

III B. Tech II Semester Supplementary Examinations, November/December-2016
COMPUTER NETWORKS
(Common to CSE and IT)

Time: 3 hours

Max. Marks: 70

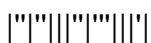
- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

PART -A

- 1 a) List two advantages and disadvantages of having international standards for network, Protocols? [4M]
- b) Which switching method allows real-time data transfer? [3M]
- c) Data link protocols almost always put the CRC in a trailer, rather than in a header. Why? [5M]
- d) What is slotted ALOHA? Mention its advantages. [3M]
- e) What is the baud rate of the standard 10-Mbps Ethernet? [3M]
- f) Describe why HTTP is designed as a stateless protocol. [4M]

PART -B

- 2 a) Write short notes on NSFNET. [4M]
- b) Two networks each provide a reliable connection oriented service. One of them offers a reliable byte stream and other offers a reliable message stream. Are they identical? Justify. [8M]
- c) Discuss the “Bad Timing” problem of OSI reference model. [4M]
- 3 a) Compare and contrast synchronous time division multiplexing and statistical time division multiplexing. [8M]
- b) Explain in detail about the Virtual Circuit Networks. [8M]
- 4 a) Briefly discuss about CRC checker. [3M]
- b) PPP (Point to Point Protocol) is based closely on HDLC, which uses bit stuffing to prevent accidental flag bytes within the payload from causing confusion. Give reasons why PPP uses character stuffing instead. [8M]
- c) Draw and explain about HDLC protocol. [5M]
- 5 a) Discuss about congestion control in Virtual Circuit subnets. [8M]
- b) Explain in detail the working of CSMA. [8M]
- 6 a) What are common Ethernet implementations? Discuss about the MAC sub layer? [8M]
- b) Discuss the MAC layer functions of IEEE 802.11. [8M]
- 7 a) Discuss the protocol stack of WAP. [8M]
- b) Explain HTTP Transaction with an example. [8M]



III B.Tech II Semester Regular Examinations, April - 2016
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 2. Answering the question in **Part-A** is compulsory
 3. Answer any **THREE** Questions from **Part-B**

PART -A

- | | | |
|---|--|------|
| 1 | a) Explain in detail about the MAN. | [4M] |
| | b) Discuss briefly about the multilevel multiplexing. | [3M] |
| | c) What is Piggybacking? Explain the advantage of it. | [3M] |
| | d) Explain in detail about the Broadcasting. | [4M] |
| | e) Discuss in detail about the Manchester Encoding. | [4M] |
| | f) Explain in detail about the HTTP Response Message format. | [4M] |

PART -B

- | | | |
|---|--|------|
| 2 | a) Explain in detail about the Novell Network. | [8M] |
| | b) Discuss how Internet has revolutionized many aspects of our daily lives | [8M] |
| 3 | a) Explain in detail about the statistical time division multiplexing | [8M] |
| | b) Compare and contrast a circuit-switched network and a packet-switched network | [8M] |
| 4 | a) What are the services provided to the Network Layer by Data Link Layer? Explain. | [6M] |
| | b) Given 1101011011 data frame and generator polynomial $G(x) = x^4 + x + 1$. Derive the transmitted frame. | [5M] |
| | c) Explain in detail about the Simplex protocol for Noisy channel. | [5M] |
| 5 | a) Describe in detail about the Frequency Division Multiple Access. | [8M] |
| | b) Explain briefly about the shortest path routing algorithm. | [8M] |
| 6 | a) Explain in detail about the Physical layer in the Fast Ethernet. | [8M] |
| | b) Discuss briefly about the MAC layers in the 802.11 standard. | [8M] |
| 7 | a) Explain in detail about the Client and Server in World Wide Web. | [8M] |
| | b) Describe briefly about the HTTP Operational Model. | [8M] |

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PART -A

- 1 a) Write a short note on ARPANET. [4M]
- b) Compare and contrast a circuit-switched network and a packet-switched network. [4M]
- c) Describe the significance of error detection and error correction mechanisms in data link layer. [3M]
- d) Explain in detail about the Time division Multiple Access. [4M]
- e) Write a short note on Medium Access Control. [3M]
- f) Explain the need of Uniform Resource Locator in WWW. [4M]

PART -B

- 2 a) Explain different Layers and their functionalities in TCP/IP Model. [8M]
- b) Discuss in detail about the LAN and WAN. [8M]
- 3 a) Explain briefly about the applications of FDM [4M]
- b) Explain in detail about the synchronous time division multiplexing. [6M]
- c) Explain in detail about the Efficiency and Delay in Datagram Networks. [6M]
- 4 a) Explain in detail about the sliding window protocol using Selective Repeat. [8M]
- b) Give a brief note on the Multilink Point to point protocol. [8M]
- 5 a) Explain how slotted aloha improves the performance of pure aloha. [6M]
- b) Discuss briefly about the token passing. [4M]
- c) What is Count to infinity problem? Explain with suitable example. [6M]
- 6 a) Compare HDLC Frame with the LLC and MAC frame formats. [8M]
- b) Explain in detail about the addressing mechanism in 802.11. [8M]
- 7 a) Explain briefly about the Architecture of WWW. [8M]
- b) What are the different request types available in HTTP? Explain. [8M]

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
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PART -A

- 1 a) Explain briefly about the Novell Networks. [4M]
- b) What is the role of the address field in a packet traveling through a datagram network? Explain. [4M]
- c) What is the need of Framing? Explain. [3M]
- d) Compare and contrast the differences between broadcast routing and multicast routing. [3M]
- e) Explain in detail about the Logical Link Control. [4M]
- f) Discuss the HTTP Generic Message format. [4M]

PART -B

- 2 a) Compare OSI Reference Model with the TCP/IP Model. [8M]
- b) Differentiate LAN, MAN and WAN network topologies. [8M]
- 3 a) What is Frequency Division Multiplexing? Explain Multiplexing process in Frequency Division Multiplexing with a suitable example. [8M]
- b) What are the two phases required in the Setup phase in Virtual Circuit? Explain. [8M]
- 4 a) Explain briefly about one-bit sliding window protocol. [8M]
- b) Explain in detail about the point-to-point protocol frame format. [8M]
- 5 With a suitable example explain Distance Vector Routing algorithm. What is the serious drawback of Distance Vector Routing algorithm? Explain. [16M]
- 6 a) What are the common Standard Ethernet implementations? [8M]
- b) Explain the fields in the 802.11 Frame Structure. [8M]
- 7 a) What is the use of Uniform Resource Locator for the Client? Explain. [8M]
- b) Give a brief note on Wireless application protocol. [8M]

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PART -A

- 1 a) Explain in detail about the LAN. [4M]
- b) Compare synchronous time division multiplexing with statistical time division multiplexing [3M]
- c) Compare and contrast flow control and error control. [3M]
- d) Discuss the drawbacks of flooding and distance vector routing algorithms. [4M]
- e) Explain maximum and minimum frame lengths in Ethernet. [4M]
- f) Discuss in detail about the HTTP Request Message format. [4M]

PART -B

- 2 a) What are the different Layers in the OSI Reference Model? Explain the Functionalities of each Layer. [12M]
- b) Give a brief note on MAN. [4M]
- 3 a) What is multiplexing? Explain the basic format of multiplexed system. [6M]
- b) Explain in detail about the Wavelength Division Multiplexing. [6M]
- c) Discuss briefly about the multiple slot allocation. [4M]
- 4 a) What is the problem in Go-Back-N protocol? How it can be solved. [8M]
- b) Draw and explain HDLC frame format. [8M]
- 5 a) Write a short note on Fast Ethernet. [8M]
- b) Describe in detail about the Hierarchical routing. [8M]
- 6 a) Explain in detail about the 802.3 MAC frame format and its fields. [8M]
- b) What are the common Fast Ethernet implementations? [8M]
- 7 a) Give a brief note on the HTTP Transaction. [8M]
- b) What are the different Status Codes available in HTTP? Explain. [8M]

Code No: R31052

R10

Set No: 1

III B.Tech. I Semester Supplementary Examinations, June/July - 2014

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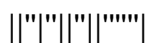
Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions

All Questions carry equal marks

1. (a) What is the difference between half-duplex and full-duplex transmission modes?
(b) Why are protocols needed? Name the four basic network topologies, and discuss the advantages and drawbacks of each of them.
2. (a) Compare the wavelength division multiplexing with the frequency division multiplexing.
(b) Four data channels (digital), each transmitting at 1 Mbps, use a satellite channel of 1 MHz. Design an approximate configuration, using FDM.
3. (a) Discuss the concept of redundancy in error detection and correction.
(b) What is the hamming distance? Discuss what kind of error is undetectable by the checksum.
4. (a) Write the send window and receive window for Go-Back-N-ARQ protocol.
(b) Write the Go-back-N sender algorithm and explain it.
5. (a) What is meant by channelization? Explain FDMA.
(b) Draw the flow diagram for CSMA/CA and explain it.
6. (a) Write the 802.3 MAC frame format and explain it clearly.
(b) Discuss how the Fast Ethernet is implemented and discuss about encoding for it.
7. (a) With a neat diagram explain the AMPS reverse communication band.
(b) What are the three categories of satellites? Explain them.
8. Write short notes on the following:
 - (a) Block coding
 - (b) Remote bridges
 - (c) Virtual LANs.



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Set No: 2

III B.Tech. I Semester Supplementary Examinations, June/July - 2014

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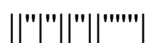
Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions

All Questions carry equal marks

1. (a) Compare the telephone network and the Internet. What are the similarities? What are the differences?
(b) What are the four categories of network topologies? Explain them with suitable examples.
2. (a) Compare the space-division and time-division multiplexing.
(b) Compare and contrast a circuit-switched network and a packet-switched network.
(c) Discuss the various approaches to packet switching.
3. (a) With a neat diagram explain the CRC encoder and decoder.
(b) Discuss clearly the Linear blocking codes.
4. (a) Explain the simplex protocol and stop-and-wait-protocol.
(b) Discuss clearly how the Go-back-N automatic repeat request protocol works.
5. (a) Discuss how the frames will be in a pure ALOHA network.
(b) Explain the procedure for pure ALOHA protocol and also discuss about its vulnerable time.
6. (a) Discuss about Switched Ethernet and Full-Duplex Switched Ethernet.
(b) Explain the encoding process in Gigabit Ethernet implementation.
7. (a) What is the relationship between D-AMPS and AMPS? What is the function of the CDMA in IS-95?
(b) Which type of orbit does a GEO satellite have? Compare an uplink with a downlink.
8. Write short notes on the following:
 - (a) Bridges
 - (b) MEO satellite
 - (c) Bluetooth layers.



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Set No: 3

III B.Tech. I Semester Supplementary Examinations, June/July - 2014

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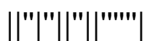
Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions

All Questions carry equal marks

- 1 (a) What are the responsibilities of the network layer and transport layer in the Internet model?
(b) Explain clearly the interaction between layers in the OSI model.
- 2 (a) Discuss the classification of switched networks. Explain a trivial circuit-switched network.
(b) Draw the diagram of a datagram network with four switches. And explain how it will work.
- 3 (a) Explain the process of error detection in block coding.
(b) What are cyclic codes? With a neat diagram explain the CRC encoder and decoder.
- 4 (a) Compare the simplex protocol and stop-and-wait protocol.
(b) Discuss how to design the stop-and-wait ARQ protocol.
- 5 (a) Discuss how the frames will be in a slotted ALOHA network.
(b) Explain about CSMA and draw the flow diagram for three persistence methods.
- 6 (a) What is meant by Gigabit Ethernet? Discuss its implementation.
(b) Discuss the differences between a unicast, multicast and broadcast address.
- 7 (a) What is the difference between a hard handoff and a soft handoff?
(b) Discuss the relationship between a base station and a mobile switching centre.
(c) Discuss the purpose of GPS.
- 8 Write short notes on the following:
 - (a) Bluetooth protocol stack
 - (b) Remote bridges
 - (c)LEO Satellite.



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Set No: 4

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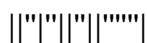
Time: 3 Hours

Max Marks: 75

Answer any FIVE Questions

All Questions carry equal marks

- 1 (a) What are the responsibilities of the Data link layer in the OSI model? Explain them.
(b) Discuss the TCP/IP protocol suite.
- 2 (a) Explain the process of frequency division multiplexing with a suitable example.
(b) Five channels, each with a 100 kHz bandwidth, are to be multiplexed together. What is the minimum bandwidth of the link if there is a need for a guard band of 10 kHz between the channels to prevent interference?
- 3 (a) Discuss clearly about linear block code and cyclic code.
(b) We need a data word of at least 16 bits. Find the values of 'k' and 'n' in the Hamming code C(n,k) with $d_{\min}=3$.
- 4 (a) Discuss how to design a stop-and-wait protocol. Give a suitable example.
(b) Write the sender-site and receiver-site algorithms for stop-and-wait ARQ protocol.
- 5 (a) Write the flow diagram for the CSMA/CD and also write the timing in CSMA/CA.
(b) What is meant by controlled access? Write the logical ring and physical topology in token-passing access method.
- 6 (a) What are the common Ten-Gigabit Ethernet implementations? Discuss the relationship between a switch and a bridge.
(b) Compare the data rates for Standard Ethernet, Fast Ethernet, Gigabit Ethernet, and Ten-Gigabit Ethernet.
- 7 (a) Discuss the purpose of cellular telephony. And explain the cellular bands for AMPS.
(b) What is meant by GSM? Explain the GSM bands and its working.
- 8 Write short notes on the following:
 - (a) Satellite networks
 - (b) Virtual LANs
 - (c) IEEE 802.11 frame structure.



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Set No. 1

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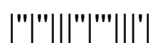
Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) Explain the TCP/IP protocol suit in detail. [8]
b) Distinguish between physical address and logical address. [7]
- 2 a) Explain the frequency division multiplexing with a suitable example. [8]
b) Discuss briefly about virtual circuit networks. [7]
- 3 a) Distinguish between fixed size framing and variable size framing. [8]
b) Discuss about unrestricted simplex protocol. [7]
- 4 a) Explain the multi link PPP. [8]
b) Discuss about go back N protocol. [7]
- 5 a) Distinguish between FDMA and TDMA. [8]
b) What is CSMA? Discuss how it will function. [7]
- 6 a) Explain the fast Ethernet MAC sub layer. [8]
b) Explain about Manchester encoding with a suitable example. [7]
- 7 a) What is meant by blue tooth? Discuss its architecture. [8]
b) Discuss in detail about MEO satellite. [7]
- 8 a) Explain about spanning tree bridges. [7]
b) Discuss about remote bridges. [8]

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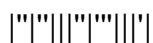
Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) What is meant by data communication? Discuss about categories of networks. [8]
b) Discuss about various layers in the OSI model. [7]
- 2 a) What is meant by multiplexing? Explain about wavelength division multiplexing. [8]
b) Discuss in detail about datagram networks. [7]
- 3 a) Discuss in detail about flow control and error control. [8]
b) What is meant by cyclic redundancy check? Discuss it with a suitable example. [7]
- 4 a) Discuss about stop and wait protocol. [8]
b) What is meant by PPP? Discuss about framing and transmission phase in it. [7]
- 5 a) What is ALOHA? Explain about CSMA. [8]
b) Discuss in detail about TDMA. [7]
- 6 a) Discuss in detail about standard Ethernet. [8]
b) Explain the Fast Ethernet MAC sub layer. [7]
- 7 a) Discuss about blue tooth layers. [8]
b) Explain about frequency reuse transmitting. [7]
- 8 What is bridge? Discuss about different bridges with neat diagrams. [15]

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Set No. 3

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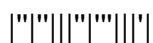
Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) Discuss the history of Internet. [8]
b) Explain about Internet standards. [7]
- 2 a) Distinguish between circuit switched networks and virtual circuit networks. [8]
b) Explain about wavelength division multiplexing. [7]
- 3 a) Explain one's complement internet check sum. [8]
b) Explain the simplex protocol for Noisy Channel. [7]
- 4 a) What is meant by PPP? Discuss about framing and transmission phase in it. [8]
b) Discuss about one bit sliding window protocol. [7]
- 5 a) Explain TDMA with a suitable example. [8]
b) Discuss about code division multiple access. [7]
- 6 a) Discuss in detail about fast Ethernet. [8]
b) What is addressing? Discuss about the addressing mechanism of IEEE 802.11. [7]
- 7 a) Discuss about different satellite networks. [8]
b) Explain the blue tooth architecture and its protocol stack. [7]
- 8 a) What is meant by internetworking? Discuss about remote bridges. [8]
b) Explain about the switched virtual LANs. [7]

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Set No. 4

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**Answer any FIVE Questions
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- 1 a) Discuss about protocols and standard layers. [8]
b) Discuss about physical address and port address. [7]
- 2 a) What is meant by switching? Discuss about PL switching. [8]
b) Distinguish between circuit switched networks and datagram networks. [7]
- 3 a) Discuss about linear block codes with suitable example. [8]
b) Explain about unrestricted simplex protocol. [7]
- 4 a) What is meant by sliding window protocol? Explain about Go back N. [8]
b) Distinguish between selective repeat and stop and wait protocols. [7]
- 5 a) Distinguish between TDMA and CDMA. [8]
b) Discuss about carrier sense multiple access with collision avoidance. [7]
- 6 a) Explain about Manchester encoding with a suitable example. [8]
b) What is addressing? Discuss about the addressing mechanism of IEEE 802.11. [7]
- 7 a) Discuss about different satellite networks. [8]
b) Discuss about blue tooth architecture. [7]
- 8 a) What is bridge? Discuss about remote bridges. [8]
b) Explain about spanning tree bridges. [7]

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