

LABORATORY MANUAL

17CSL57-COMPUTER NETWORK LAB

2019-20



DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING
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SYLLABUS

COMPUTER NETWORK LABORATORY
[As per Choice Based Credit System (CBCS) scheme]
(Effective from the academic year 2016 -2017)
SEMESTER – V

Subject Code-15CSL57, IA Marks 20, Exam Marks 80.

PART A

1. Implement three nodes point – to – point network with duplex links between them. Set the queue size, vary the bandwidth and find the number of packets dropped.
2. Implement transmission of ping messages/trace route over a network topology consisting of 6 nodes and find the number of packets dropped due to congestion.
3. Implement an Ethernet LAN using n nodes and set multiple traffic nodes and plot congestion window for different source / destination.
4. Implement simple ESS and with transmitting nodes in wire-less LAN by simulation and determine the performance with respect to transmission of packets.
5. Implement and study the performance of GSM on NS2/NS3 (Using MAC layer) or equivalent environment.
6. Implement and study the performance of CDMA on NS2/NS3 (Using stack called Call net) or equivalent environment.

PART B

Implement the following in Java:

7. Write a program for error detecting code using CRC-CCITT (16- bits).
8. Write a program to find the shortest path between vertices using bellman-ford algorithm.
9. Using TCP/IP sockets, write a client – server program to make the client send the file name and to make the server send back the contents of the requested file if present.
Implement the above program using as message queues or FIFOs as IPC channels.
10. Write a program on datagram socket for client/server to display the messages on client side, typed at the server side.
11. Write a program for simple RSA algorithm to encrypt and decrypt the data.
12. Write a program for congestion control using leaky bucket algorithm.

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Viva Questions

1. Explain the functions of OSI layers?
2. Differentiate between TCP/IP Layers and OSI Layers
3. Why header is required?
4. What is a Hub?
5. What is a Switch?
6. What is a router?
7. Differentiate between Hub, Switch and Router.
8. What is the use of adding header and trailer to frames?
9. What is encapsulation?
10. Why fragmentation requires?
11. What is MTU?
12. Which layer imposes MTU?
13. Differentiate between flow control and congestion control.
14. Differentiate between Point-to-Point Connection and End-to-End connections.
15. What are protocols running in different layers?
16. What is Protocol Stack?
17. Differentiate between TCP and UDP.
18. Differentiate between Connectionless and connection oriented connection.
19. Why frame sorting is required?
20. What is meant by subnet?
21. What is meant by Gateway?
22. What is an IP address?
23. What is MAC address?
24. Why IP address is required when we have MAC address?
25. What is meant by port?
26. What are ephemeral port number and well known port numbers?
27. What is a socket?
28. What are the parameters of socket()?
29. Describe accept(),connect(), send() and recv().
30. What are system calls? Mention few of them.
31. What is IPC? Name three techniques.
32. What is meant by file descriptor?
33. What is meant by traffic shaping?
34. How do you classify congestion control algorithms?
35. Differentiate between Leaky bucket and Token bucket.
36. How do you implement Leaky bucket?
37. How do you generate bursty traffic?
38. What is the polynomial used in CRC-CCITT?
39. What are the other error detection algorithms?
40. What is difference between CRC and Hamming code?
41. Why Hamming code is called 7,4 code?

42. What is odd parity and even parity?
43. What is meant by syndrome?
44. What is generator matrix?
45. What are Routing algorithms?
46. How do you classify routing algorithms? Give examples for each.
47. What are drawbacks in distance vector algorithm?
48. How routers update distances to each of its neighbor?
49. How do you overcome count to infinity problem?
50. What is cryptography?
51. How do you classify cryptographic algorithms?
52. What is public key?
53. What is private key?
54. What are key, ciphertext and plaintext?
55. What is simulation?
56. What are advantages of simulation?
57. Differentiate between Simulation and Emulation.
58. What is meant by router, bridge, switch and hub?
59. Differentiate between route, bridge, switch and hub.
60. What is ping and telnet?
61. What is FTP?
62. What is BER?
63. What is meant by congestion window?
64. What is BSS and ESS?
65. What is incoming throughput and outgoing throughput?
66. What is collision?
67. How do you generate multiple traffics across different sender-receiver pairs?
68. How do you setup Ethernet LAN?
69. What is meant by mobile host?
70. Name few other Network simulators
71. Differentiate between logical and physical address.
72. Which address gets affected if a system moves from one place to another place?
73. What is ICMP? What are uses of ICMP? Name few.
74. Which layer implements security for data?
75. What is flow control and error control?
76. What are the protocols used for error control in data link layer.
77. What is the difference between?
 - a. Transferring frames from source to destination.
 - b. Transferring packets from source to destination.
 - c. Transferring segments from source to destination.
78. Why the message is divided into segments?
79. How do we define End to End communication messages using 5 tuples?
80. What is Routing? What are the different routing protocols used in N/W layer?
81. What is meant by gateway?
82. What are the different N/W topologies?
83. What is the topology used in your lab?

84. What are the three address used to identify a system? Name them? What is their importance?
85. What is the need of MAC protocols? Give examples.
86. Difference between CSMA/CA and CSMA/CD.
87. Why CSMA/CD is not used in WLANS?
88. How CSMA/CA is adopted in WLANS?
89. Mention the different classes of IP address with range.
90. What is a loopback address?
91. What is congestion window? How is it useful.