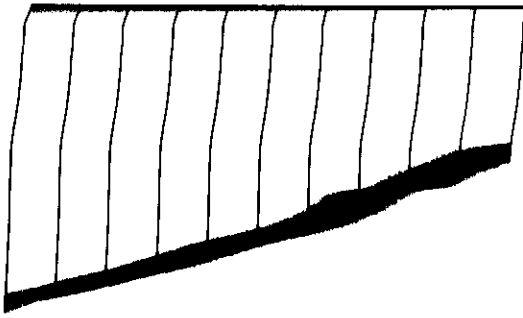


USN



## First Semester M.Tech. Degree Examination, Dec.2014/Jan.2015

### Advances in Computer Networks

Max. Marks: 100

Time: 3 hrs.

Note: 1. Answer any FIVE full questions.  
2. Missing data, if any, may be suitably assumed.

- 1 a. List and explain the requirements that influence the network design. (09 Marks)
- b. Consider a point-to-point link 2 KM in length. At what bandwidth would propagation delay (at a speed of  $2 \times 10^8$ /sec) equal transmit delay for 100 byte packets? (06 Marks)
- c. Explain how the network performance is measured. (05 Marks)
- 2 a. Explain how bridges use spanning tree algorithm to handle loops. Give an example. (10 Marks)
- b. Explain the main characteristics of following approaches to forward packets from a switch. (10 Marks)
  - i) Datagrams
  - ii) Virtual circuit switching.
- 3 a. For the network given in below Fig. Q3(a). Find the global distance vector tables, when :
  - i) Each node knows only distances to its immediate neighbors
  - ii) Each node has reported the information it had in the preceding step to its immediate neighbours. i) step ii) happens a second time. (09 Marks)

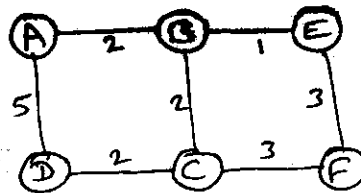


Fig. Q3(a)

- b. What are the general characteristics of mobile IP technology? (05 Marks)
- c. What are the weaknesses of the mobile IP scheme? (06 Marks)
- 4 a. Briefly explain about different "TCP congestion control" mechanisms. (10 Marks)
- b. Explain about the following queuing disciplines : i) FIFO ii) Fair queuing. (10 Marks)
- 5 a. What are the different characteristics of HTTP? (07 Marks)
- b. Explain the following : i) DNS ii) SMTP. (13 Marks)
- 6 a. With neat time line diagram. Explain the four different scenarios for the stop-and-wait algorithm. (10 Marks)
- b. Briefly explain about the BGP characteristics. (10 Marks)
- 7 a. Briefly explain about the congestion avoidance mechanisms. (10 Marks)
- b. With a neat packet header format, explain the working of IPV6. (10 Marks)
- 8 a. Explain three-way handshake algorithm used by TCP to establish and terminate connection. (08 Marks)

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.