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First Semester M.Tech. Degree Examination, January 2011
Computer Networks

Time: 3 hrs.

Max. Marks:100

Note: Answer any **FIVE** full questions.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- 1 a. Explain the OSI network architecture in detail. (10 Marks)
 b. What performance factors have to be considered while designing the networks? Explain. (05 Marks)
 c. Assume IMB file across a IGBPS network with a round trip time of 100 ms. Calculate the total transfer time and the effective throughput. (05 Marks)
- 2 a. Explain the datagrams and virtual circuit switching, with examples. (10 Marks)
 b. Given the extended LAN shown in Fig.Q.2(b), indicate which ports are not selected by the spanning tree algorithm, show the steps. (10 Marks)

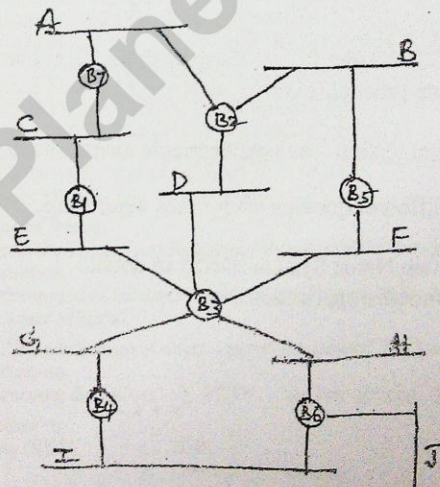


Fig.Q.2(b).

- 3 a. Explain spanning tree algorithm in detail. (10 Marks)
 b. Explain the packet format, functionalities of AAL 3/4 and AAL5 protocols of ATM. (10 Marks)
- 4 a. Explain the Open Shortest Path First algorithm (OSPF) in detail, with an example. (10 Marks)

For the network given below, show how the distance – vector routing algorithm works for the node A. Refer Fig.Q.4(b).

- i) Obtain the initial distances stored at each node (global view).
- ii) Initial routing table at node A.
- iii) Final routing table at node A.
- iv) Final distances stored at each node (global view).

(10 Marks)

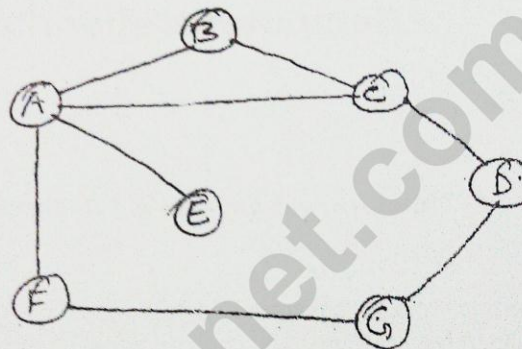


Fig.Q.4(b).

- 5 a. Explain how routing for mobile host takes place, with an example. (08 Marks)
 - b. Explain three – way handshake mechanism for a connection establishment and release, depicting different protocol schemes. (06 Marks)
 - c. What is meant by silly – window syndrome problem? Explain solution to this problem. (06 Marks)
- 6 a. Explain the TCP header format along with the significance of each field. (10 Marks)
 - b. Explain remote procedure call. (10 Marks)
- 7 a. Explain the congestion – avoidance mechanisms, illustrating, with a suitable graph. (10 Marks)
 - b. Explain the different queuing disciplines algorithms. (10 Marks)
- 8 a. Explain Domain Name System (DNS) in detail. (10 Marks)
 - b. Explain multimedia applications. (10 Marks)