

Hall Ticket Number:

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Code No. : 14606 O2

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (IT) II Year II-Semester Old Examinations, May-2018

Data Communication

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A ($10 \times 2 = 20$ Marks)

1. What are the rules to be followed in designing layered architecture?
2. What are the advantages of optical fiber communications?
3. Distinguish synchronous and asynchronous transmission.
4. Compare Go back N protocol with sliding window protocol.
5. State the need for Digital subscriber line. Also classify various xDSL technologies.
6. Illustrate ATM cell header.
7. List various implementations of traditional Ethernet.
8. What are the various topologies used in LANs?
9. List any four application areas for WLANs.
10. State the features of CDMA.

Part-B ($5 \times 10 = 50$ Marks)

11. a) Discuss TCP/IP protocol architecture in brief. [6]
b) Analog signal has a bit rate of 10000 bps and a baud rate of 3000 baud. How many data elements are carried by each signal element? [4]
12. a) Describe the procedure to generate CRC code at the transmitter? Explain with an example. [5]
b) List various error control techniques in data link layer. Explain Go- back- N ARQ in brief. [5]
13. a) Distinguish between FDM and TDM. [4]
b) Draw the architecture of ATM and explain the functions of each layer in ATM. [6]
14. a) Discuss about Fast Ethernet. Also list various implementation of Fast Ethernet. [5]
b) Explain about Layer 2 and Layer 3 switches. [5]
15. a) Draw Bluetooth architecture and briefly explain its operation. [5]
b) Illustrate the architecture of IEEE 802.11 in detail. [5]
16. a) Explain the different encoding schemes of 'Digital data and Analog signals'. [7]
b) Discuss various flow control techniques used in data link layer. [3]
17. Answer any *two* of the following:
 - a) List various switching methods used in data communications? Brief about circuit switching. [5]
 - b) With neat diagram explain CSMA/CD in detail. [5]
 - c) Describe the operation of Basic Cellular System. [5]

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Code No.: 22505 S

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**  
**B.E. II Year (I.T.) II-Semester (Supplementary) Examinations, December-2016**

**Data Communication**

Time: 3 hours

Max. Marks: 70

*Note: Answer ALL questions in Part-A and any FIVE from Part-B*

**Part-A (10 × 2 = 20 Marks)**

1. Define i) protocol ii) network.
2. What are the advantages of optical fiber communications?
3. List the different flow & error control techniques.
4. Define piggy backing.
5. Define frame relay. Give its frame structure.
6. What are the advantages of switching techniques?
7. What are the functions of MAC sub layer?
8. Why CSMA/CD is needed in different Ethernets?
9. Write down various protocols used in wireless LAN
10. Give the basic principle of cellular networks.

**Part-B (5 × 10 = 50 Marks)**

11. a) Explain the protocol architecture of TCP/IP. [4]  
b) Encode the following bit stream using i) HDB3 ii) B8ZS [6]  
Bit stream: 011110111111110.
12. a) Explain parity check error detection technique with an example. [4]  
b) Explain about line configurations. [6]
13. a) Discuss in detail about asynchronous transfer mode(ATM). [6]  
b) Compare packet switching and circuit switching techniques. [4]
14. a) Write about Repeaters, Hubs and Gateways. [5]  
b) Explain about Gigabit Ethernet. [5]
15. a) Explain the architecture of IEEE 802.11 [5]  
b) Explain the architecture of WLAN [5]
16. a) Explain various transmission impairments in data communications. [4]  
b) Explain in detail synchronous and Asynchronous transmission. [6]
17. Write short notes on any *two* of the following  
a) xDSL [5]  
b) Fast Ethernet [5]  
c) 2G wireless networks [5]

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Code No. : 15603 S

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**  
**B.E. (IT: CBCS) V-Semester Supplementary Examinations, May/June-2019**

**Computer Networks**

Time: 3 hours

Max. Marks: 70

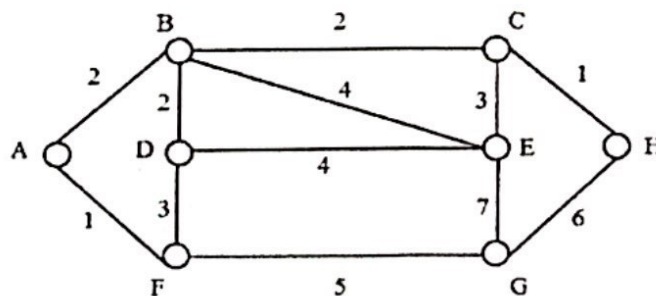
*Note: Answer ALL questions in Part-A and any FIVE from Part-B*

**Part-A ( $10 \times 2 = 20$  Marks)**

1. Differentiate between connection oriented and connection less services.
2. List out the transparency issues in RPC.
3. List any two differences between circuit switching and packet switching.
4. What is the purpose of link state advertisement?
5. Define the terms broadcast, unicast and multicast.
6. What is the use of checksum in UDP header?
7. Give the format of HTTP request message.
8. What is MIME and what does it stand for?
9. What are the advantages & disadvantages of public key encryption?
10. Briefly discuss the goals of network security.

**Part-B ( $5 \times 10 = 50$  Marks)**

- 11.a) Describe briefly about TCP/IP Protocol Stack. [6]  
b) Define the purpose of Daemon Process and Internet Super Server with an example. [4]
- 12.a) Explain the functionality of shortest path routing algorithm in detail, compute the shortest path for the given graph below assuming A as the source and H as the destination. [6]



- b) For the given network if a congestion is encountered during data transmission discuss how do you overcome congestion using any one traffic shaping algorithm. [4]
- 13.a) With a neat illustration explain the different fields of IPV4 header format. [6]  
b) How connection is established and terminated in TCP using three way handshaking mechanism? Discuss in detail. [4]

Contd... 2

- 14.a) Explain how Iterative DNS function in comparison to Recursive DNS with a neat diagram. [7]
- b) If a user Bob wants to send a mail to his friend Alice, Bob composes a mail with required format and then sends it to Alice mail-id. Assuming the mail has reached to Alice inbox try to list out the back end supporting protocols involved to drop the mail to Alice's inbox. [3]
- 15.a) Explain in detail about the DES algorithm and mention the limitations of DES. [6]
- b) Discuss the importance of Digital Signature with an example. [4]
- 16.a) Briefly explain different elementary system calls used in sockets to perform network I/O operations. [5]
- b) Describe various parameters involved to achieve Quality of Service. [5]
17. Answer any *two* of the following:
- a) Enumerate on the various reasons that are present behind the transition from IPv4 to IPv6 [5]
- b) Discuss in detail about World Wide Web. [5]
- c) Explain RSA algorithm in detail with an example. [5]



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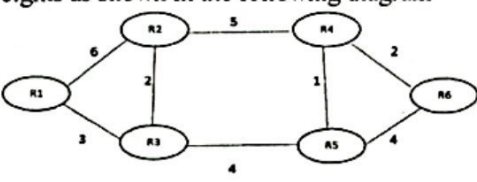
Code No. : 15603

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD****B.E. (IT: CBCS) V-Semester Main Examinations, December-2018****Computer Networks**

Time: 3 hours

Max. Marks: 70

*Note: Answer ALL questions in Part-A and any FIVE from Part-B*

| Q. No                             | Stem of the Question                                                                                                                                                                                                                                                                                                                                           | M | L | CO | PO |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|----|----|
| <b>Part-A (10 × 2 = 20 Marks)</b> |                                                                                                                                                                                                                                                                                                                                                                |   |   |    |    |
| 1.                                | In a fully connected mesh network with 60 computers, calculate the total number of cables are required and numbers of ports are required for each device.                                                                                                                                                                                                      | 2 | 2 | 1  | 1  |
| 2.                                | What is meant by Socket, give the syntax of generic socket address structure?                                                                                                                                                                                                                                                                                  | 2 | 1 | 1  | 2  |
| 3.                                | Discuss about different services provided by network layer?                                                                                                                                                                                                                                                                                                    | 2 | 2 | 2  | 1  |
| 4.                                | Justify how "count to infinity" became a big problem in DVR?                                                                                                                                                                                                                                                                                                   | 2 | 3 | 2  | 1  |
| 5.                                | Find how many bits are allocated for network ID and host ID for the given IP address 23.192.157.234?                                                                                                                                                                                                                                                           | 2 | 4 | 3  | 1  |
| 6.                                | Differentiate between multicast IP and broadcast IP.                                                                                                                                                                                                                                                                                                           | 2 | 2 | 3  | 2  |
| 7.                                | How MIME allows the non-ASCII data to be sent through email?                                                                                                                                                                                                                                                                                                   | 2 | 2 | 4  | 1  |
| 8.                                | Compare and contrast IMAP and POP3.                                                                                                                                                                                                                                                                                                                            | 2 | 3 | 4  | 1  |
| 9.                                | Convert the below plain text to cipher text using transposition cipher<br>Plaintext:<br>Pleasetransformonemilliondollarstoindiancurrencyusingmyselfaccount<br>Key: NETWORK                                                                                                                                                                                     | 2 | 3 | 5  | 2  |
| 10.                               | Discuss how does non-repudiation is different from authentication?                                                                                                                                                                                                                                                                                             | 2 | 2 | 5  | 2  |
| <b>Part-B (5 × 10 = 50 Marks)</b> |                                                                                                                                                                                                                                                                                                                                                                |   |   |    |    |
| 11. a)                            | If the TCP server were to support $n$ simultaneous connections, each from a different client host, how many sockets would the TCP server need?                                                                                                                                                                                                                 | 3 | 1 | 1  | 1  |
| b)                                | What are the five layers in the Internet protocol stack? What are the principal responsibilities of each of these layers?                                                                                                                                                                                                                                      | 7 | 1 | 1  | 2  |
| 12. a)                            | Consider a network with 6 routers R1 to R6 connected with links having weights as shown in the following diagram<br>                                                                                                                                                        | 6 | 2 | 2  | 1  |
| i)                                | All the routers use the distance vector based routing algorithm to update their routing tables. Each router starts with its routing table initialized to contain an entry for each neighbor with the weight of the respective connecting link. After all the routing tables stabilize, how many links in the network will never be used for carrying any data? |   |   |    |    |
| ii)                               | Suppose the weights of all unused links in the previous question are changed to 2 and the distance vector algorithm is used again until all routing tables stabilize. How many links will now remain unused?                                                                                                                                                   |   |   |    |    |

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|                                                                                                                                                                                                                                                                                                                                              |   |   |   |   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|
| b) Distinguish between Dual Stack approach and Tunneling.                                                                                                                                                                                                                                                                                    | 4 | 4 | 3 | 1 |
| 13. a) With a neat illustration explain all the fields of IPV4 header format.                                                                                                                                                                                                                                                                | 6 | 1 | 3 | 2 |
| b) Distinguish between TCP and UDP.                                                                                                                                                                                                                                                                                                          | 4 | 4 | 3 | 1 |
| 14. a) FTP uses two parallel TCP connections to transfer a file. What are they? Explain their purpose.                                                                                                                                                                                                                                       | 5 | 2 | 4 | 1 |
| b) Compare and contrast HTTP and SMTP.                                                                                                                                                                                                                                                                                                       | 5 | 4 | 4 | 2 |
| 15. a) What is digital signature? What are the services provided by digital signature?                                                                                                                                                                                                                                                       | 3 | 1 | 5 | 2 |
| b) Explain the steps of RSA algorithm, using data $p=3, q=11, d=7$ in RSA algorithm find the cipher text of the given plain text "NETWORKSECURITY"                                                                                                                                                                                           | 7 | 4 | 5 | 1 |
| 16. a) What is the purpose of Presentation and session layers in OSI reference model                                                                                                                                                                                                                                                         | 5 | 1 | 1 | 2 |
| b) Computer A has 50MB to send on a network and transmits the data with burst rate of 6Mbps. The maximum transmission rate across routers in the network is 5Mbps. If a computer A's transmission is shaped using leaky bucket, how much capacity must the queue in the bucket hold not to discard any data.                                 | 5 | 3 | 3 | 2 |
| 17. Answer any two of the following:                                                                                                                                                                                                                                                                                                         |   |   |   |   |
| a) It has been said that when IPv6 tunnels through IPv4 routers, IPv6 treats the IPv4 tunnels as link-layer protocols. Do you agree with this statement? Justify the answer?                                                                                                                                                                 | 5 | 5 | 3 | 1 |
| b) Hostname-to-IP-address translation is an important service provided by DNS. Give an overview of how DNS works in this regard.                                                                                                                                                                                                             | 5 | 2 | 4 | 2 |
| c) Write the steps in Diffie-Hellman Key exchange protocol. Suppose that two parties A and B wish to setup a common secret (D-H key) between themselves using Diffie-Hellman key exchange technique. They agree on 7 as modulus and 3 as primitive root. Party A chooses 2 and chooses 5 as their respective secrets. What is their D-H key? | 5 | 2 | 5 | 2 |

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

| S. No. | Criteria for questions                                                           | Percentage |
|--------|----------------------------------------------------------------------------------|------------|
| 1      | Fundamental knowledge (Level-1 & 2)                                              | 61         |
| 2      | Knowledge on application and analysis (Level-3 & 4)                              | 38.5       |
| 3      | *Critical thinking and ability to design (Level-5 & 6)<br>(*wherever applicable) | 0.5        |



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Code No. : 22515

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**  
**B.E. (I.T.) II Year II-Semester Main & Backlog Examinations, May-2017**

**Data Communication**

Time: 3 hours

Max. Marks: 70

*Note: Answer ALL questions in Part-A and any FIVE from Part-B*

**Part-A ( $10 \times 2 = 20$  Marks)**

1. Draw Data Communication Model and state the significance of each block.
2. For the bit stream 11001010 Sketch the wave form of any three digital signal encoding formats.
3. Define single bit errors and burst errors.
4. What are the 3 data transfer modes defined in HDLC?
5. Define Frequency division Multiplexing.
6. What are the characteristics of VCC?
7. List some basic functions performed at the MAC Layer.
8. State the importance of bridges in data communication networks.
9. What is the principle of frequency reuse technique in Cellular Network?
10. Define scatternet.

**Part-B ( $5 \times 10 = 50$  Marks)**

11. a) List the service layers of OSI Model and explain the functionalities. [6]  
b) Explain guided transmission media and its characteristics. [4]
12. a) Briefly discuss various error control mechanisms in data link layer. [6]  
b) Explain any one flow control technique in data link layer. [4]
13. a) Elaborate various methods of Multiplexing. [5]  
b) Differentiate circuit switching from packet switching with timing diagrams. [5]
14. a) Write about layer 2 and layer 3 switches. [5]  
b) Explain briefly about Gigabit Ethernet. [5]
15. a) Write about IEEE 802.11 architecture. [5]  
b) How medium access control is done in wireless LAN. [5]
16. a) Explain transmission impairments. [5]  
b) Explain the concept of sliding window protocol. [5]
17. Write short notes on any *two* of the following:  
a) ATM Cell header format. [5]  
b) LAN protocol architecture. [5]  
c) Bluetooth. [5]

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Hall Ticket Number:

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Code No. : 15603 S

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (IT: CBCS) V-Semester Supplementary Examinations, May/June-2019

Computer Networks

Time: 3 hours

Max. Marks: 70

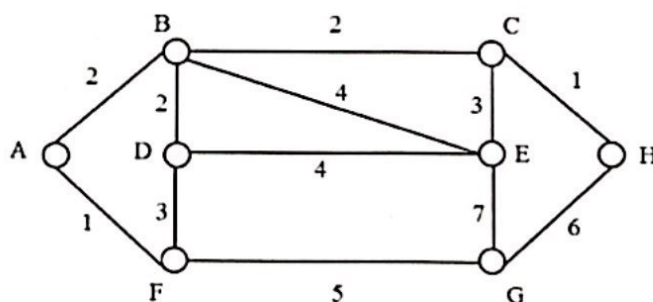
Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A ($10 \times 2 = 20$ Marks)

1. Differentiate between connection oriented and connection less services.
2. List out the transparency issues in RPC.
3. List any two differences between circuit switching and packet switching.
4. What is the purpose of link state advertisement?
5. Define the terms broadcast, unicast and multicast.
6. What is the use of checksum in UDP header?
7. Give the format of HTTP request message.
8. What is MIME and what does it stand for?
9. What are the advantages & disadvantages of public key encryption?
10. Briefly discuss the goals of network security.

Part-B ($5 \times 10 = 50$ Marks)

- 11.a) Describe briefly about TCP/IP Protocol Stack. [6]
- b) Define the purpose of Daemon Process and Internet Super Server with an example. [4]
- 12.a) Explain the functionality of shortest path routing algorithm in detail, compute the shortest path for the given graph below assuming A as the source and H as the destination. [6]



- b) For the given network if a congestion is encountered during data transmission discuss how do you overcome congestion using any one traffic shaping algorithm. [4]
- 13.a) With a neat illustration explain the different fields of IPV4 header format. [6]
- b) How connection is established and terminated in TCP using three way handshaking mechanism? Discuss in detail. [4]

Contd... 2

- 14.a) Explain how Iterative DNS function in comparison to Recursive DNS with a neat diagram. [7]
- b) If a user Bob wants to send a mail to his friend Alice, Bob composes a mail with required format and then sends it to Alice mail-id. Assuming the mail has reached to Alice inbox try to list out the back end supporting protocols involved to drop the mail to Alice's inbox. [3]
- 15.a) Explain in detail about the DES algorithm and mention the limitations of DES. [6]
- b) Discuss the importance of Digital Signature with an example. [4]
- 16.a) Briefly explain different elementary system calls used in sockets to perform network I/O operations. [5]
- b) Describe various parameters involved to achieve Quality of Service. [5]
17. Answer any *two* of the following:
- a) Enumerate on the various reasons that are present behind the transition from IPv4 to IPv6 [5]
- b) Discuss in detail about World Wide Web. [5]
- c) Explain RSA algorithm in detail with an example. [5]



Hall Ticket Number:

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Code No.: 22517 AS

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (I.T.) II Year II-Semester Advanced Supplementary Examinations, June/July-2017

Data Communication

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A ($10 \times 2 = 20$ Marks)

1. Define Data Communication and Channel Capacity.
2. Why layered concept is needed in Protocol Architecture?
3. List the different flow control and error control techniques.
4. What is meant by line configuration?
5. With a schematic explain how statistical TDM Efficiently utilize Bandwidth.
6. State the significance of ATM Adaptation Layer.
7. State various implementations of traditional Ethernet.
8. Write the significance of MAC layer.
9. List and define three transmission techniques for infrared LANs.
10. Explain IEEE 802.11 MAC Frame format.

Part-B ($5 \times 10 = 50$ Marks)

11. a) Explain about TCP/IP layers. [6]
b) Differentiate BPSK and QPSK. [4]
12. a) Explain CRC error detection technique in detail. [5]
b) Write in detail the frame structure of HDLC. [5]
13. a) Compare circuit switching and packet switching. [5]
b) Describe the ATM cell header format. [5]
14. a) Explain the Ethernet frame format. [5]
b) State the difference between Fast Ethernet and Gigabit Ethernet. [5]
15. a) Explain IEEE 802.11 Architecture and Services. [5]
b) Explain Bluetooth architecture. [5]
16. a) With neat diagram explain about Delta Modulation. [5]
b) Explain various types of ARQ'S. [5]
17. Write short notes on any *two* of the following:
a) xDSL [5]
b) CSMA/CD [5]
c) Principles of Cellular Networks. [5]

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