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**B.E / B.Tech(Full Time)DEGREE ARREAR END SEMESTER EXAMINATIONS, APRIL /MAY 2014**

**COMPUTER SCIENCE AND ENGINEERING**

Semester v

**CS9305 – Data Communication and Computer Networks**

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

**PART-A (10 x 2 = 20 Marks)**

1. Write about the classification of transmission media.
2. Identify and describe the four components of delay in a communication network.
3. List two advantage of layering in computer networks.
4. What is the special address 127.x.x.x used for?
5. What is the difference between switch and router?
6. How do routers determine that an incoming IP packet is to be multicast?
7. What is the role of packet life time?
8. What is the information contained in a DNS resource record?
9. What is the encoding used by MIME? What problem does it solve?
10. How QoS is provided for real time application and how it is achieved specific to audio?

**Part – B ( 5 x 16 = 80 marks)**

11. i) Draw and explain the TCP state transition diagram (8)  
ii) Explain the working of DHCP protocol. (8)
12. a) Discuss with neat diagram the techniques used to transmit analog data on digital signal (16)  

**OR**

b) Discuss the delta modulation technique used to send analog data on digital channels (16)
13. a) i) Suppose the following sequence of bits arrive over a link  
011010111110101001111111011001111110  
Show the resulting frame after any stuffed bits have been removed. Indicate any errors that might have been introduced into the frame. (8)  
ii) Show by example that selective repeat technique requires sequence number of  $2n$  for a window size of  $n$ . (8)  

**OR**

b) i) What conditions would have to hold for a corrupted frame to circulate forever on a token ring network without a monitor? How does the monitor fix this problem? (10)  
ii) Explain the working of ARP & RARP (6)

14. a) Explain the working of Distance vector routing. For the network given in the figure 14.1, show how the algorithm builds the routing table for node D. (16)

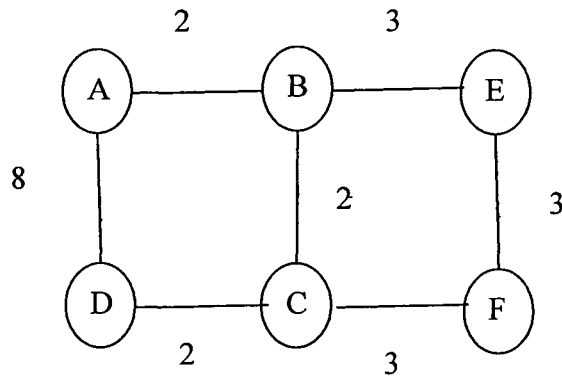


Figure 14.1

OR

- b) Suppose a router has three input flows and one output. It receives the packets listed in Table 14.1 all at about the same time, in the order listed, during a period in which the output port is busy but all queues are otherwise empty. Give the order in which the output packets are transmitted, assuming:
- Fair queuing
  - Weighted fair queuing, with flow 2 having weight 2, and the other two with weight 1.

Packet	Size	Flow
1	100	1
2	150	1
3	100	1
4	200	2
5	190	2
6	200	2
7	150	3
8	50	3

Table 14.1

15. a) i) Explain with examples the various DNS record formats (8)

- ii) Describe the working of SMTP protocol (8)

OR

- b) i) Discuss about HTTP protocol (8)

- ii) Suppose that a HTML file indexes three small objects on the same server. Neglecting transmission times, how much time elapses with (a) non-persistent HTTP with TCP connections (b) non-persistent HTTP with parallel connections (C) persistent HTTP with pipelining? (8)