. [7M]
b) Discuss the similarities and differences between OSI and TCP/IP reference models. [7M]

UNIT-II

3. a) Elaborate on the design issues of Data link layer. [7M]
b) Explain Error Detection Techniques in Data link Layer. [7M]
(OR)
4. a) With an example, explain GoBack N protocol. [7M]
b) Draw the frame format of HDLC and explain its configuration and transfer modes. [7M]

UNIT-III

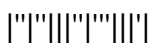
5. a) What is the purpose of CSMA with Collision Prevention? Explain it. [7M]
b) Explain about FDMA and TDMA. [7M]
(OR)
6. a) Explain the various ALOHA protocols in details. [7M]
b) Write and explain about various multiple access protocols. [7M]

UNIT-IV

7. a) Describe congestion control in datagram subnets. [7M]
b) Explain the Link State Routing protocol with an example. [7M]
(OR)
8. a) Explain about Class full addressing and CIDR. [7M]
b) What is Routing Algorithm? Briefly discuss Adaptive Routing Algorithms and Non – Adaptive Routing Algorithms. [7M]

UNIT-V

9. a) Describe in detail about TCP segment header and connection Establishment. [7M]
b) What is HTTP? Describe in brief about HTTP request methods. [7M]
(OR)
10. a) What is UDP? Explain the different components of UDP header. [7M]
b) What is electronic mail? Describe in brief about different agents involved in ending and receiving e-mail. [7M]



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UNIT-I

1. a) Describe any two Guided transmission media options. [7M]
b) Explain the different layers in OSI model. [7M]
(OR)
2. a) Briefly discuss about TCP/IP protocol suite. [7M]
b) Summarize the classification of Network types. [7M]

UNIT-II

3. a) Define Framing. Explain various methods used for framing. [7M]
b) Explain the working of unrestricted simplex protocol, what are the restrictions placed on other protocols? [7M]
(OR)
4. a) Derive the sending and receiver window sizes for Go Back N and Selective-Repeat protocols. [7M]
b) Explain the frame format and working of HDLC protocol. [7M]

UNIT-III

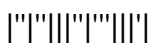
5. a) Explain ALOHA in detail. [7M]
b) What is CSMA? Explain about CSMA/CA? [7M]
(OR)
6. a) Explain about the CDMA&TDMA techniques. [7M]
b) Explain in detail about Standard Ethernet. [7M]

UNIT-IV

7. a) What is the role of different layers in controlling the congestion? [7M]
b) Explain the Hierarchical Routing algorithm and discuss its advantages and limitations. [7M]
(OR)
8. a) What are the motivation factors for IPV6? Explain about the IPV6 address structure. [7M]
b) Explain Leaky Bucket and Token Bucket algorithms. [7M]

UNIT-V

9. a) Discuss in detail about the connection establishment and release in TCP. [7M]
b) Write about HTTP and SNMP. [7M]
(OR)
10. a) Explain briefly about the Architecture of WWW. [7M]
b) Write the short notes on E-Mail architecture. [7M]



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UNIT-I

1. a) Differentiate LAN, MAN and WAN network topologies. [7M]
b) Explain about Transport layer and Presentation layer with neat diagrams. [7M]

(OR)

2. a) Explain Un-Guided transmission media option. [7M]
b) Classify Internet, Intranet and Extranet with applications. [7M]

UNIT-II

3. a) Discuss various methods for implementing Framing in Data Link Layer. [7M]
b) Describe about the Selective-Repeat protocol. [7M]

(OR)

4. a) Explain in detail about Point to Point protocol. [7M]
b) Write in detail about CRC algorithm with an example. [7M]

UNIT-III

5. a) What is CSMA? Explain about CSMA/CD. [7M]
b) Discuss briefly about the MAC layers in 802.11 standard. [7M]

(OR)

6. a) Explain about Pure Aloha and Slotted Aloha. [7M]
b) Briefly discuss the different Channelization techniques. [7M]

UNIT-IV

7. a) Explain Distance vector multicast routing protocol (DVMRP) with example. [7M]
b) Differentiate the Virtual circuit and Datagram networks. [7M]

(OR)

8. a) Discuss the different Congestion control policies. [7M]
b) What are the various classes of IPV4 addressing? Give example for each. [7M]

UNIT-V

9. a) Explain the TCP segment header format in detail. [7M]
b) Write about DNS messages and Resource records. [7M]

(OR)

10. a) Write about Flow control, Error control and Congestion control in TCP. [7M]
b) Describe briefly about the HTTP operational model. [7M]

